Hocker Flat Rehabilitation Site

Trinity River Mile 78 to 79.1

Environmental Assessment/
Draft Environmental Impact Report

Volume 1
Draft FONSI/Executive Summary

August 2004

State Clearinghouse
SCH#2004052076

Prepared for:
Trinity River Restoration Program

Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

Environmental Assessment/Draft Environmental Impact Report

Volume 1

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SCH#2004052076

Project Applicant and Federal Lead Agency for NEPA
Trinity River Restoration Program
U. S. Department of the Interior – Bureau of Reclamation
P. O. Box 1300
1313 Main Street
Weaverville, CA 96093

Federal Cooperating Agency for NEPA
U. S. Department of Interior – Bureau of Land Management
Redding Field Office
355 Hemsted Lane
Redding, CA 96001

California Lead Agency for CEQA
Department of Water Resources
2440 Main Street
Red Bluff, CA 96080

Applicant's Consultant:
North State Resources, Inc.
5000 Bechelli Lane, Suite 203
Redding, CA 96002

Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

Environmental Assessment/Draft Environmental Impact Report

Due to the magnitude and complexity of this Environmental Assessment/Draft Environmental Impact Report for the Hocker Flat Rehabilitation Site, this document is provided in three (3) volumes. The contents of each volume is summarized below.

Volume 1

Agency Cover Letter

Draft FONSI

Executive Summary

Volume 2

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State of California

The Resources Agency

Memorandum

Date: August 23, 2004

To: Scott Morgan
State Clearinghouse
1400 Tenth Street
Post Office Box 3044
Sacramento, California 95812-3044

From: **Department of Water Resources**

Subject: Notice of Completion and Draft EA/EIR for the Hocker Flat Rehabilitation Site

Enclosed for distribution to reviewing agencies is the Notice of Completion (NOC) and Environmental Assessment/Draft Environmental Impact Report (EA/DEIR) for the Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1. The review period for the EA/DEIR is from August 23, 2004 through October 6, 2004.

Thank you for your assistance, and if you have any questions regarding the NOC and EA/DEIR please contact Aric Lester at (530) 529-7365.

Dwight P. Russell

Dwight P. Russell, Chief
Northern District

Enclosure

Form A

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, PO Box 3044, Sacramento, CA 95812-3044 916/445-0613

SCH # 2004052076

Project Title: Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

Lead Agency: Department of Water Resources
Contact Person: Aric Lester
Mailing Address: 2440 Main Street
Phone: 530-529-7365
City: Red Bluff
Zip: 96080
County: Tehama

Project Location:

County: Trinity
City/Nearest Community: Junction City
Cross Streets: SR 299/Dutch Creek Road
Zip Code: 96094
Total Acres: 151
Assessor's Parcel No.
Section: 1,12
Twp. 33N
Range: 11W
Base: MDB&M
Within 2 Miles: State Hwy #: SR 299
Waterways: Trinity River
Airports:
Railways:
Schools: Junction City Elementary School

Document Type:

CEQA:
- ☐ NOP
- ☐ Early Cons
- ☐ Neg Dec
- ☒ Draft EIR
- ☐ Supplement/Subsequent EIR (Prior SCH No.)
- ☐ Other

NEPA:
- ☐ NOI
- ☒ EA
- ☐ Draft EIS
- ☐ FONSI

Other:
- ☒ Joint Document
- ☐ Final Document
- ☐ Other

Local Action Type:

- ☐ General Plan Update
- ☐ General Plan Amendment
- ☐ General Plan Element
- ☐ Community Plan
- ☐ Specific Plan
- ☐ Master Plan
- ☐ Planned Unit Development
- ☐ Site Plan
- ☐ Rezone
- ☐ Prezone
- ☒ Use Permit
- ☐ Land Division (Subdivision, etc.)
- ☐ Annexation
- ☐ Redevelopment
- ☐ Coastal Permit
- ☐ Other

Development Type:

- ☐ Residential: *Units* *Acres*
- ☐ Office: *Sq.ft.* *Acres* *Employees*
- ☐ Commercial: *Sq.ft.* *Acres* *Employees*
- ☐ Industrial: *Sq.ft.* *Acres* *Employees*
- ☐ Educational
- ☐ Recreational
- ☐ Water Facilities: *Type* *MGD*
- ☐ Transportation: *Type*
- ☐ Mining: *Mineral*
- ☐ Power: *Type* *Watts*
- ☐ Waste Treatment: *Type*
- ☐ Hazardous Waste: *Type*
- ☒ Other: Channel Rehabilitation Project

Funding (approx.): Federal $ 500,000.00 State $ Total $ 500,000.00

Project Issues Discussed in Document:

- ☒ Aesthetic/Visual
- ☐ Agricultural Land
- ☒ Air Quality
- ☒ Archeological/Historical
- ☐ Coastal Zone
- ☐ Drainage/Absorption
- ☒ Economic/Jobs
- ☐ Fiscal
- ☒ Flood Plain/Flooding
- ☐ Forest Land/Fire Hazard
- ☒ Geologic/Seismic
- ☒ Minerals
- ☒ Noise
- ☒ Population/Housing Balance
- ☒ Public Services/Facilities
- ☒ Recreation/Parks
- ☐ Schools/Universities
- ☐ Septic Systems
- ☐ Sewer Capacity
- ☒ Soil Erosion/Compaction/Grading
- ☒ Solid Waste
- ☒ Toxic/Hazardous
- ☒ Traffic/Circulation
- ☒ Vegetation
- ☒ Water Quality
- ☒ Water Supply/Groundwater
- ☒ Wetland/Riparian
- ☒ Wildlife
- ☐ Growth Inducing
- ☒ Landuse
- ☒ Cumulative Effects
- ☐ Other

Present Land Use/Zoning/General Plan Designation:

Open Space, Rural Residential, Flood Hazard, Scenic Conservation

Project Description:

See Attachment A

January 2004

Reviewing Agencies Checklist

Form A, continued

KEY
S = Document sent by lead agency
X = Document sent by SCH
✓ = Suggested distribution

✓ **Resources Agency**
_____ Boating & Waterways
_____ Coastal Commission
_____ Coastal Conservancy
_____ Colorado River Board
✓ Conservation
✓ Fish & Game
✓ Forestry & Fire Protection
✓ Office of Historic Preservation
✓ Parks & Recreation
✓ Reclamation Board
_____ S.F. Bay Conservation & Development Commission
✓ Water Resources (DWR)

Business, Transportation & Housing
_____ Aeronautics
_____ California Highway Patrol
✓ CALTRANS District # 2
_____ Department of Transportation Planning (headquarters)
_____ Housing & Community Development

_____ **Food & Agriculture**

Health & Welfare
_____ Health Services _____

State & Consumer Services
_____ General Services
_____ OLA (Schools)

Environmental Protection Agency
_____ Air Resources Board
_____ California Waste Management Board
_____ SWRCB: Clean Water Grants
_____ SWRCB: Delta Unit
_____ SWRCB: Water Quality
_____ SWRCB: Water Rights
✓ Regional WQCB # 1 (North Coast Region)

Youth & Adult Corrections
_____ Corrections

Independent Commissions & Offices
_____ Energy Commission
✓ Native American Heritage Commission
_____ Public Utilities Commission
_____ Santa Monica Mountains Conservancy
✓ State Lands Commission
_____ Tahoe Regional Planning Agency

_____ Other _____

Public Review Period (to be filled in by lead agency)

Starting Date August 23, 2004 Ending Date October 6, 2004

Signature Dwight P. Russell Date 8/17/04

Lead Agency (Complete if applicable):
Consulting Firm: North State Resources, Inc.
Address: 5000 Bechelli Lane, Suite 203
City/State/Zip: Redding, CA 96002
Contact: Paul Uncapher
Phone: (530) 222-5347, x 25

Applicant: Department of Water Resources
Address: 2440 Main Street
City/State/Zip: Red Bluff, CA 96080
Phone: (530) 529-7365

For SCH Use Only:
Date Received at SCH _____
Date Review Starts _____
Date to Agencies _____
Date to SCH _____
Clearance Date _____
Notes:

Attachment A
Notice of Completion, SCH # 2004052076

Project Description

Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

In joint action with Reclamation and BLM, DWR is evaluating a demonstration river rehabilitation project for the reach of the Trinity River locally known as Hocker Flat. As a demonstration, this project represents the initial efforts to implement the mechanical channel rehabilitation component described in the Trinity River Restoration Program 2000 ROD.

Within the environmental study limits (ESL) of the project, 16 discrete activity areas have been identified (Figure 2). For identification purposes, these areas are labeled as R (River) or U (upslope riparian), based on the type of restoration proposed. Within these activity areas, a variety of discrete actions may be conducted that are intended to enhance or reestablish the Trinity River's alternate point bar morphology and channel complexity, and to subsequently provide an increase in useable fish habitat. In addition, these actions are intended to enhance the riparian and terrestrial habitat adjacent to the Trinity River. The following actions may be conducted in one or more activity areas as part of this project.

- Removal of Vegetation
- Earthwork in the Trinity River Floodplain
- Material Transportation
- Material Disposal
- Revegetation

Draft FONSI

BUREAU OF RECLAMATION

MID-PACIFIC REGION
NORTHERN CALIFORNIA AREA OFFICE
TRINITY RIVER RESTORATION PROGRAM

WEAVERVILLE, CALIFORNIA

DRAFT – FINDING OF NO SIGNIFICANT IMPACT – DRAFT

In accordance with the National Environmental Policy Act of 1969 (NEPA), as amended, and with the Council on Environmental Quality's Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500-1508), the Trinity River Restoration Program (TRRP), Office of the Bureau of Reclamation (Reclamation) has found that the Preferred Alternative supported by the Hocker Flat Rehabilitation Site Environmental Assessment/Draft Environmental Impact Report (EA/DEIR)) will result in no significant impacts on the human environment. Preparation of an Environmental Impact Statement to further analyze possible impacts is not required pursuant to Section 102(2) of the National Environmental Policy Act of 1969.

Reference: **Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1**

Environmental review by:

F. Brandt Gutermuth _____ _____ Date

Environmental Specialist, Trinity River Restoration Program

Recommended by:

Ed Solbos _____ _____ Date

Implementation Branch Chief, Trinity River Restoration Program

Approved by:

Douglas P. Schleusner _____ _____ Date

Executive Director, Trinity River Restoration Program FONSI No. TR0104

FINDING OF NO SIGNIFICANT IMPACT

Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

Lead Agency:

U.S. Bureau of Reclamation
Trinity River Restoration Program
P.O. Box 1300
1313 South Main Street
Weaverville, CA 96093
Phone: 530-623-1800
Fax: 530-623-5944
Email: DSCHLEUSNER@mp.usbr.gov

BACKGROUND

The 2000 Record of Decision (ROD) for the Trinity River Mainstem Fishery Restoration Final Environmental Impact Statement/Environmental Impact Report (FEIS/EIR) directed the Department of the Interior (DOI) agencies to implement the Preferred Alternative identified in the ROD for the FEIS/EIR to restore the Trinity River's anadromous fishery. The ROD directed Reclamation, through the Trinity River Restoration Program (TRRP), to restore the Trinity River fishery by implementing a combination of higher releases from Lewiston Dam (up to 11,000 cubic feet per second [cfs]), floodplain infrastructure improvements, channel rehabilitation projects, fine and coarse sediment management, watershed restoration, and an Adaptive Environmental Assessment and Management Program (AEAM). The Hocker Flat Rehabilitation Project (Project) is part of the Channel Rehabilitation component of the ROD and is designed to increase shallow, low-velocity areas for rearing salmonid fry over a wide range of flows. This Project would selectively remove fossilized river edge berms (berms that have been anchored by extensive woody vegetation root systems and consolidated sand deposits); provide revegetation and conditions for reestablishment and survival of native riparian vegetation; and recreate alternate point bars and complex fish habitat similar in form to those that existed prior to construction of the Lewiston Dam, although smaller in scale.

The TRRP has developed a short-term strategy that includes implementation of a demonstration rehabilitation project at the Hocker Flat site. The Hocker Flat site was selected because of willing landowner support and because the project is located far enough downstream from the dam that there is the highest likelihood that changes resulting from proposed rehabilitation activities would be maintained by existing hydraulic and hydrologic processes on a recurring basis.

Additional need for the Proposed Action results from:

- the directive of the United States District Court of the Eastern District of California, in *Westlands Water District, et al., v. U.S. Department of the Interior, et al.* (Civil Action CIV – F – 00-7124-OWW/DLB) (E.D. Cal.) requiring that "[a]ll non-flow measures prescribed by the ROD shall proceed" while the Department of the Interior prepares a supplemental EIS (SEIS) to remedy the defects in the original final EIS prepared for the December 29, 2000, ROD. The United States Court of Appeals for the Ninth Circuit upheld this directive, and in fact reversed the lower court's ruling that an SEIS is required.
- the expectation that the AEAM Program will incorporate the experience provided through the planning, design, and implementation of the Proposed Action at Hocker Flat into future restoration and rehabilitation efforts proposed by the TRRP.

For the Hocker Flat Rehabilitation Site, three alternatives were considered: the Proposed Action, Alternative 1, and the No-Action Alternative. Under NEPA, no significant impacts were determined under any of these alternatives. Details concerning the Proposed Action, Alternative 1, and the No-Action Alternative and alternatives considered but not selected for evaluation are included within the EA/DEIR. The Proposed Action and its impacts are summarized below.

PROPOSED ACTION

The Hocker Flat Project was designed to provide suitable rearing habitat for anadromous salmonids and to reestablish the geomorphic processes typical of an alluvial river. By removing the on-site riparian berms and lowering the floodplain elevation in certain locations, the Proposed Action would allow some degree of channel migration and increase the likelihood of an inundated floodplain in association with 1.5-year recurrence interval flood flows (approximately 6,000 cfs at Hocker Flat).

The Proposed Action includes six rehabilitation activities that may be common to one or more rehabilitation areas within the riverine and upland areas delineated within the Hocker Flat Environmental Study Limit (ESL). Defined rehabilitation activities are: A–Vegetation removal, B–Riparian berm removal, C–Trinity River floodplain construction, D–Material transportation, E–Material stockpile and disposal, F–Revegetation, and G–Monitoring.

Activities A–C would occur within all riverine areas included in the Proposed Action. Because these riverine areas extend for more than 1 mile along the Trinity River, the type and degree of activity would differ for each area. Under the Proposed Action, more than 19 acres of riverine area would be affected and more than 80,000 cubic yards would be excavated. Activities D–F would occur to some extent in all areas included in the Proposed Action, both riverine and upland. The location and extent of material stockpiled, transported, and placed would differ for each area. The revegetation plan developed for the Proposed Action would be specific to each rehabilitation area and would include elements to ensure success over time.

More detailed project descriptions are included in Chapter 2 of the EA/DEIR for the Project.

FINDINGS

The Proposed Action and Alternatives were evaluated in the EA/DEIR with respect to their impacts in the following issue areas: land use; geomorphic environment; water resources; water quality; fishery resources; vegetation, wildlife, and wetlands; recreation; socioeconomics, population, and housing; tribal trust; cultural resources; air quality; environmental justice; aesthetics; hazardous waste and materials; noise; pubic services and utilities/energy; and transportation /traffic circulation. Based upon the following summary of the implementation effects of the Proposed Action (as discussed fully in the EA/DEIR), accomplishment of the Proposed Action would result in no significant impacts to the quality of the human environment. Project mitigation measures are detailed in the EA/DEIR.

Land Use

The Hocker Flat site is located within the Junction City Community Planning Area. Land use impacts resulting from the Proposed Action would be consistent with Trinity County's development standards for lands within the Junction City community and lying within the Flood Hazard Overlay zoning district.

Geology, Fluvial Geomorphology, and Soils

Construction activities and disturbance would increase the potential for short-term wind and water erosion; however, sediment control measures would be implemented to ensure that construction impacts to the river are minimal. Implementation of the Proposed Action is consistent with the 10 Trinity River healthy river attributes which are supported for implementation by the TRRP.

Water Resources

Implementation of the Proposed Action would decrease the elevation of the Trinity River 100-year flood at Hocker Flat as a result of project activities, including excavation on the floodplain. The project is expected to have minimal, if any, effects on groundwater elevations or groundwater quality.

Water Quality

Project construction would temporarily increase turbidity and total suspended solids in the water column. It could also result in a spill of hazardous materials (e.g.., grease, solvents) into the Trinity River. Construction activities will be staged to minimize potential water quality effects, and appropriate measures to minimize impacts to water quality will be implemented. In addition, sediments from newly constructed floodplains that are visually identified as containing the highest concentrations of mercury (well below hazardous concentrations) will be removed from the floodplain.

Fisheries Resources

To comply with Section 7 of the Endangered Species Act (ESA) for anadromous fishes, Reclamation initiated informal consultation with NOAA Fisheries concerning project effects to

the federally and state-listed (threatened) Southern Oregon/Northern California Coasts (SONCC) evolutionarily significant unit (ESU) of coho salmon. NOAA Fisheries affirmed that certain non-flow measures, including the mechanical rehabilitation projects identified in the ROD, were considered in the National Marine Fisheries Service's (NMFS') 2000 Biological Opinion issued in response to the Trinity River Mainstem Fishery Restoration Program FEIS. In that Biological Opinion, NMFS identified the mechanical rehabilitation projects as reasonable and prudent measures to minimize project effects on SONCC ESU coho salmon. Consequently, the Proposed Action, implementation of a Mechanical Channel Rehabilitation demonstration project at Hocker Flat, is covered by the NMFS' 2000 Biological Opinion and no additional consultation was required. Reclamation will continue to coordinate with NOAA Fisheries as it implements the Terms and Conditions of the 2000 Biological Opinion.

Any temporary construction impacts on fish rearing habitat are expected to be offset by permanent beneficial changes to physical rearing habitat associated with implementing the Proposed Action. Improved river access to the floodplain during elevated spring time flows is expected to increase the availability of slow, shallow water habitat preferred by salmonid fry. Ultimately, collective improvements in fluvial channel dynamics contributed by the Proposed Action and by planned future bank rehabilitation projects throughout the upper Trinity River would improve rearing habitat diversity for all anadromous salmonids.

Vegetation, Wildlife, and Wetlands

Construction activities associated with the Proposed Action would result in a temporary loss of riparian vegetation, but this vegetation would be more than replaced as floodplain function and values are restored, and the river is reconnected with its floodplain. Planned revegetation of alluvial features (i.e., floodplains) would speed reestablishment of riparian vegetation, and long-term changes in river inundation periods would increase both seasonal and perennial riparian habitats.

Informal consultation with the U.S. Fish and Wildlife Service (USFWS) concerning effects to ESA listed terrestrial species, such as the northern spotted owl, was conducted by Reclamation. Habitat surveys for this species were conducted in the general vicinity of Hocker Flat. No suitable habitat for nesting, roosting, or foraging northern spotted owls was identified. Consequently, Reclamation, with concurrence from USFWS, determined that a biological assessment was not required since the Proposed Action would not adversely affect northern spotted owls.

Recreation

Construction and implementation of the Proposed Action would not permanently affect the scenic or recreational values of the Trinity River. There would be a long-term benefit to the form and function of the Trinity River, thereby enhancing the Outstanding Recreational Values of its Wild and Scenic River status, including its anadromous fishery.

Socioeconomics, Population, and Housing

The Proposed Action could directly generate short-term income growth through the payment of wages and salaries, but would result in little increased long-term economic activity. A short-term increase in demand for housing in the general vicinity (i.e., Weaverville) could also occur as construction workers would seek lodging during the construction period.

Tribal Trust

The need to restore and maintain the natural production of anadromous fish in the Trinity River mainstem originates partly from the federal government's trust responsibility to protect fishery resources of the region's Indian tribes. Construction-related impacts to Tribal Trust resources are expected to be short-term and to be outweighed by long-term increased numbers of anadromous fishes and rejuvenation of other trust assets, which are an expected beneficial by-product of the improved riverine health that would result from project implementation.

Cultural Resources

No cultural resources, other than dredger tailings, were identified within the Area of Potential Effect (APE) defined for the project; any unrecorded cultural resources are assumed to have been previously inundated, destroyed, or substantially damaged. If cultural materials or human remains are encountered during work for the project, the impacts would be negligible because construction would be halted and the proper agency contacted.

Air Quality

Construction associated with the Proposed Action requires the use of equipment that would temporarily contribute to air pollution in the Trinity River basin in the form of ozone precursors and particulate matter (PM_{10}). Reclamation will include provisions in construction contract documents that would minimize construction-related dust and PM_{10} emissions.

Environmental Justice

There is no evidence to suggest that the Proposed Action would cause a disproportionately high, adverse human health or environmental effect on minority and low-income populations, compared to other residents in the project corridor[s] and other Trinity County residents.

Aesthetics

Implementation of the Proposed Action would complement the visual resources of the Hocker Flat area. Design of the Proposed Action incorporates diversity of the landscape and vegetation types into the character of the rehabilitated riverine and upland areas. Excavated material would be placed in a manner that blends into the contours of existing tailings piles while not changing the nominal heights of the piles. Retention of existing topographic features would lessen the degree of visual impact and improve the aesthetic quality of this Trinity River reach, while maintaining the character of surrounding land uses.

Hazardous Materials

Implementation of the Proposed Action would potentially expose hazardous materials that could pose a pubic hazard. However, construction specifications will ensure that the contractor follows Best Management Practices to contain hazardous materials from release into the environment (e.g., oils, gasoline, etc.).

Noise

Construction activities would be scheduled between 7:00 a.m. and 7:00 p.m. Monday through Saturday. During working hours, the contractor would operate all equipment to minimize noise impacts to nearby sensitive receptors (residences, etc.).

Public Services and Utilities/Energy

Construction work and temporary road closures would be staged in a manner to allow for access by emergency service providers. If closures are required, they would occur during non-peak hours.

Transportation/Traffic Circulation

The use of heavy construction equipment to transport material to and from the project work site could affect local road conditions by increasing the rate of road wear. Pre- and post-construction surveys would be performed to determine existing roadway conditions and whether any damage has occurred during construction. In addition, the contractor would implement a traffic control plan to protect the public during construction.

SUMMARY

The Proposed Action, with all mitigation measures in place, would contribute to the long-term environmental quality and sustainability of the Trinity River ecosystem.

Executive Summary

Executive Summary

Introduction

This Environmental Assessment/Draft Environmental Impact Report (EA/DEIR) for the Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1 addresses the environmental issues, alternatives, and impacts associated with the modification of the bed and bank of the Trinity River near Hocker Flat (proposed project). The project is required for the restoration of Trinity River Mainstem Fisheries and is specifically designed for the benefit of anadromous fish and their habitat via development of properly functioning and diverse floodplain and main river channel habitat. Hocker Flat is an alluvial feature of the Trinity River immediately downstream of Canyon Creek and the community of Junction City, Trinity County, California.

The U.S. Bureau of Reclamation (Reclamation) and the California Department of Water Resources (DWR) prepared this EA/DEIR in cooperation with the U.S. Bureau of Land Management (BLM). This document meets the legal requirements of the National Environmental Policy Act (NEPA) (42 United States Code [USC], Section 4321 et seq.) and the California Environmental Quality Act (CEQA) (California Public Resources Code, Section 21000 et seq.). Reclamation will be responsible for the construction of the proposed project and will function as the federal lead agency for NEPA compliance and federal Endangered Species Act requirements. DWR will function as the state lead agency for CEQA compliance. Due to their extensive experience and land holdings along the Trinity River below Lewiston, the BLM will perform duties of a NEPA Cooperating Agency for the project. BLM will assist in preparation of the EA/DEIR and, as the manager of the Wild and Scenic Corridor established for the designated reach of the Trinity River, and will analyze potential impacts to the Outstandingly Remarkable Values (ORV's) for which the Trinity River was designated under the federal Wild and Scenic River Act.

The primary cooperating (NEPA), responsible and trustee (California Environmental Quality Act [CEQA]) agencies include:

- National Marine Fisheries Service (NOAA Fisheries)
- U.S. Army Corps of Engineers (Corps)
- U.S. Environmental Protection Agency (EPA)
- U.S. Fish and Wildlife Service (USFWS)
- Bureau of Land Management (BLM)
- California Department of Fish and Game (CDFG)
- California Regional Water Quality Control Board, North Coast Region (CRWQCB)
- California State Lands Commission (CSLC)

The proposed project is one part of a larger effort to restore the anadromous fishery of the Trinity River as described in the Secretary of the Interior's 2000 Trinity River Record of Decision (ROD). The ROD was subjected to litigation,

and eventually resulted in a Court-mandated review (pending completion of a supplemental EIS/EIR). On July 13, 2004, the United States Court of Appeals for the Ninth Circuit issued an opinion that reversed the district court ruling upheld the ROD, including the proposed flow schedule and non-flow measures, including the channel rehabilitation projects. The proposed project is considered a demonstration project with respect to both the scientific nature of the activities and the planning, design and implementation efforts associated with rehabilitation of the Trinity River. Initially, the Hocker Flat site was selected to ensure that the project had "independent utility" and was not dependent on future ROD flows to maintain the rehabilitation site over time. The location of Hocker Flat, immediately below Canyon Creek increases the ability of the Trinity River to maintain the alluvial processes enhanced through the proposed project.

Project History and Background

In 1981, the Secretary of the Interior directed the United States Fish and Wildlife Service (USFWS) to initiate a 12-year flow study to determine the effectiveness of flow restoration and other mitigation measures for impacts of the Trinity River Diversion (TRD). In 1984, Congress enacted the Trinity River Fish and Wildlife Program to promote and support management and fishery restoration actions in the basin. In 1994, an EIS/EIR was initiated to evaluate a range of alternatives to restore the natural production of anadromous fish on the mainstem Trinity River below Lewiston Dam. The resulting Trinity River Mainstem Fishery Restoration FEIS/EIR (USFWS et al. 2000) and associated ROD (DOI 2000) directed the U.S. Department of the Interior (DOI) agencies to implement the Preferred Alternative identified and set forth prescribed Trinity River flows for five different water year types: extremely wet (815,200 acre feet annually [afa]; wet (701,000 afa); normal (646,900 afa); dry (452,600 afa); and critically dry (368,600 afa). As previously described, the FEIS/EIR also identified 44 channel rehabilitation projects that would be implemented to restore the alluvial elements of the Trinity River, thereby improving the availability and suitability of habitat for anadromous and resident fish species.

In interim orders issued in April and September 2001, and in a Memorandum Decision issued on December 9, 2002, Judge Oliver W. Wanger of the United States District Court for the Eastern District of California enjoined additional flows beyond those necessary under the ROD for a critically dry year pending completion of a Supplemental Environmental Impact Statement (SEIS) for the December 2000 "Flow Decision." The Memorandum Decision also set forth a flow regime that was to remain in effect while the process of completing an SEIS was underway and stated that "[a]ll non-flow measures prescribed by the ROD shall proceed."

On February 24, 2003, Judge Wanger heard argument in connection with his final judgment in the case. At the end of this hearing, he extended the deadline for completing the SEIS from April 10, 2003, to July 9, 2004. In all other respects, however, his reasoning tracked the December 9, 2002, Memorandum Decision. For example, the final judgment states that "nothing in this judgment is intended to delay or to affect implementation of any other fishery restoration measure identified in the ROD." Flows in the interim period were restricted to a dry year allocation of 452,600 afa for controlled flows even in normal, wet, and extremely wet years.

In response to the opinion rendered by Judge Wanger, the United States Court of Appeals for the Ninth Circuit issued an opinion on July 13, 2004 that reversed the overturned earlier rulings made by the District Court. This opinion reversed the District Court's finding that the scope of the EIS and the range of alternatives considered therein were unreasonable and reversed the District Court's injunctive orders to supplement the EIS to address the issues raised on

appeal. The opinion also affirmed the District Court's ruling that two of the mitigation measures insisted upon by the USFWS and NOAA Fisheries in their biological opinions exceeded the statutory authority for such opinions. Lastly, the court rejected the three claims raised by Plaintiffs on cross-appeal and affirmed the remainder of the judgment.

In conclusion, the court reversed the district court's holding that the EIS failed to consider a reasonable range of alternatives, and that a supplemental EIS (SEIS) was required. Based on these conclusions, the court disposed of all of the issues ordered to be considered in the SEIS, stated that nothing remains to prevent the full implementation of the ROD, including its complete flow plan for the Trinity River.

Final resolution of this litigation is pending as this EA/DEIR is submitted for public review and comment. Based on information available, it is anticipated that the SEIS will not be completed, although the final outcome is dependent on the completion of the proceeding. The final EA/EIR for this project is expected to be completed in November 2004 and will describe the dispensation of this case.

Based on direction provided in the July 2004 opinion, the flows authorized by the 2000 ROD are deemed to constitute the "existing [hydrological] environment" for CEQA purposes, and are considered the basis for the environmental analysis of the proposed project under both NEPA and CEQA.

Purpose and Need for the Project

The purpose of the proposed action is to implement a discrete suite of channel rehabilitation and riparian rehabilitation measures to provide needed juvenile fish habitat on the mainstem Trinity River in the general vicinity of Hocker Flat. The judicial direction to date authorizes and directs the TRRP to implement non-flow measures described in the ROD that will result in the recovery of the Trinity River and its fish and wildlife populations. Reclamation, through the TRRP, recognizes that, the success of non-flow restoration measures depends on existing hydrological conditions and physical processes to some extent. This dependency will be reevaluated prior to issuance of an EA/FEIR to assure consistency with judicial decisions. The ROD identified 47 discrete mechanical channel rehabilitation sites on the mainstem Trinity River between Lewiston and Helena, California. Recognizing the importance of adaptive management, the TRRP selected the Hocker Flat location to design and implement a self-maintaining rehabilitation project. The proposed project provides the opportunity to:

- increase the diversity and area of habitat for salmonids, particularly habitat suitable for rearing;
- increase rearing habitat for juvenile salmonid, including coho, chinook and steelhead;
- increase the structural and biological complexity of habitat for various species of wildlife associated with riparian habitats;
- increase hydraulic and fluvial geomorphic diversity and complexity;
- provide a pilot project to evaluate the fate and transport of mercury related to rehabilitation and restoration projects;
- measure/demonstrate the ecological response to changes in flow regimes, morphological features, and aquatic, riparian and upland habitats; and
- provide a self-maintaining project independent of any future TRD flows.

The need for the proposed action results from:

- requirements in the ROD (U.S. Department of the Interior 2000) to restore the Trinity River fishery through a combination of higher releases from Lewiston Dam (up to 11,000 cfs), floodplain infrastructure improvements, channel rehabilitation projects, fine and coarse sediment management, watershed restoration, and an AEAM Program.
- the directive of the United States District Court of the Eastern District of California, in *Westlands Water District, et al., v. U.S. Department of the Interior, et al.* (Civil Action CIV–F–00–7124–OWW/DLB) (E.D. Cal.) requiring that "[a]ll non-flow measures prescribed by the ROD shall proceed" while the Department of the Interior prepares a supplemental EIS to remedy the defects in the original final EIS prepared for the December 29, 2000, ROD.
- the expectation that the AEAM Program will incorporate the experience provided through the planning, design, and implementation of the Proposed Action at Hocker Flat into future restoration and rehabilitation efforts proposed by the TRRP.

The approach and methods incorporated into the Hocker Flat location address many geomorphic and biologic attributes that can be incorporated into the AEAM Program for future restoration and rehabilitation efforts.

1.7.2 Goals and Objectives of the Proposed Action

Goals and Objectives of the Proposed Action

The goals of the TRRP outlined in the Trinity River Restoration Program Strategic Plan (2003-2008) provide the framework for the specific goals and objectives used to develop the action alternatives for this EA/DEIR. The following goals and objectives support the proposed project, and provided the structure for the development of the alternatives:

- Evaluate changes in channel geometry in response to constructing channel and floodplain features designed for the river's current hydrologic regime.
- Evaluate the evolution of channel planform features in response to designing and implementing the project at a river segment (1-mile) scale.
- Evaluate the biological response (aquatic, riparian, upland) to changes in the physical environment, and incorporate this information into the AEAM Program.
- Conduct a preliminary assessment of the fate and transport of mercury in response to restoration activities in a historic mining district.
- Locate the project downstream of Canyon Creek to ensure that natural tributary accretion to mainstem flows maximizes the likelihood of maintaining the site prior to implementation of the ROD-recommended flow regime.
- Provide safe and reasonable access to the site for project planning, implementation, and monitoring.
- Develop partnerships with willing participants and encourage positive landowner interest and involvement.
- Design the project to function with the river's current hydrology estimated at the site.
- Integrate known fluvial and ecological theories and relationships with the site's measured physical and biological attributes and evaluate response over a definitive time frame.

- Minimize in-stream work to reduce construction-related impacts, maximize the river's ability to rehabilitate itself during high flows, and reduce implementation cost and complexity.
- Attempt to preserve unique and valuable geomorphic and biological features wherever practicable (i.e., hydraulic controls, high quality spawning or adult holding habitat).

The following objectives apply to the responsible and trustee agencies for the proposed project, including the SWRCB, the NCRWQCB, the State Lands Commission (SLC), CDFG, and the HVT:

- compliance with the California Water Code to ensure the highest reasonable quality of waters of the state and allocate those waters to achieve the optimum balance of beneficial uses;
- protection of the public trust assets of the Trinity River watershed;
- conservation, restoration, and management of fish, wildlife, and native plant resources; and
- compliance with the Water Quality Control Plan for the Hoopa Valley Indian Reservation to preserve and enhance water quality on the Reservation, and to protect the beneficial uses of water.

Similarities and Differences between NEPA and CEQA

This document meets the legal requirements of the NEPA (42 *United States Code* [USC] Section 4321 et seq.) and the CEQA (*California Public Resources Code*, Section 21000 et seq.). The NEPA and CEQA are laws requiring that governmental agencies evaluate the environmental impacts of their proposed decisions before making formal commitments to carry them out and that such evaluation be done in detail, with public involvement. The NEPA is a federal law that applies to federal agencies, whereas the CEQA is a California law that applies to state and local agencies.

Although there are similarities between CEQA and NEPA, the two Acts are not identical in all respects. For example, NEPA is a procedural law requiring agencies to evaluate a range of reasonable alternatives, disclose potential impacts, and identify feasible mitigation. CEQA, in contrast, is partly "substantive" in that it requires an agency to adopt "feasible" mitigation measures for any "significant effect on the environment." In a full-blown EIS, as opposed to an EA, reasonable alternatives must be rigorously and objectively evaluated at a greater level of detail under NEPA than is required under CEQA. The trigger for preparing an EIR, as opposed to an EIS, is lower under CEQA than under NEPA, however. It is therefore not uncommon to have a joint NEPA/CEQA document that is not an EIS/EIR but rather an EA/EIR. This document is an example of an EA/EIR. It has been prepared because DWR, as CEQA lead agency, determined that the level of controversy associated with the environmental aspects of the proposed project was sufficient to trigger an EIR under the low threshold CEQA standard. The federal lead agencies, however, do not believe that an EIS is required under the higher NEPA threshold. Even so, the EA shares many attributes of an EIS – in particular the detailed analysis of alternatives.

Required Permits and Approvals

Provided below is a list of the related laws, rules, regulations, and federal executive orders that were considered in the preparation of this EA/Draft EIR.

DISCRETIONARY APPROVALS

Provided below is a list of the various discretionary approval processes that have been completed or are still being coordinated concurrent with the NEPA/CEQA environmental review process:

- Section 404 Clean Water Act Permit – U.S. Army Corps of Engineers (Corps), San Francisco District, Eureka Field Office
- Compliance with the Federal Endangered Species Act (ESA) – USFWS, Eureka, and NOAA Fisheries, Arcata
- Compliance with the Magnuson-Stevens Fishery Conservation and Management Act (MSA) – NOAA Fisheries, Arcata
- Section 1602 Streambed Alteration Agreement – CDFG, Region 1
- Compliance with the California Endangered Species Act (CESA) – CDFG, Region 1
- Public Agency Lease – SLC
- Section 401 Clean Water Act Water Quality Certification – NCRWQCB
- Trinity County Ordinances (Floodplain Management)

CONSISTENCY DETERMINATIONS

Provided below is a list of the governing laws for which a consistency determination will need to be made:

- Section 106 of the National Historic Preservation Act (NHPA)
- Federal Wild and Scenic River Act (WSRA)
- State Wild and Scenic River Act (WSRA)

FEDERAL EXECUTIVE ORDERS

Provided below is a list of the federal executive orders and implementing polices with which the Project would need to comply:

- Executive Order 11988 for Floodplain Management
- Executive Order 12898 for Environmental Justice
- Executive Order 11990 for Wetlands
- Executive Order 13007 for Indian Sacred Sites on Federal Land
- Executive Order 12373 for State, Area-Wide, and Local Plan and Program Consistency
- Indian Trust Assets

Scoping and Public Involvement

DWR initiated the public scoping process by forwarding a Notice of Preparation (NOP) of an EIR to the State Clearinghouse on May 17, 2004. The NOP and agency comments on the NOP are included in this document as **Appendix C**.

The NOP was circulated to the public; to local, state, and federal agencies; and to other interested parties in order to solicit comments on the proposed project. The public scoping period was May 17, 2004, through June 17, 2004, and scoping comments were received through June 25, 2004. Reclamation and the DWR held a joint NEPA/CEQA scoping meeting on June 2, 2004, in Junction City, California. During this meeting, members of the public were asked what issues they felt should be addressed in this Draft EA/EIR. As the public comment period continued, the lead agencies received letters that helped identify areas of concern. These areas of concern and other oral comments received at the scoping meeting were considered during the preparation of this EA/DEIR. The scoping and public involvement process is described in **Appendix C**.

The following issues associated with the proposed project are anticipated to be controversial based on comments received during the public scoping process:

- ownership and placement of excavated material
- impacts to special-status species, including anadromous salmonids
- potential trespass on private lands
- long-term maintenance of the project
- temporary access during construction
- short-term construction impacts
- source of construction funds
- potential effects to Wild and Scenic River Outstandingly Remarkable Values (ORV's)

Existing Site Conditions

The proposed Hocker Flat project would be located on the Trinity River, immediately downstream from Junction City, a small community in Trinity County, California. The upstream end of Hocker Flat is situated at River Mile 79.1, directly below the mouth of Canyon Creek. The project would extend downstream approximately 1.1 miles on both sides of the Trinity River. The project area is southeast of Hocker Flat, as shown on the *Junction City, California* 7.5-minute U.S. Geological Survey (USGS) quadrangle map, Township 33 North, Range 11 West, Sections 1 and 12, Mount Diablo Base Meridian (MDBM), 040° 44’ 26” North latitude by 123° 03’ 47” West longitude. **Figure 1-2,** in **Chapter 1** depicts the general location of the proposed project, relative to other geographic points of interest.

The proposed project encompasses one of the original 44 channel rehabilitation sites described in Appendix C of the FEIS/EIR, Implementation Plan for the Preferred Alternative and the ROD. The TRRP staff, in conjunction with interdisciplinary review from the TMC technical staff, defined project areas within Hocker Flat based on the type of restoration activities that could be applied. These activities include removal of the riparian berm, restoration of floodplain features, construction of off-channel habitat for aquatic and riparian dependent species, and restoration of

upland habitat.

Description of the Proposed Action and Project Alternatives

The Hocker Flat project includes one of the original potential channel rehabilitation sites identified by the USFWS and the HVT in the FEIS (U.S. Department of the Interior 1999). Initially, 44 potential channel rehabilitation sites and three potential side channel sites between Lewiston Dam and the North Fork Trinity River were identified. Subsequently, in a detailed review of potential river rehabilitation areas, a total of 144 potential rehabilitation sites were identified. The initial Hocker Flat site was divided into three areas (CK, CL, and CM) during the detailed review. The 144 sites were selected using criteria that identified physical features and processes such as channel morphology, sediment supply, and high-flow hydraulics that would encourage a dynamic alluvial channel. Factors such as property ownership, access to the sites, and engineering and economic feasibility were also considered in the site selection process.

In general, the approach to the channel rehabilitation effort is to selectively remove fossilized riparian berms (berms that are anchored by extensive woody vegetation and consolidated sand deposits). The berms developed after the TRD and the loss of scour associated with peak flows. Removing the berms, including all vegetation, at strategic locations would promote the alluvial processes necessary for the restoration and maintenance of alternate bar riverine habitats.

As described in the FEIS, the rehabilitation sites exhibit a variety of conditions that require site-specific designs. The FEIS also recognized that, in many instances, the entire site would not require treatment to facilitate rehabilitation. This is because strategically treating certain areas is expected to result in a dynamic alluvial channel that will promote the formation and maintenance of an alternate bar channel in both treated and untreated areas.

Hocker Flat was selected for a demonstration project based on its location downstream of significant accretion flow from two tributaries, Canyon Creek and Reading Creek; its downstream proximity to a substantial source of alluvial sediment, the Canyon Creek delta; and a group of willing landowners. The design team considered a variety of methods and techniques to meet the objective of restoring alluvial processes to this location. In this EA/DEIR, three restoration activities are evaluated: berm removal, floodplain enhancement, and revegetation of alluvial and upslope features. Within the ESL established for the proposed project, the lead agencies utilized information on the natural resources and socio-economic conditions to identify 15 strategic locations to consider channel rehabilitation activities. These locations are identified throughout the EA/DEIR as discrete rehabilitation areas. The type, extent and level of activity within each area may be different dependent on the alternative presented. These areas were defined by the lead agencies to describe riverine rehabilitation areas, and upslope riparian rehabilitation areas. Riverine rehabilitation areas are labeled with an “R” preceding the site number (e.g., R-1, R-2).

PROPOSED ACTION

The Proposed Action would include activities within five riverine rehabilitation areas (R-2, R-4, R-5, R-6 and R-7) and seven upland rehabilitation areas (U-1 through U-7). These activities are expected to immediately result in the development of point bars and floodplain habitat that do not presently exist. Creation of these features would be accomplished through the rescaling of the river channel and floodplain within the riverine rehabilitation areas, although there is an expectation that natural alluvial processes may immediately affect a larger area. This

rehabilitation of river function could result in the rapid development of a larger and more complex expanse of river and floodplain habitats. The result of habitat expansion would be increased habitat suitability and availability for salmonids and other native fish and wildlife species. No activities would be conducted below the river's edge as part of the Proposed Action.

Under the Proposed Action, activities associated with the five riverine rehabilitation areas would result in the excavation of 97,100 cubic yards of material. The upland rehabilitation areas would be used to deposit 97,100 cubic yards of material. No material would be transported outside the ESL.

The premise of the Proposed Action is that it would use the suite of rehabilitation activities to modify the type and/or character of aquatic, riparian, and upland habitat in a manner that incorporates an understanding of the functional relationships and natural processes of an alluvial river. The modifications proposed are designed to enable the river to move in the direction of an alluvial river, but rely on the river itself to modify its own form and function over time.

ALTERNATIVE 1

Alternative 1 would include activities within four riverine rehabilitation areas (R-2, R-4, R-5 and R-6) and seven upland rehabilitation areas (U-1 through U-7). Activities within the riverine areas are intended to remove the riparian berm adjacent to the Trinity River, providing an opportunity for the river to initiate morphological changes (developing alternate point bars) and increase the available edge habitat for anadromous salmonids in conjunction with the flow regime authorized under the ROD. No activities would be conducted within the active channel (450 cfs), or on other alluvial features within the proposed project ESL. Under this alternative, no excavation would occur associated with floodplains; however, there is an expectation that changes to floodplain features would occur through natural geomorphic and hydrologic processes. These activities are expected to enhance these processes and eventually result in the development of point bars and floodplain habitat that do not presently exist. Creation of these features would be accomplished through the rescaling of the river channel (berm removal) within the riverine rehabilitation areas, although there is an expectation that natural alluvial processes may immediately affect a larger area. This rehabilitation of river function could result in the future development of a larger and more complex expanse of river and floodplain habitats. The result of habitat expansion would be increased habitat suitability and availability for salmonids and other native fish and wildlife species.

Under Alternative 1, activities associated with the four riverine rehabilitation areas would result in the excavation of 22,000 cubic yards of material. Upland rehabilitation areas would be used to deposit 22,000 cubic yards of material. No material would be transported outside the proposed project ESL.

Affected Environment and Environmental Consequences

The affected environment and the environmental consequences of implementing each project alternative are described in **Chapter 3**. Each section, which addresses a specific environmental topic (e.g., Land Use, Fishery Resources), includes a discussion of the affected environment (CEQA existing conditions), environmental consequences (CEQA environmental impacts), methodology, significance criteria (if applicable), and mitigation measures. The affected environment discussion describing the existing regional and local conditions is used as the environmental baseline for analyzing the significance of potential effects of the proposed action and the significance of the effects of project alternatives with respect to each specific resource area. The following subsections summarize the environmental

consequences of implementing each project alternative. In the instances where site-specific impacts are relevant, they are summarized. A complete summary of all project impacts and associated mitigation measures are presented at the end of this Executive Summary (**Table ES-1**) for both action alternatives.

LAND USE

Section 3.2 describes land use from a regional and local perspective. Land use within the Trinity River Basin is greatly influenced by the large amount of public, tribal, and private forestlands, much of which is used for timber production and other natural resource related uses. The development potential of most of the land in the watershed is restricted by topography, public ownership, Timber Production Zone zoning (which applies to most private land), and by County and tribal planning policies that guide development towards already developed areas and discourage development on resource lands. In general, all parcels within the Hocker Flat project area have been subdivided to their fullest extent possible under existing zoning designations; therefore, future rural residential development within the areas identified for rehabilitation is unlikely. Located directly adjacent to the river, many of these parcels fall into the Flood Hazard and Scenic Overlay designation zones, which carry restrictions that make further development of these areas difficult.

The following impacts to land use in the project study area were assessed: construction-related disruption of adjacent land uses; disruption of adjacent land uses due to long-term operation of the proposed project; the conversion of vacant land to a new facility; and project consistency with the goals, policies, and objectives of the Trinity County General Plan (County 2001), as well as local community plans, policies, and ordinances.

The No-Action Alternative would not result in land use impacts. Construction of any of either action alternative (i.e., Proposed Action, and Alternative 1) could result in potential nuisance effects to adjacent residences, including limiting access to the river for recreational activities, noise, disruption of access to residences, and short-term traffic disruptions. Access will be maintained throughout the construction period for all adjacent private residences, and Reclamation shall limit the amount of daily construction equipment traffic by staging on the project site at the end of each workday. No significant impacts were identified; therefore no mitigation measures are required.

GEOLOGY, FLUVIAL GEOMORPHOLOGY, AND SOILS

The proposed project was analyzed against known geologic, geomorphic, and soil conditions present within the project study area in **Section 3.3**. Adverse impacts were considered significant if implementation of project alternatives could subject people, structures, or other resources to geologic or seismic hazards; disrupt, eliminate, or otherwise render unusable geologic or soil resources; interfere with mineral activities; or be inconsistent with the ten Trinity River healthy river attributes identified in the Trinity River Flow Evaluation Final Report (U.S. Fish and Wildlife Service et al. 1999).

Although the Trinity County area historically has experienced low seismicity, moderate to strong ground shaking could occur following a large earthquake on one of the potentially active faults in the region. In the event of a significant earthquake, any people on or under the existing and proposed bridge structures would be exposed to geologic hazards. Final design of the bridges, culverts, and/or levee shall meet all California Department of Transportation (Caltrans) and American Association of State Highway and Transportation Officials (AASHTO)

standard seismic construction and design code requirements to prevent collapse from and minimize structural damage from ground shaking and liquefaction.

Construction activities would result in the disturbance and loosening of soils and would expose them to elements, which would increase the potential for wind and water erosion, particularly if any soils were left exposed during the later winter and early spring periods of high precipitation. Erosion and sediment control measures will be implemented for both action alternatives. The No-Action Alternative would not adversely affect geology, fluvial geomorphology, or soils. The proposed project would not interfere with the ongoing mineral activities within the project area. The proposed project is consistent with the ten Trinity River healthy river attributes. Site-specific impacts and/or impacts specific to a particular action alternative are as follows.

WATER RESOURCES

Section 3.4 describes the surface water hydrology and groundwater from both regional and local perspectives, as well as site-specific location hydraulics associated with each bridge location. The primary hydrologic concerns identified in the EA/Draft EIR are changes in base floodwater surface elevation, impacts to groundwater resources and public safety associated with flooding.

The No-Action Alternative would not impact water resources in the Trinity River Basin. However, under the No-Action Alternative the beneficial effects of the Proposed Action (i.e., increase in suitable, available aquatic habitat) would not be realized.

Any excavated materials placed within the floodplain have the potential to change the Base Flood Elevation (BFE). Both action alternatives evaluated in this document incorporated design measures to minimize placement of excavated material in the floodplain, and transport to locations above the recognized 100-year floodplain. These measures ensure that no permanent increase in BFE over what currently exists would occur. No significant impacts were identified; therefore no mitigation measures are required.

WATER QUALITY

Section 3.5 describes regional and local water quality. Specific water quality concerns in the Trinity River Basin include , erosion and sedimentation and subsequent increases in turbidity and suspended solids levels, discharge of wastes, pollutants, and hazardous materials in and around the Trinity River, degradation of Trinity River beneficial uses identified in the *Water Quality Control Plan for the North Coast Region* (Basin Plan) (NCRWQCB 2001); and increased potential to mobilize mercury or enhance conditions that could increase mercury methylation. The No-Action Alternative would have no impact on Trinity River water quality.

Construction of any of either action alternative could temporarily increase turbidity and total suspended solids in the water column, could potentially result in a spill of hazardous materials (i.e., oil, grease, gasoline, solvent) into the Trinity River, and could result in increased mobilization of mercury, and/or conditions that would increase the potential for mercury methylation. Construction activities will be managed to minimize potential water quality effects, and appropriate measures to minimize impacts to water quality will be implemented.

FISHERY RESOURCES

Fishery resources include fish populations, their habitats, and the harvest of those populations. **Section 3.6** discusses the existing environment within the Trinity River Basin in both a regional and site-specific context, with regard to native anadromous fish and resident native and non-native fish.

The native anadromous salmonid species of interest in the mainstem Trinity River and its tributaries include Chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*Oncorhynchus kisutch*), and steelhead (*Oncorhynchus mykiss irideus)*. Of the three species, there are two spawning races of Chinook salmon (spring- and fall-run) and three spawning races of steelhead (fall-, winter-, and summer-run). Native non-salmonid anadromous species of concern in the Trinity River Basin include Pacific lamprey (*Lampetra tridentata*) and green sturgeon (*Acipenser medirostris*); although, green sturgeon do not occur as far up river as the rehabilitation project. Potential impacts to these resources resulting from either action alternative would be localized and temporary. These impacts include effects on potential spawning and rearing habitat for anadromous fishes, including listed coho salmon (federal and California), increased erosion and sedimentation, mortality of rearing fishes during the in-stream construction phase, and permanent and temporary loss of shaded riverine aquatic (SRA) habitat. Finally, construction-related accidental spills of hazardous materials that could adversely affect fishes, including listed coho salmon, could occur under either action alternative. Measures to mitigate these potential impacts to a less-than-significant level have been identified and will be fully implemented.

Under the No-Action Alternative, there would be no effects on fishery resources other than those associated with current ongoing actions. However, under the No-Action Alternative, benefits to aquatic rearing habitat including the wider flow area and associated reduced backwater elevations, water velocities, and scour depths would not be realized.

The temporary impacts on rearing habitat are expected to be offset by the permanent beneficial changes to physical rearing habitat associated with implementing the proposed project. These benefits will result from the previously described engineered improvement in river access to, and channel migration through, the flood plain, and from the revegetation of the floodplain with native plant species that will eventually contribute shade and large wood to the river channel. Improved river access to the floodplain during elevated spring time flows is expected to increase available slow, shallow water habitat preferred by salmonid fry. This fluvial channel migration through the floodplain may create new shallow point bar habitat preferred by salmonid fry. The channel migration process is expected to also create pool and backwater habitats that would increase the relative abundance of this preferred coho rearing habitat compared to the existing condition within the proposed project reach. Ultimately, the collective improvements in fluvial channel dynamics contributed by this proposed action and by planned future bank rehabilitation throughout the upper Trinity River will improve rearing habitat diversity for all anadromous salmonids (U.S. Fish and Wildlife Service and Hoopa Valley Tribe 1999).

VEGETATION, WILDLIFE, AND WETLANDS

Section 3.7 analyzes the potential vegetation, wildlife, and wetlands impacts resulting from construction and operation of the proposed Project. The No-Action Alternative would not result in impacts to vegetation, wildlife, or wetlands. The action alternatives have the potential to impact the following wildlife species with potential to occur in the Project study area: nesting raptors (i.e., Cooper’s hawk, sharp-shinned hawk), yellow warbler, yellow-breasted

chat, little willow flycatcher, yellow-legged frog, northwestern pond turtle, and cliff swallows. In addition, nine BLM Sensitive wildlife species could potentially occur in or adjacent to the proposed project (foothill yellow-legged frog, golden eagle, Pacific fisher, Pale Townsend's big-eared bat, small-footed myotis, long-eared myotis, fringed myotis, long-legged myotis, and Yuma myotis bats). Measures to mitigate impacts to each of the species to less than significant levels will be fully implemented.

Temporary impacts to jurisdictional waters (including wetlands) at the site would be greatest under Alternative 1 (5.49 acres), and smallest under the Proposed Action (4.16 acres). Permanent impacts would be greatest under the Proposed Action (5.68 acres) and smallest under Alternative 1 (4.23 acres). Temporary and permanent impacts to riparian habitat will occur under the Proposed Action (14.14 acres), and to a lesser degree under Alternative 1 (11.69 acres). The nature of the rehabilitation project will result in impacts to a homogenous riparian community, while creating conditions for a diverse and dynamic riparian community in the future.

RECREATION

Recreation related impacts were assessed by identifying recreational resources (parks and recreation facilities) in or near the Project area, and qualitatively determining whether the construction, operation, and/or maintenance of the proposed Project would have any effect on these resources (**Section 3.8**). In addition to evaluating the effects on recreation opportunities, uses and benefits, the project was evaluated for consistency with Trinity County recreation objectives and both federal and state Wild and Scenic River designations. The WSRA Section 7 Determination for this Project is included as **Appendix E**.

The No-Action Alternative would have no recreation impacts; however, the potential benefits to long-term recreational uses (fishing) would not be realized. Implementation of either action alternative could result in heavy equipment activity and construction vehicle traffic within the floodplain and directly adjacent to banks of the Trinity River. These activities will be intermittent and are not expected to be significant.

SOCIOECONOMICS, POPULATION, AND HOUSING

As discussed in **Section 3.9**, Trinity County was determined to be the area of potential effect due to the proposed project's overall size and its location. Potential effects associated with employment and income, population growth, displacement, and community disruption impacts, as well as any potential plan conflict, were qualitatively analyzed. For NEPA purposes, a threshold of ten percent was used to determine employment and income changes, because changes exceeding ten percent may have a regional effect.

The No-Action Alternative would not impact socioeconomics, population, or housing in Trinity County. Construction associated with the action alternatives would generate temporary construction-related employment in Trinity County. The number of design, construction, and clerical positions required to complete the proposed project is undetermined, but is expected to add a small percentage to existing local jobs. Employment would only last during the estimated 140-day construction period. In addition, the proposed project would provide direct local employment opportunities only if workers are hired from the local labor force.

The proposed project could directly generate short-term income growth through the payment of wages and salaries, but would result in little increased long-term economic activity. A short-term increase in the demand for housing in the County could occur as a result of construction workers seeking lodging during the construction period.

TRIBAL TRUST

Section 3.10 discusses Tribal Trust Assets as they pertain to the proposed project. The need to restore and maintain the natural production of anadromous fish in the mainstem Trinity River originates partly from the federal government's trust responsibility to protect the fishery resources of the region's Indian tribes. The proposed project could potentially impact anadromous fish, non-anadromous fish, water, wildlife, vegetation, and overall riverine health. These impacts could consequently affect the sociocultures and economies of the tribes. The No-Action Alternative would not impact Tribal Trust Assets. Construction-related impacts to Tribal Trust Assets are expected to be short-term and outweighed by the overall benefits to these Tribal Trust Assets through implementation of the Trinity River Restoration Program.

CULTURAL RESOURCES

Section 3.11 focuses the evaluation of cultural resources on the Trinity River basin. Activities proposed to occur at the proposed project sites were evaluated to determine how cultural resources within the Trinity River basin might be impacted. Impacts on archaeological resources are considered significant if implementation of the proposed project would potentially disturb unique archaeological resources.

The records search conducted for the proposed project indicates the presence of historic and prehistoric cultural resource sites along the Trinity River. No cultural resource sites were identified within the Area of Potential Effect (APE) defined for the proposed project, and potential archaeological resources have not been observed or recorded within this APE. However, buried archaeological resources that have not been previously recorded may be uncovered during construction, particularly during ground-disturbing activities. Prior to initiation of construction or ground-disturbing activities, all construction workers shall be alerted to the possibility of buried cultural remains. Upon discovery of buried cultural materials or human remains, work within 50 feet of the find shall be halted and the proper agency contacted.

AIR QUALITY

Section 3.12 evaluates the air quality effects associated with construction and operation of the proposed project. The air quality analysis was conducted qualitatively by assessing anticipated construction-related impacts of the project and comparing them to existing and anticipated future air quality conditions. The results are compared to standards provided by the North Coast Unified Air Quality Management District (NCUAQMD).

Implementation of the No-Action Alternative would not adversely impact air quality. Construction associated with the proposed project requires the use of construction equipment that temporarily contributes to air pollution in the Trinity River basin area in the form of ozone precursors and particulate matter (PM_{10}). Exhaust emissions given off by heavy equipment during construction may contribute to ozone (O_3) non-attainment levels. Dust emissions would primarily be associated with land clearing, excavation and fill of materials, and equipment travel on unpaved road surfaces. Reclamation will require the contractor implement a dust control program to limit fugitive dust and PM_{10} emissions. Project construction activities would also generate emissions from diesel- and gasoline-powered equipment and vehicles. Since the proposed project would take place over a six month period, emissions from the construction equipment are of concern to the NCUAQMD. Diesel particulate is an identified Hazardous Air Pollutant (HAP) and Toxic Air Contaminant (TAC), emissions of which should be minimized. In this regard, the length of the

construction period will require the contractor to comply with NCUAQMD Rule 420 (Particulate Matter) or use portable internal combustion engines registered and certified under the state portable equipment regulation.

ENVIRONMENTAL JUSTICE

Section 3.13 discusses environmental justice as it pertains to the proposed project. Federal agencies are required to identify and address disproportionately high and adverse human health or environmental effects of their actions on minorities and low-income populations and communities, as well as the equity of the distribution of the benefits and risks of their decisions. No racial or ethnic group is disproportionately associated with the proposed project study area. There is no evidence to suggest that the proposed project would cause a disproportionately high, adverse human health or environmental effect on minority and low-income populations, compared to other residents in the general vicinity of the proposed project, or elsewhere in Trinity County.

AESTHETICS

Section 3.14 addresses aesthetic issues related to construction and operation of the proposed project, including conformance with the federal WSRA. The analysis in this section is based in part on Appendix G of the *CEQA Guidelines*, which is a sample Initial Study (IS) Checklist that includes a number of questions relating to potential aesthetic effects, and in part on professional judgment. This is a qualitative assessment that evaluates the proposed bridges in relation to the local aesthetic context. BLM's WSRA Section 7 Determination for the proposed project is included as **Appendix E**.

Under the No-Action Alternative, no impacts to aesthetics or visual resources would occur. The No-Action Alternative will not be inconsistent with the federal and/or state WSRA requirements. Under the action alternatives, removal of riparian vegetation to allow for construction access could result in short-term decreased visual quality. Aesthetics and visual resources were considered in selection and design of the rehabilitation areas. The location and configuration of the dredge tailings was used to ensure that the proposed project blended in with the existing landscape and topography to the extent feasible. Since no significant impacts were identified, no mitigation is required.

HAZARDOUS MATERIALS

Section 3.15 provides an evaluation of the types of hazardous materials that may currently be present within the study area established for the proposed project, as well as potential hazardous materials that may be introduced to the as a result of implementing the proposed project. Reclamation staff, in consultation with the land owners and managers determined that there were no known hazardous substances within or adjacent to the proposed project.

The No-Action Alternative is not anticipated to uncover or introduce hazardous materials, adversely impact public health or safety, or inhibit evacuations in the event of an emergency associated with the proposed project. No Site-specific significant impacts specific to either action alternative were identified, therefore no mitigation measures are required.

NOISE

The regional and local noise environment is described in **Section 3.16**. Noise is not considered to be a problem in Trinity County. Sources of noise in Trinity County include highway traffic, sawmills, airports (light planes), and

other miscellaneous residential, commercial, and industrial sources. A community noise survey conducted in 2002 (Brown-Buntin 2002) indicates that existing noise levels in the general vicinity (Junction City Elementary School) are typical of small communities and rural areas. Since the proposed project would not result in a noticeable increase in traffic volume, the focus of this impact analysis was construction noise.

No adverse noise impacts will occur as a result of the No-Action Alternative. Construction activities associated with action alternatives would generate noise levels ranging from 70 to 90 dBA at a distance of 50 feet. Construction activities would be temporary in nature, typically occurring during normal working hours. Construction impacts will be similar for both action alternatives – the primary difference is the distance from each sensitive receptor to each Project alternative. Measures to reduce the impacts associated with noise will be included in the contract requirements prepared by Reclamation.

PUBLIC SERVICES AND UTILITIES / ENERGY

Section 3.17 evaluates potential impacts from both the construction and long-term operation of the proposed project on the following public services and facilities: water supply and distribution; wastewater collection and treatment; law enforcement; solid waste collection and disposal; fire protection; telephone service, electric service, and schools. Additionally, the section addresses potential impacts to energy resources due to substantial or wasteful use of energy resources during project construction.

The No-Action Alternative would not impact public services or utilities. Construction of the action alternatives would result in the generation of solid waste (e.g., vegetation, and other construction-related waste), which will be disposed of at approved sites. Construction work and temporary road closures will be staged in a manner that will allow for emergency service provider access. In the event that road/bridge closures would be required during the school year (mid-August through mid-June) the contract specifications will be included to avoid disruption of student access to bus service.

TRANSPORTATION / TRAFFIC CIRCULATION

Section 3.18 addresses transportation and traffic issues related to construction and operation of the proposed project. Traffic impacts were qualitatively assessed based on several components including the construction procedures and equipment that will be utilized, local transportation policies, site review of existing conditions, and the level of traffic on the key roadways. The No-Action Alternative is not anticipated to adversely impact traffic flow in the general vicinity of the proposed project.

Reclamation will include contract requirements to ensure that traffic impacts will be minimal by staging the construction equipment on-site. A traffic control plan will be developed with the responsible agencies prior to implementation of the proposed project.

The use of heavy construction equipment to transport material to and from the Project work site could affect local road conditions on the designated haul routes by increasing the rate of road wear. Rural roads (i.e., Dutch Creek Road and Red Hill Road) are generally not built with a pavement thickness that will withstand substantial heavy truck traffic volumes. Pre- and post-construction surveys shall be performed to determine existing roadway conditions and if any damage has occurred during construction. If necessary, roadways will be rehabilitated as described in the Trinity County encroachment permit.

Other Impacts and Commitments

CUMULATIVE IMPACTS

Cumulative impacts are the impacts on the environment that result from the incremental impacts of the proposed action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or entity under-takes such other actions. State *CEQA Guidelines* and Council on Environmental Quality (CEQ) NEPA regulations require that the cumulative impacts of a proposed project be addressed in the EA/EIR when the cumulative impacts are expected to be significant (14 CCR 15130[a], 40CFR 1508.25[a][2]). Where a lead agency is examining a project with an incremental effect that is not ”cumulatively considerable,” a lead agency need not consider that effect significant, but shall briefly describe its basis for concluding that the incremental effect is not cumulatively considerable.

The analysis of cumulative effects in **Chapter 4** addresses cumulative impacts of the proposed project in general, with no separate analysis for each alternative. It is recognized that the Proposed Action may be implemented in an interactive manner with other concurrent projects. In addition, these other projects may affect the impacts of the Proposed Action.

The cumulative impacts section identifies the related projects through the list approach, based on input from the lead and cooperating agencies. The geographic scope of the area examined for cumulative effects is the Trinity River Corridor between Lewiston Dam and the confluence of the North Fork Trinity River (Helena, CA). The following projects were considered in this section:

- Fish Habitat Management
- ROD for the 2000 FEIS/EIR
- California Coastal Salmonid Restoration Program / Five Counties Salmonid Conservation Program
- Clean Water Action Section 303(d) TMDL Requirements

No adverse potential cumulative impacts are anticipated to result from implementing the proposed project (including the No-Action Alternative, Proposed Action, and Alternative 1). In short, the proposed project as mitigated will benefit, rather than adversely affect, geology, fluvial geomorphology, and soils, water quality, fishery resources, vegetation, wildlife, and wetlands, recreation, tribal trust assets, and traffic/transportation. Thus, far from creating adverse impacts that will compound or exacerbate the adverse impacts of other projects, the proposed project will contribute to long-term environmental benefits.

GROWTH-INDUCING IMPACTS

This section evaluates the potential for growth that could be induced by implementation of the proposed project and assesses the level of significance of any expected growth inducement. The potential for growth inducement is limited by the nature and location of the rehabilitation activities described in **Chapter 2**.

River rehabilitation projects are typically implemented in specific areas during a finite time period. Although the TRRP was established to implement the ROD, thereby increasing the fishery resources of the Trinity River, growth

inducing impacts were not anticipated within Trinity County. Section 15126 (g) of the state *CEQA Guidelines* provides definitions and guidance in determining the growth-inducing impacts of a Proposed Action.

Specifically, a project is defined to be growth-inducing if it would

- accelerate the rate of planned growth
- remove obstacles to population growth
- tax existing community service facilities
- foster, promote, or sustain economic or population growth

Growth itself is not assumed beneficial, detrimental, or insignificant to the environment. If a project is determined to be growth-inducing, an evaluation is made to determine if significant impacts on the environment would result from that growth.

Growth was evaluated in terms of Trinity County growth policies; general information on population demographics; vacant land and projected Buildout; Trinity County's constraints to development and proposed land uses.

There are no significant growth-inducing impacts as a result of the proposed project. In general, all parcels associated with the proposed project have been subdivided to their fullest extent possible under existing zoning designations.

Consultation and Coordination

Chapter 5 summarizes the scoping process, consultation, coordination, and applicable laws, policies, and regulations used to develop the EA/Draft EIR. The lead agency for the EA/Draft EIR, (Reclamation as defined by NEPA, and DWR, as defined by CEQA) are identified, and the primary cooperating (NEPA), responsible and trustee (CEQA) agencies listed.

A summary of the public scoping process that has been completed to date and a list of agencies, groups, and individuals providing comments and/or comment letters on the NOP that was circulated in May, 2004 are listed. In addition, a list of agencies and organizations consulted during the preparation of the environmental document; a list of the related laws, rules, regulations, and federal executive orders that were considered in the preparation of this EA/Draft EIR; and a discussion of how this EA/Draft EIR is consistent with the federal (NEPA) and state (CEQA) statutes are included in **Chapter 5**. Finally, **Chapter 5** includes a summary of the various discretionary approval processes that have been completed or are still being coordinated concurrent with the NEPA/CEQA environmental review process and a summary of governing laws for which a consistency determination will need to be made.

Environmental Commitments and Mitigation Measures

Tables ES-1 summarizes potential project impacts and mitigation measures prescribed for potentially significant impacts for each environmental issue area (e.g., Land Use, Water Quality, Fishery Resources).

TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES – HOCKER FLAT

	Proposed Action (Floodplain and Feathered Edge)	**Alternative 1 (Feathered Edge)**
3.2 Land Use		
Impact 3.2-1	**Implementation of the proposed project could disrupt existing land uses adjacent to the proposed project site.**	
Mitigation Measures	Since no significant impact was identified, no mitigation is required.	Since no significant impact was identified, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 3.2-2	**Implementation of the proposed project may be inconsistent with the goals, policies, and objectives of the Trinity County General Plan, as well as the local community plans, policies, and ordinances.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 3.2-3	**Implementation of the proposed project may affect the availability of a locally important mineral resource recovery site.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
3.3 Geology, Fluvial Geomorphology, and Soils		
Impact 3.3-1	**Implementation of the proposed project could result in the exposure of structures and people to geologic hazards, including ground shaking and liquefaction.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	Less than Significant	Less than Significant
Impact 3.3-2	**Construction activities associated with the proposed project could potentially result in increased erosion and short-term sedimentation of the Trinity River.**	
Mitigation Measures	**2a:** Reclamation or its contractors shall implement the following measures throughout construction: Areas where ground disturbance will need	**2a:** Reclamation or its contractors shall implement the following measures throughout construction: ▪ Areas where ground disturbance will

TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES – HOCKER FLAT

	Proposed Action (Floodplain and Feathered Edge)	**Alternative 1 (Feathered Edge)**
	to occur shall be identified in advance of construction and limited to only those areas that have been approved by Reclamation. All construction vehicular traffic shall be confined to the designated access routes and staging area. Disturbance shall be limited to the minimum necessary to complete construction activities. All supervisory construction personnel shall be informed of environmental concerns, permit conditions, and final rehabilitation specifications. **2b:** Reclamation or its contractors shall prepare an erosion and sedimentation control plan (Storm Water Pollution Prevention Plan [SWPPP]. Measures for erosion control will be prioritized based on proximity to the river. Exposed areas within 50 yards of the river will be covered to reduce potential sediment from reaching the river. The following measures shall be used as a guide to develop this plan: ▪ Restore disturbed areas to pre-construction contours to the extent feasible; ▪ Salvage, store, and use the highest quality soil for revegetation; ▪ Discourage noxious weed competition and control noxious weeds; ▪ Clear or remove roots from steep slopes immediately prior to scheduled construction; ▪ Leave drainage gaps in topsoil and spoil piles to accommodate surface water runoff; ▪ To the extent possible, cease excavation activities during significantly wet or windy weather; ▪ Use bales and/or silt fencing as appropriate; ▪ Before seeding disturbed soils, work the topsoil to reduce compaction caused by construction vehicle traffic; ▪ Filter fences and catch basins shall be placed below all construction activities at the edge of the Trinity River and other surface water features to intercept sediment before it reaches the waterway. These structures shall be	need to occur shall be identified in advance of construction and limited to only those areas that have been approved by Reclamation. ▪ All construction vehicular traffic shall be confined to the designated access routes and staging area. ▪ Disturbance shall be limited to the minimum necessary to complete construction activities. ▪ All supervisory construction personnel shall be informed of environmental concerns, permit conditions, and final rehabilitation specifications. **2b:** Reclamation or its contractors shall prepare an erosion and sedimentation control plan (Storm Water Pollution Prevention Plan [SWPPP]. Measures for erosion control will be prioritized based on proximity to the river. Exposed areas within 50 yards of the river will be covered to reduce potential sediment from reaching the river. The following measures shall be used as a guide to develop this plan: ▪ Restore disturbed areas to pre-construction contours to the extent feasible; ▪ Salvage, store, and use the highest quality soil for revegetation; ▪ Discourage noxious weed competition and control noxious weeds; ▪ Clear or remove roots from steep slopes immediately prior to scheduled construction; ▪ Leave drainage gaps in topsoil and spoil piles to accommodate surface water runoff; ▪ To the extent possible, cease excavation activities during significantly wet or windy weather; ▪ Use bales and/or silt fencing as appropriate; ▪ Before seeding disturbed soils, work the topsoil to reduce compaction caused by construction vehicle traffic; ▪ Filter fences and catch basins shall be placed below all construction activities at the edge of the Trinity River and other surface water features to intercept sediment before it reaches the waterway. These structures shall be

TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES – HOCKER FLAT

	Proposed Action (Floodplain and Feathered Edge)	**Alternative 1 (Feathered Edge)**
	installed prior to any grubbing or grading activities. ▪ Spoil sites shall be located such that they do not drain directly into a surface water feature, if possible. If a spoil site drains into a surface water feature, catch basins shall be constructed to intercept sediment before it reaches the feature. Spoil sites shall be graded and vegetated to reduce the potential for erosion. ▪ Sediment control measures shall be in place prior to the onset of the rainy season and will be monitored and maintained in good working condition until disturbed areas have been revegetated. If work activities take place during the rainy season, then erosion control structures must be in place and operational at the end of each construction day. Reclamation will develop the erosion and sedimentation control plan in conjunction with BLM and DWR and in cooperation with the CDFG, NOAA Fisheries, USFWS, and NCRWQCB. Reclamation's project manager will ensure the preparation and implementation of an erosion and sediment control plan prior to the start of construction.	installed prior to any grubbing or grading activities. ▪ Spoil sites shall be located such that they do not drain directly into a surface water feature, if possible. If a spoil site drains into a surface water feature, catch basins shall be constructed to intercept sediment before it reaches the feature. Spoil sites shall be graded and vegetated to reduce the potential for erosion. ▪ Sediment control measures shall be in place prior to the onset of the rainy season and will be monitored and maintained in good working condition until disturbed areas have been revegetated. If work activities take place during the rainy season, then erosion control structures must be in place and operational at the end of each construction day. Reclamation will develop the erosion and sedimentation control plan in conjunction with BLM and DWR and in cooperation with the CDFG, NOAA Fisheries, USFWS, and NCRWQCB. Reclamation's project manager will ensure the preparation and implementation of an erosion and sediment control plan prior to the start of construction.
Level of Significance after Mitigation	Less than Significant	Less than Significant
Impact 3.3-3	**Implementation of the proposed project would interfere with existing, proposed, or potential development of mineral resources.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 3.3-4	**Implementation of the proposed project would be inconsistent with the Trinity River healthy river attributes.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A

TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES – HOCKER FLAT

	Proposed Action (Floodplain and Feathered Edge)	Alternative 1 (Feathered Edge)
3.4 Water Resources		
Impact 3.4-1	**Implementation of the proposed project could result in a permanent increase in base floodwater surface elevation.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	Less than significant	Less than significant
Impact 3.4-2	**Implementation of the proposed project could result in permanent decline in groundwater elevations, or permanent changes in groundwater quality.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 3.4-3	**Implementation of the proposed project may expose people or structures to a significant risk of injury, death or loss involving flooding.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
3.5 Water Quality		
Impact 3.5-1	**Construction of the proposed project could result in short-term temporary increases in turbidity and total suspended solids levels during construction.**	
Mitigation Measures	**1a:** Turbidity increases associated with proposed project construction activities shall not exceed the NCRWQCB water quality objectives for turbidity in the Trinity River basin. Turbidity levels are defined in nephelometric turbidity units (NTUs). The current threshold for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (2001), is summarized below. ▪ Turbidity shall not be increased by more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof. **1b:** To ensure that turbidity levels do not exceed the threshold listed above	**1a:** Turbidity increases associated with proposed project construction activities shall not exceed the NCRWQCB water quality objectives for turbidity in the Trinity River basin. Turbidity levels are defined in nephelometric turbidity units (NTUs). The current threshold for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (2001), is summarized below. ▪ Turbidity shall not be increased by more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof. **1b:** To ensure that turbidity levels do not exceed the threshold listed above

TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES – HOCKER FLAT

	Proposed Action (Floodplain and Feathered Edge)	**Alternative 1 (Feathered Edge)**
	during river's edge project construction activities, Reclamation or their contractor shall monitor turbidity levels 50 feet upstream and 500 feet downstream of the point of river's edge construction activities. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during periods of increased turbidity. **1c:** Reclamation or their contractor shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that includes silt fences, sediment filters, dewatering activities, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls and dewatering activities shall be adequate to minimize sediment inputs into the Trinity River until vegetation re-growth occurs. All sediment containment devices and erosion control devices will be inspected daily during the construction period to ensure that the devices are properly functioning. Excavated and stored materials will be kept in upland sites with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland sites. All applicable erosion control standards will be required during stockpiling of materials.	during river's edge project construction activities, Reclamation or their contractor shall monitor turbidity levels 50 feet upstream and 500 feet downstream of the point of river's edge construction activities. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during periods of increased turbidity. **1c:** Reclamation or their contractor shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that includes silt fences, sediment filters, dewatering activities, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls and dewatering activities shall be adequate to minimize sediment inputs into the Trinity River until vegetation re-growth occurs. All sediment containment devices and erosion control devices will be inspected daily during the construction period to ensure that the devices are properly functioning. Excavated and stored materials will be kept in upland sites with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland sites. All applicable erosion control standards will be required during stockpiling of materials.
Level of Significance after Mitigation	Less than Significant	Less than Significant
Impact 3.5-2	**Construction of the proposed project could result in short-term temporary increases in turbidity and total suspended solids levels following construction.**	
Mitigation Measures	**2a:** Turbidity increases following proposed project construction activities shall not exceed the NCRWQCB water quality objectives for turbidity in the Trinity River basin. Turbidity levels are defined in nephelometric turbidity units (NTUs). The current threshold for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (2001), is summarized below. ▪ Turbidity shall not be increased by more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver	**2a:** Turbidity increases following proposed project construction activities shall not exceed the NCRWQCB water quality objectives for turbidity in the Trinity River basin. Turbidity levels are defined in nephelometric turbidity units (NTUs). The current threshold for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (2001), is summarized below. ▪ Turbidity shall not be increased by more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver

TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES – HOCKER FLAT

	Proposed Action (Floodplain and Feathered Edge)	**Alternative 1 (Feathered Edge)**
	thereof. **2b:** To ensure that turbidity levels do not exceed the threshold listed above during river's edge project construction activities, Reclamation or their contractor shall monitor turbidity levels 50 feet upstream and 500 feet downstream of the point of river's edge construction activities. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during periods of increased turbidity. **2c:** Reclamation or their contractor shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that includes silt fences, sediment filters, dewatering activities, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls and dewatering activities shall be adequate to minimize sediment inputs into the Trinity River until vegetation re-growth occurs. All sediment containment devices and erosion control devices will be inspected daily during the construction period to ensure that the devices are properly functioning. Any erosional control devices found to be nonfunctional must be repaired or replaced within 10 days following their discovery or by the end of the work day if rain is imminent or if a greater than 50 % possibility of rain has been forecasted within the next 24 hours by the National Weather Service. In those cases where, for safety reasons, repairs cannot be made immediately, they should be completed as soon as the work can safely be performed. Excavated and stored materials will be kept in upland sites with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland sites. All applicable erosion control standards will be required during stockpiling of materials.	thereof. **2b:** To ensure that turbidity levels do not exceed the threshold listed above during river's edge project construction activities, Reclamation or their contractor shall monitor turbidity levels 50 feet upstream and 500 feet downstream of the point of river's edge construction activities. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during periods of increased turbidity. **2c:** Reclamation or their contractor shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that includes silt fences, sediment filters, dewatering activities, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls and dewatering activities shall be adequate to minimize sediment inputs into the Trinity River until vegetation re-growth occurs. All sediment containment devices and erosion control devices will be inspected daily during the construction period to ensure that the devices are properly functioning. Any erosional control devices found to be nonfunctional must be repaired or replaced within 10 days following their discovery or by the end of the work day if rain is imminent or if a greater than 50 % possibility of rain has been forecasted within the next 24 hours by the National Weather Service. In those cases where, for safety reasons, repairs cannot be made immediately, they should be completed as soon as the work can safely be performed. Excavated and stored materials will be kept in upland sites with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland sites. All applicable erosion control standards will be required during stockpiling of materials.
Level of Significance after Mitigation	Less than Significant	Less than Significant
Impact 3.5-3	**Construction of the proposed project could potentially cause contamination of the Trinity River from hazardous materials spills.**	
Mitigation Measures	**3a:** Reclamation shall require that the contractor prepare and implement a spill	**3a:** Reclamation shall require that the contractor prepare and implement a spill

TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES – HOCKER FLAT

	Proposed Action (Floodplain and Feathered Edge)	**Alternative 1 (Feathered Edge)**
	prevention and containment plan in accordance with applicable federal and state requirements. **3b:** Reclamation shall include in the construction contract documents a requirement that any construction equipment that would come in contact with the Trinity River will need to be inspected daily for leaks prior to entering the flowing channel. External oil, grease, and mud will be removed from equipment using steam cleaning. Untreated wash and rinse water must be adequately treated prior to discharge if that is the desired disposal option. **3c:** Reclamation shall include in the construction contract documents a requirement that hazardous materials, including fuels, oils, and solvents, not be stored or transferred within 150 feet of the active Trinity River channel. Areas for fuel storage, refueling, and servicing will be located at least 150 feet from the active river channel. In addition, the construction contractor shall be responsible for maintaining spill containment booms onsite at all times during construction operations and/or staging of equipment or fueling supplies. Fueling trucks will maintain a spill containment boom at all times.	prevention and containment plan in accordance with applicable federal and state requirements. **3b:** Reclamation shall include in the construction contract documents a requirement that any construction equipment that would come in contact with the Trinity River will need to be inspected daily for leaks prior to entering the flowing channel. External oil, grease, and mud will be removed from equipment using steam cleaning. Untreated wash and rinse water must be adequately treated prior to discharge if that is the desired disposal option. **3c:** Reclamation shall include in the construction contract documents a requirement that hazardous materials, including fuels, oils, and solvents, not be stored or transferred within 150 feet of the active Trinity River channel. Areas for fuel storage, refueling, and servicing will be located at least 150 feet from the active river channel. In addition, the construction contractor shall be responsible for maintaining spill containment booms onsite at all times during construction operations and/or staging of equipment or fueling supplies. Fueling trucks will maintain a spill containment boom at all times.
Level of Significance after Mitigation	Less than Significant	Less than Significant
Impact 3.5-4	**Construction of the proposed project could result in increased stormwater runoff and subsequent potential for erosion.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 3.5-5	**Construction and maintenance of the proposed project could result in the degradation of Trinity River beneficial uses identified in the Basin Plan.**	
Mitigation Measures	**2a:** Turbidity increases following proposed project construction activities shall not exceed the NCRWQCB water quality objectives for turbidity in the Trinity River basin. Turbidity levels are defined in nephelometric turbidity units (NTUs). The current threshold for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (2001), is	**2a:** Turbidity increases following proposed project construction activities shall not exceed the NCRWQCB water quality objectives for turbidity in the Trinity River basin. Turbidity levels are defined in nephelometric turbidity units (NTUs). The current threshold for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (2001), is

TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES – HOCKER FLAT

	Proposed Action (Floodplain and Feathered Edge)	**Alternative 1 (Feathered Edge)**
	summarized below. ▪ Turbidity shall not be increased by more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof. **2b:** To ensure that turbidity levels do not exceed the threshold listed above during river's edge project construction activities, Reclamation or their contractor shall monitor turbidity levels 50 feet upstream and 500 feet downstream of the point of river's edge construction activities. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during periods of increased turbidity. **2c:** Reclamation or their contractor shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that includes silt fences, sediment filters, dewatering activities, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls and dewatering activities shall be adequate to minimize sediment inputs into the Trinity River until vegetation re-growth occurs. All sediment containment devices and erosion control devices will be inspected daily during the construction period to ensure that the devices are properly functioning. Any erosional control devices found to be nonfunctional must be repaired or replaced within 10 days following their discovery or by the end of the work day if rain is imminent or if a greater than 50 % possibility of rain has been forecasted within the next 24 hours by the National Weather Service. In those cases where, for safety reasons, repairs cannot be made immediately, they should be completed as soon as the work can safely be performed. Excavated and stored materials will be kept in upland sites with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland sites. All applicable erosion control standards will be required during stockpiling of materials.	summarized below. ▪ Turbidity shall not be increased by more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof. **2b:** To ensure that turbidity levels do not exceed the threshold listed above during river's edge project construction activities, Reclamation or their contractor shall monitor turbidity levels 50 feet upstream and 500 feet downstream of the point of river's edge construction activities. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during periods of increased turbidity. **2c:** Reclamation or their contractor shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that includes silt fences, sediment filters, dewatering activities, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls and dewatering activities shall be adequate to minimize sediment inputs into the Trinity River until vegetation re-growth occurs. All sediment containment devices and erosion control devices will be inspected daily during the construction period to ensure that the devices are properly functioning. Any erosional control devices found to be nonfunctional must be repaired or replaced within 10 days following their discovery or by the end of the work day if rain is imminent or if a greater than 50 % possibility of rain has been forecasted within the next 24 hours by the National Weather Service. In those cases where, for safety reasons, repairs cannot be made immediately, they should be completed as soon as the work can safely be performed. Excavated and stored materials will be kept in upland sites with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland sites. All applicable erosion control standards will be required during stockpiling of materials.

TABLE ES-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES – HOCKER FLAT		
	Proposed Action (Floodplain and Feathered Edge)	**Alternative 1 (Feathered Edge)**
Level of Significance after Mitigation	Less than Significant	Less than Significant
Impact 3.5-6	**Construction of the proposed project could result in increased mobilization of mercury, and/or conditions that would increase the potential for mercury methylation.**	
Mitigation Measures	**6a:** Reclamation will utilize new data from ongoing assessments of mercury in water, sediment, and biological indicators in the Hocker Flat area. Sampling results will be adaptively employed to enhance the basic action plan for Mercury rehabilitation. As envisioned, this plan will be developed to minimize risk of mercury mobilization from sediments and tailings at the site and/or the risk of increased methylation of mercury related to redistribution of sediments and tailings. Aquatic and human health will be protected using the best available site-specific information. **6b:** The basic action plan for Mercury rehabilitation requires that Reclamation dispose of any potentially mercury-contaminated sediments and tailings in such a manner as to prevent environmental release of mercury. The great majority of materials that are excavated from the floodplain will be sequestered above the 100-year floodplain elevation so that they will not come in contact with Trinity River floodwaters, or any other surface or groundwater, and will not be leached by concentration of precipitation so as to release any mercury species contained therein to the Trinity River channel, riparian area, or floodplain. Known mercury-contaminated materials may be either: ▪ In the case of mixed larger (> 2 mm in diameter) and smaller materials (<0.062 mm), the mercury-contaminated fine sediment fraction may be removed and the large fraction remainder (gravels and larger) returned to the site; or ▪ In the case of visually identifiable fine sluice sand sediments (e.g., expected to contain the highest mercury concentrations; 150 to approximately 1000 ppb), these materials will be removed from the floodplain whenever they are exposed. During construction of the floodplain, the contractor will be	**6a:** Reclamation will utilize new data from ongoing assessments of mercury in water, sediment, and biological indicators in the Hocker Flat area. Sampling results will be adaptively employed to enhance the basic action plan for Mercury rehabilitation. As envisioned, this plan will be developed to minimize risk of mercury mobilization from sediments and tailings at the site and/or the risk of increased methylation of mercury related to redistribution of sediments and tailings. Aquatic and human health will be protected using the best available site-specific information. **6b:** The basic action plan for Mercury rehabilitation requires that Reclamation dispose of any potentially mercury-contaminated sediments and tailings in such a manner as to prevent environmental release of mercury. The great majority of materials that are excavated from the floodplain will be sequestered above the 100-year floodplain elevation so that they will not come in contact with Trinity River floodwaters, or any other surface or groundwater, and will not be leached by concentration of precipitation so as to release any mercury species contained therein to the Trinity River channel, riparian area, or floodplain. Known mercury-contaminated materials may be either: ▪ In the case of mixed larger (> 2 mm in diameter) and smaller materials (<0.062 mm), the mercury-contaminated fine sediment fraction may be removed and the large fraction remainder (gravels and larger) returned to the site; or ▪ In the case of visually identifiable fine sluice sand sediments (e.g., expected to contain the highest mercury concentrations; 150 to approximately 1000 ppb), these materials will be removed from the floodplain whenever they are exposed. During construction of the floodplain, the contractor will be trained to identify these lenses of sluice

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	Proposed Action (Floodplain and Feathered Edge)	**Alternative 1 (Feathered Edge)**
	trained to identify these lenses of sluice sand[1] and will either ensure that these materials (Lenses of sluice sand are typically made up of 2-3 cubic yards of material) are removed from future leaching into the Trinity River. **6c:** Reclamation will ensure that during redistribution of sediments potentially contaminated with mercury, the sediments will not be placed in contact with off-channel wetlands or other environments that would be likely to favor increased rates of mercury methylation, and that there are no hydrologic pathways available for the transport of mercury species from redistributed sediments to these wetlands or other environments.	sand[2] and will either ensure that these materials (Lenses of sluice sand are typically made up of 2-3 cubic yards of material) are removed from future leaching into the Trinity River. **6c:** Reclamation will ensure that during redistribution of sediments potentially contaminated with mercury, the sediments will not be placed in contact with off-channel wetlands or other environments that would be likely to favor increased rates of mercury methylation, and that there are no hydrologic pathways available for the transport of mercury species from redistributed sediments to these wetlands or other environments.
Level of Significance after Mitigation	Less than Significant	Less than Significant
3.6 Fishery Resources		
Impact 3.6-1	**Implementation of the proposed project could result in effects on potential spawning and rearing habitat for anadromous fishes, including federally listed coho salmon.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 3.6-2	**Implementation of the proposed project could result in increased erosion and sedimentation levels that could adversely affect fishes, including federally listed coho salmon.**	
Mitigation Measures	**2a:** Turbidity increases associated with proposed project construction activities shall not exceed the NCRWQCB water quality objectives for turbidity in the Trinity River basin. Turbidity levels are defined in nephelometric turbidity units (NTUs). The current threshold for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (2001), is summarized below. ▪ Turbidity shall not be increased by more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be	**2a:** Turbidity increases associated with proposed project construction activities shall not exceed the NCRWQCB water quality objectives for turbidity in the Trinity River basin. Turbidity levels are defined in nephelometric turbidity units (NTUs). The current threshold for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (2001), is summarized below. ▪ Turbidity shall not be increased by more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be

[2] The USGS may confirm sluice sand identification either via chemical testing or via field identification.

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	Proposed Action (Floodplain and Feathered Edge)	**Alternative 1 (Feathered Edge)**
	defined for specific discharges upon the issuance of discharge permits or waiver thereof. **2b:** To ensure that turbidity levels do not exceed the threshold listed above during river's edge project construction activities, Reclamation or their contractor shall monitor turbidity levels 50 feet upstream and 500 feet downstream of the point of river's edge construction activities. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during periods of increased turbidity. **2c:** Reclamation or their contractor shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that includes silt fences, sediment filters, dewatering activities, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls and dewatering activities shall be adequate to minimize sediment inputs into the Trinity River until vegetation re-growth occurs. All sediment containment devices and erosion control devices will be inspected daily during the construction period to ensure that the devices are properly functioning. Any erosional control devices found to be nonfunctional must be repaired or replaced within 10 days following their discovery or by the end of the work day if rain is imminent or if a greater than 50 % possibility of rain has been forecasted within the next 24 hours by the National Weather Service. In those cases where, for safety reasons, repairs cannot be made immediately, they should be completed as soon as the work can safely be performed. Excavated and stored materials will be kept in upland sites with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland sites. All applicable erosion control standards will be required during stockpiling of materials.	defined for specific discharges upon the issuance of discharge permits or waiver thereof. **2b:** To ensure that turbidity levels do not exceed the threshold listed above during river's edge project construction activities, Reclamation or their contractor shall monitor turbidity levels 50 feet upstream and 500 feet downstream of the point of river's edge construction activities. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during periods of increased turbidity. **2c:** Reclamation or their contractor shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that includes silt fences, sediment filters, dewatering activities, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls and dewatering activities shall be adequate to minimize sediment inputs into the Trinity River until vegetation re-growth occurs. All sediment containment devices and erosion control devices will be inspected daily during the construction period to ensure that the devices are properly functioning. Any erosional control devices found to be nonfunctional must be repaired or replaced within 10 days following their discovery or by the end of the work day if rain is imminent or if a greater than 50 % possibility of rain has been forecasted within the next 24 hours by the National Weather Service. In those cases where, for safety reasons, repairs cannot be made immediately, they should be completed as soon as the work can safely be performed. Excavated and stored materials will be kept in upland sites with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland sites. All applicable erosion control standards will be required during stockpiling of materials.
Level of Significance after Mitigation	Less than Significant	Less than Significant
Impact 3.6-3	**Construction activities associated with the proposed project could potentially result in the accidental spill of hazardous materials that could adversely affect fishes, including federally listed coho salmon.**	

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SUMMARY OF IMPACTS AND MITIGATION MEASURES – HOCKER FLAT

	Proposed Action (Floodplain and Feathered Edge)	**Alternative 1 (Feathered Edge)**
Mitigation Measures	Construction specifications shall include the following measures to reduce potential impacts associated with accidental spills of pollutants (i.e., fuel, oil, grease, etc.) to vegetation and aquatic habitat resources within the proposed project ESL: **3a:** Equipment and materials shall be stored away from wetland and surface water features. **3b:** Vehicles and equipment used during construction shall receive proper and timely maintenance to reduce the potential for mechanical breakdowns leading to a spill of materials. Maintenance and fueling shall be conducted in an area at least 150 feet away from the Trinity River. **3c:** Spill containment booms will be maintained onsite at all times during construction operations and/or staging of equipment or fueling supplies. Fueling trucks will maintain a spill containment boom at all times. **3d:** The contractor will develop and implement site-specific best management practices (BMP's), a water pollution control plan, and emergency spill controls, and will be responsible for containment and removal of any toxins released. **Section 3.5** provides additional details on mitigation measures developed for water quality standards and local ordinances. The responsible agencies will be involved in the development and approval of these plans and practices.	Construction specifications shall include the following measures to reduce potential impacts associated with accidental spills of pollutants (i.e., fuel, oil, grease, etc.) to vegetation and aquatic habitat resources within the proposed project ESL: **3a:** Equipment and materials shall be stored away from wetland and surface water features. **3b:** Vehicles and equipment used during construction shall receive proper and timely maintenance to reduce the potential for mechanical breakdowns leading to a spill of materials. Maintenance and fueling shall be conducted in an area at least 150 feet away from the Trinity River. **3c:** Spill containment booms will be maintained onsite at all times during construction operations and/or staging of equipment or fueling supplies. Fueling trucks will maintain a spill containment boom at all times. **3d:** The contractor will develop and implement site-specific best management practices (BMP's), a water pollution control plan, and emergency spill controls, and will be responsible for containment and removal of any toxins released. **Section 3.5** provides additional details on mitigation measures developed for water quality standards and local ordinances. The responsible agencies will be involved in the development and approval of these plans and practices.
Level of Significance after Mitigation	Less than Significant	Less than Significant
Impact 3.6-4	**Construction activities associated with the proposed project could result in the mortality of adult and juvenile fishes, including federally listed coho salmon, during the in-stream construction phase.**	
Mitigation Measures	**4a:** To avoid or minimize potential injury and mortality of fish during excavation (berm removal) on the river banks, equipment shall be operated slowly and deliberately to alert and scare adult and juvenile salmonids away from the work area. **4b:** Monitoring of the rehabilitated flood plain sites (including control areas R-3. and R-8) for salmon fry stranding shall be performed by a qualified fishery biologist immediately after recession of	**4a:** To avoid or minimize potential injury and mortality of fish during excavation (berm removal) on the river banks, equipment shall be operated slowly and deliberately to alert and scare adult and juvenile salmonids away from the work area. **4b:** Monitoring of the rehabilitated flood plain sites (including control areas R-3. and R-8) for salmon fry stranding shall be performed by a qualified fishery biologist immediately after recession of

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	Proposed Action (Floodplain and Feathered Edge)	**Alternative 1 (Feathered Edge)**
	flood flow events designated as 1.5 year or lesser frequent events (i.e., *Q* ≥6000 cfs) for a period of three years following construction. Such fry stranding surveys shall be performed during the months of January through May. If stranding is observed, Reclamation will take the appropriate measures to modify floodplain topography to reduce the likelihood of future occurrences of fry stranding.	flood flow events designated as 1.5 year or lesser frequent events (i.e., *Q* ≥6000 cfs) for a period of three years following construction. Such fry stranding surveys shall be performed during the months of January through May. If stranding is observed, Reclamation will take the appropriate measures to modify floodplain topography to reduce the likelihood of future occurrences of fry stranding.
Level of Significance after Mitigation	Less than Significant	Less than Significant
Impact 3.6-5	**Implementation of the proposed project would result in the permanent and temporary loss of shaded riverine aquatic habitat.**	
Mitigation Measures	To maintain overall SRA habitat values within the proposed project reach, the proposed project would be designed to minimize losses of riparian vegetation adjacent to the Trinity River channel, except where necessary to re-activate river access to the flood plain. Exclusionary fencing shall be installed along the boundaries of all riparian areas outside of delineated rehabilitation areas, but where construction access would have to occur, to ensure that impacts to riparian vegetation are minimized. When loss of riparian vegetation within the proposed project ESL is unavoidable, Reclamation shall implement the following measures: **5a:** Mitigation for riparian plant removal will be based on the actual acreage of riparian vegetation coverage, as opposed specific numbers of plant impacted during project activities. This is based on the TRRP objective to remove the homogeneous plant community and replace it with a diverse assemblage of riparian vegetation. **5b:** To mitigate for the loss of riparian habitat, the proposed project would be designed to minimize losses to SRA features outside of individual rehabilitation sites, but within the ESL, to the fullest extent possible. When a temporary or permanent loss of riparian vegetation is unavoidable, Reclamation will replant at a 1:1 ration where one acre will be replanted for every acre of riparian vegetation is lost. This 1:1 ration is deemed acceptable due to the fact that, since the construction of the TRD, the channel of the Trinity River has experienced an increase in riparian vegetation encroachment of up to 300%	To maintain overall SRA habitat values within the proposed project reach, the proposed project would be designed to minimize losses of riparian vegetation adjacent to the Trinity River channel, except where necessary to re-activate river access to the flood plain. Exclusionary fencing shall be installed along the boundaries of all riparian areas outside of delineated rehabilitation areas, but where construction access would have to occur, to ensure that impacts to riparian vegetation are minimized. When loss of riparian vegetation within the proposed project ESL is unavoidable, Reclamation shall implement the following measures: **5a:** Mitigation for riparian plant removal will be based on the actual acreage of riparian vegetation coverage, as opposed specific numbers of plant impacted during project activities. This is based on the TRRP objective to remove the homogeneous plant community and replace it with a diverse assemblage of riparian vegetation. **5b:** To mitigate for the loss of riparian habitat, the proposed project would be designed to minimize losses to SRA features outside of individual rehabilitation sites, but within the ESL, to the fullest extent possible. When a temporary or permanent loss of riparian vegetation is unavoidable, Reclamation will replant at a 1:1 ration where one acre will be replanted for every acre of riparian vegetation is lost. This 1:1 ration is deemed acceptable due to the fact that, since the construction of the TRD, the channel of the Trinity River has experienced an increase in riparian vegetation encroachment of up to 300%

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SUMMARY OF IMPACTS AND MITIGATION MEASURES – HOCKER FLAT

	Proposed Action (Floodplain and Feathered Edge)	**Alternative 1 (Feathered Edge)**
	when compared to pre-TRD conditions. **5c:** Reclamation shall develop and implement a revegetation plan for impacts to riparian habitat that occur during proposed project construction. **Appendix G** is a draft revegetation plan that has been prepared for the EA/DEIR. This plan identifies planting mixes, planting procedures and monitoring requirements. Planted species include riparian species native to the area which would resist invasion by noxious plant species. that occur during proposed project construction. The revegetation plan should identify appropriate mitigation for impacts, describe planting techniques and locations, and incorporate plantings of native species that would resist invasion of noxious plant species. **5d:** Reclamation or their contractor shall monitor the plantings annually for up to three years to ensure that trees and shrubs have become established. Supplemental planting would be conducted, as necessary, to ensure that this performance standard is met. To meet the revegetation success criteria, the rehabilitation areas should demonstrate a 60% survival rate for planted species at the end of third growing season. Natural recruitment of native riparian species can be included in this growing criterion. If recovery success cannot be determined after three years, an additional two years of monitoring shall be conducted. If at any time during the monitoring period it is determined that the success criteria will not be obtained in the planted and naturally restored areas, remediation measures shall be develop and initiated. Once riparian mitigation has been successfully completed, Reclamation shall submit a memorandum to the ACOE and NOAA Fisheries documenting the results.	when compared to pre-TRD conditions. **5c:** Reclamation shall develop and implement a revegetation plan for impacts to riparian habitat that occur during proposed project construction. **Appendix G** is a draft revegetation plan that has been prepared for the EA/DEIR. This plan identifies planting mixes, planting procedures and monitoring requirements. Planted species include riparian species native to the area which would resist invasion by noxious plant species. that occur during proposed project construction. The revegetation plan should identify appropriate mitigation for impacts, describe planting techniques and locations, and incorporate plantings of native species that would resist invasion of noxious plant species. **5d:** Reclamation or their contractor shall monitor the plantings annually for up to three years to ensure that trees and shrubs have become established. Supplemental planting would be conducted, as necessary, to ensure that this performance standard is met. To meet the revegetation success criteria, the rehabilitation areas should demonstrate a 60% survival rate for planted species at the end of third growing season. Natural recruitment of native riparian species can be included in this growing criterion. If recovery success cannot be determined after three years, an additional two years of monitoring shall be conducted. If at any time during the monitoring period it is determined that the success criteria will not be obtained in the planted and naturally restored areas, remediation measures shall be develop and initiated. Once riparian mitigation has been successfully completed, Reclamation shall submit a memorandum to the ACOE and NOAA Fisheries documenting the results.
Level of Significance after Mitigation	Less than Significant	Less than Significant
3.7 Vegetation, Wildlife, and Wetlands		
Impact 3.7-1	**Construction activities associated with the proposed project would result in the loss of upland plant communities.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.

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	Proposed Action (Floodplain and Feathered Edge)	**Alternative 1 (Feathered Edge)**
Level of Significance after Mitigation	N/A	N/A
Impact 3.7-2	**Construction of the proposed project could result in the loss of individuals of a special-status plant species.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 3.7-3	**Construction activities associated with the proposed project could result in the loss of jurisdictional wetlands and riparian habitat.**	
Mitigation Measures	**3a:** Prior to the start of construction activities, Reclamation shall retain a qualified biologist to identify construction access routes necessary for the proposed project to ensure that these features avoid and/or minimize to the fullest extent impacts to jurisdictional waters. In addition, jurisdictional waters shall be clearly identified in the construction drawings along with specific instructions to avoid any construction activity within these features. Each jurisdictional feature proposed to be avoided will be flagged, staked, or otherwise marked to ensure that construction activities do not encroach upon these features. The exclusionary fencing shall be inspected and maintained on a regular basis throughout the construction phase. **3b:** To mitigate for the loss of jurisdictional waters habitat, specifically riparian wetland, the proposed project would be designed to avoid and minimize losses to wetland vegetation within the ESL to the fullest extent feasible. When loss of riparian wetland is unavoidable, Recommended mitigation allowances are justified because: 1). Reclamation will mitigate impacted riparian plants based on aerial requirements. A revegetation design that provides for planting 20 ft x 20 ft native plant pods separated by 20 ft intervals is planned. The actual surface area encompassed by the pods will be a minimum of 1/2 of the impacted riparian area. Natural revegetation between the pods will occur to obtain full aerial (1:1) mitigation requirements. Permit requirements will be met if 5 years post-project implementation delineation of riparian communities determines that there	**3a:** Prior to the start of construction activities, Reclamation shall retain a qualified biologist to identify construction access routes necessary for the proposed project to ensure that these features avoid and/or minimize to the fullest extent impacts to jurisdictional waters. In addition, jurisdictional waters shall be clearly identified in the construction drawings along with specific instructions to avoid any construction activity within these features. Each jurisdictional feature proposed to be avoided will be flagged, staked, or otherwise marked to ensure that construction activities do not encroach upon these features. The exclusionary fencing shall be inspected and maintained on a regular basis throughout the construction phase. **3b:** To mitigate for the loss of jurisdictional waters habitat, specifically riparian wetland, the proposed project would be designed to avoid and minimize losses to wetland vegetation within the ESL to the fullest extent feasible. When loss of riparian wetland is unavoidable, Recommended mitigation allowances are justified because: 1). Reclamation will mitigate impacted riparian plants based on aerial requirements. A revegetation design that provides for planting 20 ft x 20 ft native plant pods separated by 20 ft intervals is planned. The actual surface area encompassed by the pods will be a minimum of 1/2 of the impacted riparian area. Natural revegetation between the pods will occur to obtain full aerial (1:1) mitigation requirements. Permit requirements will be met if 5 years post-project implementation delineation of riparian communities determines that there

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	Proposed Action (Floodplain and Feathered Edge)	**Alternative 1 (Feathered Edge)**
	have been aerial increases in all riparian plant communities within the ESL established for the proposed. Reclamation or their contractor will revegetate riparian areas with a substantial diversity of native plant revegetation areas (20 ft x 20 ft pods separated by 20 ft intervals). Planted areas will grow in over time and will provide increased diversity in riparian structure and species over that which presently exists. Because the present Trinity River channel is encroached (up to 300%) with riparian vegetation that is homogenous in nature, strict replacement requirements based on original stem counts and species are not desirable; Floodplain values and functions will be enhanced by the Hocker Flat Project. Consequently, substantial new areas beyond those identified in pre-project plant community delineations, are expected to recruit to riparian (wetland) habitats, of both seasonal and perennial nature, within a 3-5 year post-project window.	have been aerial increases in all riparian plant communities within the ESL established for the proposed. Reclamation or their contractor will revegetate riparian areas with a substantial diversity of native plant revegetation areas (20 ft x 20 ft pods separated by 20 ft intervals). Planted areas will grow in over time and will provide increased diversity in riparian structure and species over that which presently exists. Because the present Trinity River channel is encroached (up to 300%) with riparian vegetation that is homogenous in nature, strict replacement requirements based on original stem counts and species are not desirable; Floodplain values and functions will be enhanced by the Hocker Flat Project. Consequently, substantial new areas beyond those identified in pre-project plant community delineations, are expected to recruit to riparian (wetland) habitats, of both seasonal and perennial nature, within a 3-5 year post-project window.
Level of Significance after Mitigation	Less than Significant	Less than Significant
Impact 3.7-4	**Construction activities associated with the proposed project could disrupt active raptor nests.**	
Mitigation Measures	**4a:** All vegetation (i.e., trees, shrubs) that will need to be removed within the proposed project construction limits shall be removed between August 1st and February 15th (i.e., outside the nesting season for raptor species) to ensure that active raptor nest trees are not removed as a result of proposed project construction activities. If all vegetation removal has been completed between August 1st and February 15th, no pre-construction surveys would be required. **4b:** If vegetation removal cannot be accomplished between August 1st and February 15th , Reclamation shall retain a qualified biologist to conduct a minimum of one survey (subsequent surveys would be separated by at least one week) for nesting raptors, including Cooper's hawk and sharp-shinned hawk, within a 500-foot radius around proposed construction activities. Active raptor nests located within 500 feet of construction activities shall be mapped, where practicable and	**4a:** All vegetation (i.e., trees, shrubs) that will need to be removed within the proposed project construction limits shall be removed between August 1st and February 15th (i.e., outside the nesting season for raptor species) to ensure that active raptor nest trees are not removed as a result of proposed project construction activities. If all vegetation removal has been completed between August 1st and February 15th, no pre-construction surveys would be required. **4b:** If vegetation removal cannot be accomplished between August 1st and February 15th , Reclamation shall retain a qualified biologist to conduct a minimum of one survey (subsequent surveys would be separated by at least one week) for nesting raptors, including Cooper's hawk and sharp-shinned hawk, within a 500-foot radius around proposed construction activities. Active raptor nests located within 500 feet of construction activities shall be mapped, where practicable and

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	Proposed Action (Floodplain and Feathered Edge)	**Alternative 1 (Feathered Edge)**
	feasible. If active nests are identified within the construction disturbance area, they may removed only after the young have fledged, or the fate of the nest has been determined. A qualified biologist shall monitor the nest(s) to determine when the young have fledged and submit status reports to the CDFG, as appropriate, throughout the nesting season. Nest tree removal shall only be performed in consultation with, and with pre-approval from, the CDFG.	feasible. If active nests are identified within the construction disturbance area, they may removed only after the young have fledged, or the fate of the nest has been determined. A qualified biologist shall monitor the nest(s) to determine when the young have fledged and submit status reports to the CDFG, as appropriate, throughout the nesting season. Nest tree removal shall only be performed in consultation with, and with pre-approval from, the CDFG.
Level of Significance after Mitigation	Less than Significant	Less than Significant
Impact 3.7-5	**Construction activities associated with the proposed project could result in impacts to nesting individuals of yellow warbler and yellow-breasted chat.**	
Mitigation Measures	**5a:** All vegetation (i.e., trees, shrubs) that will need to be removed within the construction limits shall be removed between August 1st and March 1st (i.e., outside of the nesting season for yellow warbler and yellow-breasted chat) to ensure that active nest trees are not removed as a result of proposed project construction activities. If all vegetation removal activities are completed between August 1st and March 1st, no pre-construction surveys would be required. **5b:** If vegetation removal cannot be accomplished between August 1st and March 1st, Reclamation shall retain a qualified biologist to conduct a minimum of one survey (subsequent surveys would be separated by at least one week) for yellow warbler and yellow-breasted chat within a 500-foot radius around proposed construction limits. Active nests for each species that are located within 500 feet of construction activities shall be mapped, where practicable and feasible. If active nest trees are identified within the construction disturbance zone, they may only be removed prior to March 1st, or after the young have fledged (based on field verification). A qualified biologist shall monitor the nests to determine when the young have fledged and submit status reports to the CDFG throughout the nesting season. Nest tree removal shall only be performed in consultation with, and with pre-approval from, the CDFG.	**5a:** All vegetation (i.e., trees, shrubs) that will need to be removed within the construction limits shall be removed between August 1st and March 1st (i.e., outside of the nesting season for yellow warbler and yellow-breasted chat) to ensure that active nest trees are not removed as a result of proposed project construction activities. If all vegetation removal activities are completed between August 1st and March 1st, no pre-construction surveys would be required. **5b:** If vegetation removal cannot be accomplished between August 1st and March 1st, Reclamation shall retain a qualified biologist to conduct a minimum of one survey (subsequent surveys would be separated by at least one week) for yellow warbler and yellow-breasted chat within a 500-foot radius around proposed construction limits. Active nests for each species that are located within 500 feet of construction activities shall be mapped, where practicable and feasible. If active nest trees are identified within the construction disturbance zone, they may only be removed prior to March 1st, or after the young have fledged (based on field verification). A qualified biologist shall monitor the nests to determine when the young have fledged and submit status reports to the CDFG throughout the nesting season. Nest tree removal shall only be performed in consultation with, and with pre-approval from, the CDFG.
Level of Significance after Mitigation	Less than Significant	Less than Significant

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	Proposed Action (Floodplain and Feathered Edge)	**Alternative 1 (Feathered Edge)**
Impact 3.7-6	**Construction activities associated with the proposed project could result in impacts to northern spotted owl.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 3.7-7	**Construction activities associated with the proposed project could result in impacts to little willow flycatcher.**	
Mitigation Measures	The following mitigation measures shall be implemented to avoid or minimize potential impacts to little willow flycatcher: **7a:** All vegetation (i.e., trees, shrubs) that will need to be removed within the construction limits (including the temporary construction access routes) shall be removed between September 1st and March 1st (i.e., outside the nesting season for willow flycatcher) to ensure that active nest trees are not removed as a result of proposed project construction activities. Review with TRRP **7b:** If construction is proposed between the months of April and August, and vegetation has not been removed from the construction area, a protocol-level survey for willow flycatchers within 500 feet of the construction limits shall be conducted during the spring prior to construction. If no active nests are observed, construction may proceed. If construction activities are to occur between September and March, no surveys would be required. A letter report that summarizes the survey results shall be submitted to the CDFG. If active nests are present, establish an initial 300-foot no-disturbance buffer around the nest location. The nest will then be monitored by a qualified biologist to determine if the buffer is adequate. If the buffer size does not appear adequate, consultation with CDFG must occur and the buffer size may need to be enlarged.	The following mitigation measures shall be implemented to avoid or minimize potential impacts to little willow flycatcher: **7a:** All vegetation (i.e., trees, shrubs) that will need to be removed within the construction limits (including the temporary construction access routes) shall be removed between September 1st and March 1st (i.e., outside the nesting season for willow flycatcher) to ensure that active nest trees are not removed as a result of proposed project construction activities. Review with TRRP **7b:** If construction is proposed between the months of April and August, and vegetation has not been removed from the construction area, a protocol-level survey for willow flycatchers within 500 feet of the construction limits shall be conducted during the spring prior to construction. If no active nests are observed, construction may proceed. If construction activities are to occur between September and March, no surveys would be required. A letter report that summarizes the survey results shall be submitted to the CDFG. If active nests are present, establish an initial 300-foot no-disturbance buffer around the nest location. The nest will then be monitored by a qualified biologist to determine if the buffer is adequate. If the buffer size does not appear adequate, consultation with CDFG must occur and the buffer size may need to be enlarged.
Level of Significance after Mitigation	Less than Significant	Less than Significant
Impact 3.7-8	**Construction activities associated with the proposed project could result in impacts to BLM sensitive species.**	

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SUMMARY OF IMPACTS AND MITIGATION MEASURES – HOCKER FLAT

	Proposed Action (Floodplain and Feathered Edge)	**Alternative 1 (Feathered Edge)**
Mitigation Measures	Mitigation measures for individual species are listed under each respective impact statement (Impacts 10, 11, and 14).	Mitigation measures for individual species are listed under each respective impact statement (Impacts 10, 11, and 14).
Level of Significance after Mitigation	N/A	N/A
Impact 3.7-9	**Construction activities associated with the proposed project could result in impacts to the Trinity bristle snail.**	
Mitigation Measures	**9a:** If identified potential bristle snail habitat is to be disturbed during construction, a minimum of one survey for Trinity bristle snails in these areas shall be conducted a maximum of one week prior to construction. A qualified biologist shall be retained by Reclamation to conduct the survey. If a Trinity bristle snail is detected, the biologist shall relocate it to a suitable location outside of the construction limits. **9b:** Mitigation measures presented in **Section 3.5** (Water Quality) for addressing erosion and sedimentation and accidental spills shall be fully implemented to mitigate for the potential indirect impacts to riparian habitat due to sedimentation and accidental spills. **9c:** Mitigation measures associated with the disturbance to riparian habitat are discussed previously in this section under impacts to jurisdictional wetlands (Mitigation Measure 3), and will be fully implemented.	**9a:** If identified potential bristle snail habitat is to be disturbed during construction, a minimum of one survey for Trinity bristle snails in these areas shall be conducted a maximum of one week prior to construction. A qualified biologist shall be retained by Reclamation to conduct the survey. If a Trinity bristle snail is detected, the biologist shall relocate it to a suitable location outside of the construction limits. **9b:** Mitigation measures presented in **Section 3.5** (Water Quality) for addressing erosion and sedimentation and accidental spills shall be fully implemented to mitigate for the potential indirect impacts to riparian habitat due to sedimentation and accidental spills. **9c:** Mitigation measures associated with the disturbance to riparian habitat are discussed previously in this section under impacts to jurisdictional wetlands (Mitigation Measure 3), and will be fully implemented.
Level of Significance after Mitigation	N/A	N/A
Impact 3.7-10	**Construction activities associated with the proposed project could result in impacts to the foothill yellow-legged frog.**	
Mitigation Measures	**10a:** If any construction within the Trinity River channel will occur prior to August 1st of any construction season, a pre-construction survey for yellow-legged frog larvae and/or eggs shall be conducted by a qualified biologist. This survey would need to be conducted within the construction limits no more than 2 weeks prior to the start of in-stream construction activities. If larvae or eggs are detected, the biologist shall relocate them to a suitable location outside of the construction limits. **10b:** In the event that a yellow-legged frog is observed within the construction limits, the contractor shall temporarily halt	**10a:** If any construction within the Trinity River channel will occur prior to August 1st of any construction season, a pre-construction survey for yellow-legged frog larvae and/or eggs shall be conducted by a qualified biologist. This survey would need to be conducted within the construction limits no more than 2 weeks prior to the start of in-stream construction activities. If larvae or eggs are detected, the biologist shall relocate them to a suitable location outside of the construction limits. **10b:** In the event that a yellow-legged frog is observed within the construction limits, the contractor shall temporarily halt

TABLE ES-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES – HOCKER FLAT		
	Proposed Action (Floodplain and Feathered Edge)	**Alternative 1 (Feathered Edge)**
	in-stream construction activities until the frog has been moved to a safe location with suitable habitat outside of the construction limits. **10c:** Mitigation measures presented in **Section 3.5** (Water Quality) for addressing erosion and sedimentation and accidental spills shall be fully implemented to mitigate for the potential indirect impacts to potential dispersal habitat due to sedimentation and accidental spills. **10d:** Mitigation measures associated with the disturbance to riparian habitat are discussed in this section under impacts to jurisdictional wetlands (Mitigation Measure 3), and will be fully implemented.	in-stream construction activities until the frog has been moved to a safe location with suitable habitat outside of the construction limits. **10c:** Mitigation measures presented in **Section 3.5** (Water Quality) for addressing erosion and sedimentation and accidental spills shall be fully implemented to mitigate for the potential indirect impacts to potential dispersal habitat due to sedimentation and accidental spills. **10d:** Mitigation measures associated with the disturbance to riparian habitat are discussed in this section under impacts to jurisdictional wetlands (Mitigation Measure 3), and will be fully implemented.
Level of Significance after Mitigation	Less than Significant	Less than Significant
Impact 3.7-11	**Construction activities associated with the proposed project could result in impacts to northwestern pond turtle.**	
Mitigation Measures	**11a:** A minimum of one survey for pond turtle nests shall be conducted a maximum of one week prior to construction. A qualified biologist shall be retained by Reclamation to conduct the survey. If a pond turtle nest is found, the biologist shall flag the site and determine whether construction activities can avoid impacting the nest. If the nest cannot be avoided, the nest should be excavated by the biologist and reburied at a suitable location outside of the construction limits. **11b:** A biological monitor shall be present on-site during construction to monitor the presence/absence of pond turtles. In the event that a pond turtle is observed within the construction limits, the contractor shall temporarily halt construction activities until the turtle has been moved to a safe location with suitable habitat outside of the construction limits. **11c:** Mitigation measures presented in **Section 3.5** (Water Quality) for addressing erosion and sedimentation and accidental spills shall be fully implemented to mitigate for the potential indirect impacts to potential dispersal habitat due to sedimentation and accidental spills. **11d:** Mitigation measures associated with the disturbance to riparian habitat are discussed in this section under impacts to jurisdictional wetlands (Mitigation Measure	**11a:** A minimum of one survey for pond turtle nests shall be conducted a maximum of one week prior to construction. A qualified biologist shall be retained by Reclamation to conduct the survey. If a pond turtle nest is found, the biologist shall flag the site and determine whether construction activities can avoid impacting the nest. If the nest cannot be avoided, the nest should be excavated by the biologist and reburied at a suitable location outside of the construction limits. **11b:** A biological monitor shall be present on-site during construction to monitor the presence/absence of pond turtles. In the event that a pond turtle is observed within the construction limits, the contractor shall temporarily halt construction activities until the turtle has been moved to a safe location with suitable habitat outside of the construction limits. **11c:** Mitigation measures presented in **Section 3.5** (Water Quality) for addressing erosion and sedimentation and accidental spills shall be fully implemented to mitigate for the potential indirect impacts to potential dispersal habitat due to sedimentation and accidental spills. **11d:** Mitigation measures associated with the disturbance to riparian habitat are discussed in this section under impacts to jurisdictional wetlands (Mitigation Measure

TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES – HOCKER FLAT

	Proposed Action (Floodplain and Feathered Edge)	**Alternative 1 (Feathered Edge)**
	3), and will be fully implemented.	3), and will be fully implemented.
Level of Significance after Mitigation	Less than Significant	Less than Significant
Impact 3.7-12	**Construction activities associated with the proposed project could restrict terrestrial wildlife movement through the ESL.**	
Mitigation Measures	Since no significant impact was identified for these alternatives, no mitigation is required.	Since no significant impact was identified for these alternatives, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 3.7-13	**Construction activities associated with the proposed project could result in the loss of bald eagle, golden eagle, American peregrine falcon, and osprey foraging and perching habitat.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 3.7-14	**Construction activities associated with the proposed project could result in the loss of roosting and foraging habitat for bat species.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 3.7-15	**Implementation of the proposed project could result in the spread of non-native and invasive plant species.**	
Mitigation Measures	The potential for introduction and spread of noxious weeds shall be minimized by: **15a:** Using only certified weed-free erosion control materials, mulch, and seed. **15b:** Precluding the use of rice straw in riparian areas. **15c:** Limiting any import or export of fill to material not known to be weed free. **15d:** Requiring the construction contractor to thoroughly wash all equipment at a commercial wash facility prior to entering the County. **15e:** If it is determined that non-native vegetation is out-competing growth of desired planted or colonizing riparian vegetation opportunities to control these non-native species may be considered. Within the first 3-5 post-project potential to mow of remove exotic species by manual	The potential for introduction and spread of noxious weeds shall be minimized by: **15a:** Using only certified weed-free erosion control materials, mulch, and seed. **15b:** Precluding the use of rice straw in riparian areas. **15c:** Limiting any import or export of fill to material not known to be weed free. **15d:** Requiring the construction contractor to thoroughly wash all equipment at a commercial wash facility prior to entering the County. **15e:** If it is determined that non-native vegetation is out-competing growth of desired planted or colonizing riparian vegetation opportunities to control these non-native species may be considered. Within the first 3-5 post-project potential to mow of remove exotic species by manual methods may be considered if deemed

TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES – HOCKER FLAT

	Proposed Action (Floodplain and Feathered Edge)	**Alternative 1 (Feathered Edge)**
	methods may be considered if deemed appropriate.	appropriate.
Level of Significance after Mitigation	Less than Significant	Less than Significant
3.8 Recreation		
Impact 3.8-1	**Construction associated with the proposed project could disrupt recreation activities (boating, fishing, and swimming) in the Trinity River.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 3.8-2	**Construction of the proposed project could result in an increased safety risk to recreational users.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 3.8-3	**Construction activities associated with the proposed project could lower the river's aesthetic values for recreationists by increasing turbidity levels in the Trinity River.**	
Mitigation Measures	**3a:** Turbidity increases associated with proposed project construction activities shall not exceed the NCRWQCB water quality objectives for turbidity in the Trinity River basin. Turbidity levels are defined in nephelometric turbidity units (NTUs). The current threshold for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (2001), is summarized below. ▪ Turbidity shall not be increased by more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof. **3b:** To ensure that turbidity levels do not exceed the threshold listed above during river's edge project construction activities, Reclamation or their contractor shall monitor turbidity levels 50 feet upstream and 500 feet downstream of the point of river's edge construction activities. At a minimum, field turbidity	**3a:** Turbidity increases associated with proposed project construction activities shall not exceed the NCRWQCB water quality objectives for turbidity in the Trinity River basin. Turbidity levels are defined in nephelometric turbidity units (NTUs). The current threshold for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (2001), is summarized below. ▪ Turbidity shall not be increased by more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof. **3b:** To ensure that turbidity levels do not exceed the threshold listed above during river's edge project construction activities, Reclamation or their contractor shall monitor turbidity levels 50 feet upstream and 500 feet downstream of the point of river's edge construction activities. At a minimum, field turbidity

TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES – HOCKER FLAT

	Proposed Action (Floodplain and Feathered Edge)	**Alternative 1 (Feathered Edge)**
	measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during periods of increased turbidity. **3c**: Reclamation or their contractor shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that includes silt fences, sediment filters, dewatering activities, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls and dewatering activities shall be adequate to minimize sediment inputs into the Trinity River until vegetation re-growth occurs. All sediment containment devices and erosion control devices will be inspected daily during the construction period to ensure that the devices are properly functioning. Excavated and stored materials will be kept in upland sites with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland sites. All applicable erosion control standards will be required during stockpiling of materials.	measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during periods of increased turbidity. **3c**: Reclamation or their contractor shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that includes silt fences, sediment filters, dewatering activities, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls and dewatering activities shall be adequate to minimize sediment inputs into the Trinity River until vegetation re-growth occurs. All sediment containment devices and erosion control devices will be inspected daily during the construction period to ensure that the devices are properly functioning. Excavated and stored materials will be kept in upland sites with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland sites. All applicable erosion control standards will be required during stockpiling of materials.
Level of Significance after Mitigation	Less than Significant	Less than Significant
Impact 3.8-4	**Construction activities associated with the proposed project could reduce or eliminate public access to the Trinity River.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 3.8-5	**Implementation of the proposed project could affect Wild and Scenic River values.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A

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SUMMARY OF IMPACTS AND MITIGATION MEASURES – HOCKER FLAT

	Proposed Action (Floodplain and Feathered Edge)	**Alternative 1 (Feathered Edge)**
3.9 Socioeconomics, Population, and Housing		
Impact 3.9-1	**Construction of the proposed project would provide temporary employment opportunities for construction workers in Trinity County.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 3.9-2	**Implementation of the proposed project could result in the disruption or displacement of local businesses.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 3.9-3	**Implementation of the proposed project would result in an increased demand for housing during construction.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
3.10 Tribal Trust		
Impact 3.10-1	**Implementation of the proposed project may reduce the quantity or quality of Indian trust assets.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
3.11 Cultural Resources		
Impact 3.11-1	**Implementation of the proposed project could potentially result in disturbance of undiscovered prehistoric or historic resources.**	
Mitigation Measures	**1a:** Prior to initiation of construction or ground-disturbing activities, all construction workers shall be alerted to the possibility of buried cultural remains. This would include prehistoric and/or historic resources. Personnel shall be instructed that upon discovery of buried cultural materials, work within 50 feet of the find shall be halted and Reclamation's	**1a:** Prior to initiation of construction or ground-disturbing activities, all construction workers shall be alerted to the possibility of buried cultural remains. This would include prehistoric and/or historic resources. Personnel shall be instructed that upon discovery of buried cultural materials, work within 50 feet of the find shall be halted and Reclamation's

TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES – HOCKER FLAT

	Proposed Action (Floodplain and Feathered Edge)	**Alternative 1 (Feathered Edge)**
	designated archaeologist consulted. Once the find has been identified, then Reclamation will make the necessary plans for treatment of the finds(s) and for the evaluation and mitigation of impacts if the find(s) are found to be significant as defined in the PA. **1b:** If buried human remains are encountered on non-federal lands during construction, work in that area must be halted, and the Trinity County Coroner's Office ([530] 623-4154) shall be immediately contacted. If the remains are determined to be of Native American origin, then the Native American Heritage Commission (NAHC) will be notified within 24 hours of determination, as required by *Public Resources Code* 5097. The NAHC will notify designated Most Likely Descendants, which will provide recommendations for the treatment of the remains within 24 hours. The NAHC will mediate any disputes regarding treatment of remains. For the discovery of Native American human remains and associated items on Federal lands the Native American Graves Protection Act (25 U.S.C. 3001)and its implementing regulations (43 CFR Part 10) will be followed. If the find is determined to be an historical resource or a unique archaeological resource, as defined by CEQA, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or other appropriate mitigation shall be made available. Work may continue on other parts of the proposed project while historical or unique archaeological resource mitigation takes place.	designated archaeologist consulted. Once the find has been identified, then Reclamation will make the necessary plans for treatment of the finds(s) and for the evaluation and mitigation of impacts if the find(s) are found to be significant as defined in the PA. **1b:** If buried human remains are encountered on non-federal lands during construction, work in that area must be halted, and the Trinity County Coroner's Office ([530] 623-4154) shall be immediately contacted. If the remains are determined to be of Native American origin, then the Native American Heritage Commission (NAHC) will be notified within 24 hours of determination, as required by *Public Resources Code* 5097. The NAHC will notify designated Most Likely Descendants, which will provide recommendations for the treatment of the remains within 24 hours. The NAHC will mediate any disputes regarding treatment of remains. For the discovery of Native American human remains and associated items on Federal lands the Native American Graves Protection Act (25 U.S.C. 3001)and its implementing regulations (43 CFR Part 10) will be followed. If the find is determined to be an historical resource or a unique archaeological resource, as defined by CEQA, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or other appropriate mitigation shall be made available. Work may continue on other parts of the proposed project while historical or unique archaeological resource mitigation takes place.
Level of Significance after Mitigation	Less than Significant	Less than Significant

TABLE ES-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES – HOCKER FLAT		
	Proposed Action (Floodplain and Feathered Edge)	**Alternative 1 (Feathered Edge)**
3.12 Air Quality		
Impact 3.12-1	**Construction activities associated with the proposed project could result in an increase in fugitive dust and associated particulate matter (PM_{10}; $PM_{2.5}$) levels.**	
Mitigation Measures	**1a:** Reclamation shall include provisions in the construction bid documents that the contractor shall implement a dust control program to limit fugitive dust and PM_{10} emissions. The dust control program may include, but not be limited, to the following elements, as appropriate: ▪ Water inactive construction sites at least twice daily. ▪ Pursuant to *California Vehicle Code* (Section 23114), all trucks hauling soil and other loose material to and from the construction site shall be covered or should maintain at least two feet of freeboard (i.e., minimum vertical distance between top of load and the trailer). ▪ Excavation activities and other soil-disturbing activities shall be conducted in phases to reduce the amount of bare soil exposed at any one time. Mulching with weed free materials may be used in site-specific locations to minimize soil erosion as described in discussed in **Section 3.3** and **3.5**. ▪ Equipment and manual watering would be conducted on all stockpiles, dirt/ gravel roads, and exposed or disturbed soil surfaces, as necessary, to reduce airborne dust. ▪ Sweep (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites as required by Reclamation. ▪ Sweep roads (with water sweepers) if visible soil material is carried onto adjacent public roads as required by Reclamation. ▪ All ground-disturbing activities with potential to generate dust shall be suspended when winds exceed 20 miles per hour, as directed by the NCUAQMD. ▪ Reclamation or its contractor would designate a person to monitor dust	**1a:** Reclamation shall include provisions in the construction bid documents that the contractor shall implement a dust control program to limit fugitive dust and PM_{10} emissions. The dust control program may include, but not be limited, to the following elements, as appropriate: ▪ Water inactive construction sites at least twice daily. ▪ Pursuant to *California Vehicle Code* (Section 23114), all trucks hauling soil and other loose material to and from the construction site shall be covered or should maintain at least two feet of freeboard (i.e., minimum vertical distance between top of load and the trailer). ▪ Excavation activities and other soil-disturbing activities shall be conducted in phases to reduce the amount of bare soil exposed at any one time. Mulching with weed free materials may be used in site-specific locations to minimize soil erosion as described in discussed in **Section 3.3** and **3.5**. ▪ Equipment and manual watering would be conducted on all stockpiles, dirt/ gravel roads, and exposed or disturbed soil surfaces, as necessary, to reduce airborne dust. ▪ Sweep (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites as required by Reclamation. ▪ Sweep roads (with water sweepers) if visible soil material is carried onto adjacent public roads as required by Reclamation. ▪ All ground-disturbing activities with potential to generate dust shall be suspended when winds exceed 20 miles per hour, as directed by the NCUAQMD. ▪ Reclamation or its contractor would designate a person to monitor dust control and to order increased watering

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SUMMARY OF IMPACTS AND MITIGATION MEASURES – HOCKER FLAT

	Proposed Action (Floodplain and Feathered Edge)	**Alternative 1 (Feathered Edge)**
	control and to order increased watering as necessary to prevent transport of dust offsite. The person would also respond to citizen complaints.	as necessary to prevent transport of dust offsite. The person would also respond to citizen complaints.
Level of Significance after Mitigation	Less than Significant	Less than Significant
Impact 3.12-2	**Construction activities associated with the proposed project could result in an increase in construction vehicle exhaust emissions.**	
Mitigation Measures	**2a:** Reclamation shall include provisions in the construction bid documents that the contractors comply with NCUAQMD *Rule 420*. This compliance could occur through the use of portable internal combustion engines registered and certified under the state portable equipment regulation (*Health & Safety Code* 41750 through 41755).	**2a:** Reclamation shall include provisions in the construction bid documents that the contractors comply with NCUAQMD *Rule 420*. This compliance could occur through the use of portable internal combustion engines registered and certified under the state portable equipment regulation (*Health & Safety Code* 41750 through 41755).
Level of Significance after Mitigation	Less than Significant	Less than Significant
3.13 Environmental Justice		
Impact 3.13-1	**Implementation of the proposed project could adversely affect a minority or low-income population and/or community.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
3.14 Aesthetics		
Impact 3.14-1	**Implementation of the proposed project could result in the degradation and/or obstruction of a scenic view from key observation areas.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A

TABLE ES-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES – HOCKER FLAT		
	Proposed Action (Floodplain and Feathered Edge)	**Alternative 1 (Feathered Edge)**
Impact 3.14-2	**Implementation of the proposed project could substantially change the character of, or be disharmonious with, existing land uses and aesthetic features.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 3.14-3	**The proposed Project may be inconsistent with the federal and/or state Wild and Scenic River Act requirements.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 3.14-4	**The proposed project may be inconsistent with the federal or state Wild and Scenic River Acts or Scenic Byway requirements.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
3.15 Hazardous Materials		
Impact 3.15-1	**Implementation of the proposed project may increase the potential for release or exposure to potentially hazardous materials that could pose a public health or safety hazard.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 3.15-2	**Construction activities associated with the proposed project may interfere with emergency response/evacuation plans by temporarily slowing traffic flow.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A

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SUMMARY OF IMPACTS AND MITIGATION MEASURES – HOCKER FLAT

	Proposed Action (Floodplain and Feathered Edge)	Alternative 1 (Feathered Edge)
3.16 Noise		
Impact 3.16-1	**Construction activities associated with the proposed project would result in temporary noise impacts to nearby sensitive receptors.**	
Mitigation Measures	**1a:** Construction activities near residential areas would be scheduled between 7:00 AM and 7:00 PM, Monday through Saturday. No construction activities shall be scheduled for Sundays or other hours and days, as established by the local jurisdiction (e.g. Trinity County). The contractor may submit for variances in construction activity hours, as needed. **1b:** Reclamation shall require in construction specifications that the contractor maintain all construction equipment with manufacturer's specified noise muffling devices. **1c:** Reclamation shall require in construction specifications that the contractor place all stationary noise generating equipment as far away as feasibly possible from sensitive noise receptions or in an orientation minimizing noise impacts (i.e., behind existing barriers, storage piles, unused equipment).	**1a:** Construction activities near residential areas would be scheduled between 7:00 AM and 7:00 PM, Monday through Saturday. No construction activities shall be scheduled for Sundays or other hours and days, as established by the local jurisdiction (e.g. Trinity County). The contractor may submit for variances in construction activity hours, as needed. **1b:** Reclamation shall require in construction specifications that the contractor maintain all construction equipment with manufacturer's specified noise muffling devices. **1c:** Reclamation shall require in construction specifications that the contractor place all stationary noise generating equipment as far away as feasibly possible from sensitive noise receptions or in an orientation minimizing noise impacts (i.e., behind existing barriers, storage piles, unused equipment).
Level of Significance after Mitigation	Less than Significant	Less than Significant
3.17 Public Services and Utilities/Energy		
Impact 3.17-1	**Implementation of the proposed project could potentially disrupt existing electrical and phone service during the construction phase.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 3.17-2	**Construction of the proposed project could result in the generation of increased solid waste.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A

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SUMMARY OF IMPACTS AND MITIGATION MEASURES – HOCKER FLAT

	Proposed Action (Floodplain and Feathered Edge)	Alternative 1 (Feathered Edge)
Impact 3.17-3	**Implementation of the proposed project may result in disruption of emergency services or disruption to school bus routes or student travel routes during the construction phase.**	
Mitigation Measures	**3a:** Reclamation shall stipulate in the contract specifications for construction that the contractor must stage construction work and temporary closures in a manner that will allow for emergency service provider access. **3b:** Reclamation shall stipulate in the contract specifications that the contractor must provide 72-hour notice to the local emergency providers (i.e., TCSD, CDF, LCSD, Trinity Life Support Ambulance, and STAR) prior to the start of temporary closures.	**3a:** Reclamation shall stipulate in the contract specifications for construction that the contractor must stage construction work and temporary closures in a manner that will allow for emergency service provider access. **3b:** Reclamation shall stipulate in the contract specifications that the contractor must provide 72-hour notice to the local emergency providers (i.e., TCSD, CDF, LCSD, Trinity Life Support Ambulance, and STAR) prior to the start of temporary closures.
Level of Significance after Mitigation	Less than Significant	Less than Significant
Impact 3.17-4	**Construction of the proposed project could result in a substantial use of nonrenewable energy resources.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
3.18 Transportation / Traffic Circulation		
Impact 3.18-1	**Construction of the proposed project would reduce/close existing traffic lanes.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 3.18-2	**Construction of the proposed project would generate short-term increases in vehicle trips.**	
Mitigation Measures	Since no significant impact was identified for this alternative, no mitigation is required.	Since no significant impact was identified for this alternative, no mitigation is required.
Level of Significance after Mitigation	N/A	N/A
Impact 3.18-3	**Construction of the proposed project would affect access to adjacent land uses.**	
Mitigation Measures	**3a** Construction bid documents will require that access be maintained throughout the construction period for all private residences adjacent to the proposed project.	**3a** Construction bid documents will require that access be maintained throughout the construction period for all private residences adjacent to the proposed project.

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SUMMARY OF IMPACTS AND MITIGATION MEASURES – HOCKER FLAT

	Proposed Action (Floodplain and Feathered Edge)	Alternative 1 (Feathered Edge)
	3b During the construction phase of the proposed project, Reclamation shall limit the amount of daily construction equipment traffic by staging most construction equipment and vehicles on the proposed project site at the end of each work day.	**3b** During the construction phase of the proposed project, Reclamation shall limit the amount of daily construction equipment traffic by staging most construction equipment and vehicles on the proposed project site at the end of each work day.
Level of Significance after Mitigation	Less than Significant	Less than Significant
Impact 3.18-4	**Construction of the proposed project would increase local roadway wear-and-tear.**	
Mitigation Measures	**4a** Reclamation shall include provisions in the contract specifications that require the construction contractor to perform a pre-construction survey with Trinity County Department of Transportation officials to determine the existing roadway conditions of the construction access route (Dutch Creek and Red Hill Roads). An agreement would be entered into prior to construction that would detail the pre-construction conditions and post-construction requirements for potential roadway rehabilitation. **4b** A post-construction survey of the construction access route (Dutch Creek and Red Hill Roads) shall be performed with Trinity County Department of Transportation officials to determine if any damage has occurred during construction. If necessary, Reclamation shall require the contractor to conduct the required roadway rehabilitation identified in the mutual agreement between Reclamation and Trinity County Department of Transportation.	**4a** Reclamation shall include provisions in the contract specifications that require the construction contractor to perform a pre-construction survey with Trinity County Department of Transportation officials to determine the existing roadway conditions of the construction access route (Dutch Creek and Red Hill Roads). An agreement would be entered into prior to construction that would detail the pre-construction conditions and post-construction requirements for potential roadway rehabilitation. **4b** A post-construction survey of the construction access route (Dutch Creek and Red Hill Roads) shall be performed with Trinity County Department of Transportation officials to determine if any damage has occurred during construction. If necessary, Reclamation shall require the contractor to conduct the required roadway rehabilitation identified in the mutual agreement between Reclamation and Trinity County Department of Transportation.
Level of Significance after Mitigation	Less than Significant	Less than Significant
Impact 3.18-5	**Construction of the proposed project could pose a safety hazard to motorists, bicyclists, and pedestrians.**	
Mitigation Measures	**5a** Reclamation shall include provisions in the contract specifications that require the construction contractor to prepare and implement a traffic control plan that would include: provision and maintenance of temporary access through the construction zone, reduction of speed limits though the construction zone, signage and appropriate traffic control devices, illumination during hours	**5a** Reclamation shall include provisions in the contract specifications that require the construction contractor to prepare and implement a traffic control plan that would include: provision and maintenance of temporary access through the construction zone, reduction of speed limits though the construction zone, signage and appropriate traffic control devices, illumination during hours of

TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES – HOCKER FLAT

	Proposed Action (Floodplain and Feathered Edge)	**Alternative 1 (Feathered Edge)**
	of darkness or limited visibility, use of safety clothing/vests to ensure visibility of construction workers by motorists, and fencing as appropriate to separate pedestrians and bicyclists from construction activities.	darkness or limited visibility, use of safety clothing/vests to ensure visibility of construction workers by motorists, and fencing as appropriate to separate pedestrians and bicyclists from construction activities.
Level of Significance after Mitigation	Less than Significant	Less than Significant

Hocker Flat Rehabilitation Site

Trinity River Mile 78 to 79.1

Environmental Assessment/
Draft Environmental Impact Report

Volume 2

EA/DEIR - Chapters 1-9

August 2004

State Clearinghouse
SCH#2004052076

Prepared for:
Trinity River Restoration Program

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CHAPTER 1

Introduction

Chapter 1

Introduction

1.1 Introduction

This Environmental Assessment/Draft Environmental Impact Report (EA/DEIR) for the Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1 addresses the environmental issues, alternatives, and impacts associated with the proposed modification of the bed and bank of the Trinity River near Hocker Flat (proposed project). The project is required for the restoration of Trinity River mainstem fisheries and is specifically designed for the benefit of anadromous fish and their habitat through development of properly functioning and diverse floodplain and main river channel habitat. Hocker Flat is an alluvial feature of the Trinity River immediately downstream of Canyon Creek and the community of Junction City, Trinity County, California.

The U.S. Bureau of Reclamation (Reclamation) and the California Department of Water Resources (DWR) prepared this EA/DEIR in cooperation with the U.S. Bureau of Land Management (BLM). This document meets the legal requirements of the National Environmental Policy Act (NEPA) (42 United States Code [USC], Section 4321 et seq.) and the California Environmental Quality Act (CEQA) (California Public Resources Code, Section 21000 et seq.). Reclamation will be responsible for the construction of the proposed project and will function as the federal lead agency for NEPA and federal Endangered Species Act requirements. DWR will function as the state lead agency under CEQA. Due to their extensive experience and land holdings along the Trinity River below Lewiston, the BLM will perform duties of a NEPA Cooperating Agency for the project. It has assisted in the preparation of this EA/DEIR and, as the manager of the Wild and Scenic Corridor established for the designated reach of the Trinity River, it analyzed potential impacts to the Outstandingly Remarkable Values (ORVs) for which the Trinity River was designated under the federal Wild and Scenic River Act.

This document discloses relevant information to all interested parties and invites these parties to play a role in both the decision-making process and the implementation of the decision. This EA/DEIR also provides federal, state, and local decision-makers with detailed information concerning the potentially significant environmental, social, economic, cultural, and other impacts associated with alternative courses of action for the proposed project.

The Record of Decision (ROD) for the Trinity River Mainstem Fishery Restoration Final Environmental Impact Statement/Environmental Impact Report (FEIS/EIR) dated December 19, 2000, directed the Department of the Interior (DOI) agencies to implement the Preferred Alternative identified in the FEIS/EIR. In addition to the Flow Evaluation Alternative, elements of the Mechanical Restoration Alternative were included in the decision (U.S. Department of the Interior 2000). The ROD set forth prescribed Trinity River flows for five different water-year types: extremely wet (815,200 acre-feet annually [afa]; wet (701,000 afa); normal (646,900 afa); dry (452,600 afa); and critically dry (368,600 afa).

After the ROD was issued, a lawsuit was filed challenging the FEIS and the ROD. In orders issued in April and September 2001, Judge Oliver Wanger of the United States District Court for the Eastern District of California enjoined additional flows beyond those prescribed in the ROD for a critically dry year, pending completion of a Supplemental Environmental Impact Statement (SEIS) for the December 2000 "Flow Decision" portion of the ROD. However, the court expressly authorized and directed the DOI to proceed with non-flow aspects of the ROD, including, presumably, mainstem channel rehabilitation activities on the Trinity River. Implicit in Judge Wanger's initial decision was the notion that the NEPA portion of the FEIS/EIR remained available as a first tier or programmatic document that could be used as baseline data for second tier-level NEPA documents. These federal court decisions did not constitute a final ruling on the merits of the lawsuit challenging the ROD and FEIS, but rather were issued in response to requests for interim injunctive relief, pending a final resolution on the merits.

Trinity County was the lead agency under CEQA for the FEIS/EIR. The Trinity County Board of Supervisors chose not to "certify" the EIR portion of the joint NEPA/CEQA document based on Judge Wanger's order requiring supplemental analyses to achieve full NEPA compliance for the Flow Decision. "Tiering" is therefore not available for the EIR portion of this document. The EIR portion will therefore function as a stand-alone document, and is in no way dependent for its legal adequacy—for CEQA purposes only—on the FEIS/EIR.

On December 9, 2002, Judge Wanger issued a "Memorandum Decision" (**Appendix A**). This decision, which relates to the merits of the challenge to the FEIS rather than interim requests for injunctive relief, addressed what he found to be legal deficiencies in the December 19, 2000, ROD issued by former Secretary of the Interior Bruce Babbitt. These defects related to both the FEIS and the related Biological Opinions issued by the National Marine Fisheries Service (NMFS; now known as NOAA Fisheries) and the U.S. Fish and Wildlife Service (USFWS). Because of the defects the court found in the FEIS, it ordered the preparation of a Supplemental EIS (SEIS), which was to be completed within 120 days of issuance of the Memorandum Decision (i.e., by April 10, 2003). The court also set forth a flow regime for the Trinity River that was to remain in effect while the process of completing the SEIS was underway. As set forth on pages 136, 137, and 143 of the Memorandum Decision, Secretary Babbitt's ROD would govern flow levels for both critically dry (368,600 afa) and dry (452,600 afa) years, with the latter figure operating as a cap for controlled flows even in normal, wet, and extremely wet years. The ROD had provided for 646,900 afa in normal years, 701,000 afa in wet years, and 815,200 afa in extremely wet years.

The Memorandum Decision expressly authorizes and directs DOI agencies to proceed with non-flow aspects of the FEIS/EIR (U.S. Fish and Wildlife Service et al. 2000a). In the interim, Reclamation, through the Trinity River Restoration Program (TRRP), has developed a strategy that includes implementation of a pilot (demonstration) rehabilitation project. The Hocker Flat site was selected because of willing landowner support, and because the project is located far enough downstream from Lewiston Dam that there is a high likelihood that changes resulting from proposed rehabilitation activities would be maintained by existing hydraulic and hydrologic processes (pre-ROD flows). Implicit in Judge Wanger's decision was the recommendation that the NEPA portion of the FEIS/EIR (U.S. Fish and

Wildlife Service et al. 2000a) remain available as a first tier or programmatic document that could be used as a baseline for second tier-level NEPA documents, where appropriate.

On February 24, 2003, Judge Wanger heard arguments in connection with his final judgment in the case. At the end of this hearing, he extended the deadline for completing the SEIS from April 10, 2003, to July 9, 2004. In all other respects, however, his reasoning tracked the December 9, 2002, Memorandum Decision. For example, the final judgment states that "nothing in this judgment is intended to delay or to affect implementation of any other fishery restoration measure identified in the ROD." The referenced measures presumably include the proposed project.

In response to an appeal of their ruling by Judge Wanger, the United States Court of Appeals for the Ninth Circuit issued an opinion on July 13, 2004 that reversed the earlier rulings made by the District Court. This opinion reversed the district court's finding that the scope of the EIS and the range of alternatives considered therein were unreasonable and reversed the district court's injunctive orders to supplement the EIS to address the issues raised on appeal. The opinion also affirmed the district court's ruling that two of the mitigation measures insisted upon by the USFWS and NOAA Fisheries in their biological opinions exceeded the statutory authority for such opinions. Lastly, the court rejected the three claims raised by Plaintiffs on cross-appeal and affirmed the remainder of the judgment.

In conclusion, the court reversed the district court's holding that the EIS failed to consider a reasonable range of alternatives and that a supplemental EIS (SEIS) was required. Based on these conclusions, the court disposed of all of the issues ordered to be considered in the SEIS, stated that nothing remains to prevent the full implementation of the ROD, including its complete flow plan for the Trinity River.

Final resolution of this litigation is pending as this EA/DEIR is submitted for public review and comment. Based on information available, it is anticipated that the SEIS will not be completed, although the final outcome is dependent on the completion of the proceeding. Following the close of the public comment period, the lead agencies expect to issue an EA/Final EIR that reflects the public comments, and the outcome of the pending litigation.

Based on direction provided in the July 2004 opinion, the flows authorized by the 2000 ROD are deemed to constitute the "existing [hydrological] environment" for CEQA purposes, and are considered the basis for the environmental analysis of the proposed project under both NEPA and CEQA.

Copies of all of the above-referenced court documents, as well as the December 19, 2000, ROD, and the documents that, taken together, constitute the FEIS/EIR, are available for public review at:

The Trinity River Restoration Program Office
United States Department of the Interior – Bureau of Reclamation
PO Box 1300
1313 South Main Street
Weaverville, California 96093

The decision to prepare a stand-alone EIR in the absence of a certified EIR for the Trinity River Mainstem Fishery Restoration Program is consistent with the *CEQA Guidelines*. Because Judge Wanger

has given Reclamation and other federal agencies permission to proceed with the non-flow measures outlined in the FEIS, DWR considers that there is a viable need for the proposed project based on this federal policy standpoint and DWR's role in satisfying state and local requirements under CEQA. DWR's role in facilitating the proposed project is to ensure that state and local permitting requirements are satisfied and that the EIR portion of the NEPA/CEQA document is legally adequate for use by DWR and the agencies responsible for CEQA compliance. Notably, DWR lacks the power or authority to influence the overall Flow Decision; and its decision to facilitate mechanical rehabilitation projects to accommodate federal agencies acting pursuant to the December 2000 ROD and a federal court order will not constitute "CEQA clearance" for the entire Flow Decision. In any event, the proposed project is designed to be self-maintaining and responsive to flows independent of any future ROD flows.

In other words, the proposed project has "independent utility" and is not dependent on future ROD flows for its justification. Such justification will exist even if, for whatever reason, the opinion issued by the United States Court of Appeals for the Ninth Circuit is reversed through reconsideration or appeal.

1.2 Project History and Background

Completion of the Trinity and Lewiston Dams in 1964 blocked migratory fish access to habitat upstream of Lewiston Dam, eliminated sediment transport from over 700 square miles of the upper watershed, and restricted anadromous fish populations to the remaining habitat below Lewiston Dam. Trans-basin diversions from Lewiston Reservoir to the Sacramento River altered the hydrologic regime of the Trinity River, resulting in riparian encroachment and fossilization of point bars from Lewiston to near the North Fork Trinity River. Encroachment of riparian vegetation into the former active channel promoted the deposition of fine-textured sediments, resulting in the formation of linear berms that further confined and simplified the channel, reduced the diversity of riparian age classes and riparian vegetation species, impaired floodplain access, and adversely affected fish habitat.

In 1981, in response to these adverse impacts on fish habitat and subsequent declines in salmon runs, the Secretary of the Interior directed the USFWS to initiate a 12-year flow study to determine the effectiveness of flow restoration and other mitigation measures for impacts of the Trinity River Diversion (TRD). Then, in 1984, Congress enacted the Trinity River Fish and Wildlife Program to further promote and support management and fishery restoration actions in the Trinity River basin. Under this program, nine pilot bank rehabilitation projects between River Mile (RM) 101 and RM 111 were implemented between 1991 and 1993, among other actions.

In 1992, Congress enacted the Central Valley Project Improvement Act (CVPIA). One purpose of the CVPIA was to protect, restore, and enhance fish, wildlife, and associated habitats in the Trinity River basin. The act also directed the Secretary to finish the 12-year Trinity River Flow Evaluation Study (TRFES) and to develop recommendations "regarding permanent instream fishery flow requirements, Trinity River Division operating criteria, and procedures for the restoration and maintenance of the Trinity River fishery." The Trinity River Flow Evaluation Final Report was ultimately published in 1999 by the USFWS and the Hoopa Valley Tribe (HVT), providing a framework for restoration activities below Lewiston Dam.

In 1994, the USFWS as the NEPA lead agency and Trinity County as the CEQA lead agency began the public process for developing the Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the Trinity River Mainstem Fishery Restoration Program. The FEIS, published in October 2000, functions as a project-level NEPA document for policy decisions associated with managing Trinity River flows and as a programmatic NEPA document providing first-tier review of other potential actions, including the proposed project. As noted in **Section 1.1**, however, the Trinity County Board of Supervisors has never certified the EIR portion of the FEIS/EIR for the Trinity River Mainstem Fishery Restoration Program. Thus, there is no "first tier" CEQA document that can be used for the proposed project. For this reason, this EIR is intended to function as a complete, stand-alone CEQA document not dependent on any prior CEQA document for addressing impacts that must be analyzed under CEQA.

The proposed project is one part of a larger effort to restore the anadromous fishery of the Trinity River, as described in the Secretary of the Interior's 2000 Trinity River ROD. Although the flow schedule prescribed by the ROD has been upheld by United States Court of Appeals for the Ninth Circuit, the timeframe for completion of the EA/DEIR prohibits disclosure of the ultimate resolution of this case. The EA/Final EIR will provide additional information on the outcome of this proceeding, although both courts were in agreement that the proposed project has been ordered to proceed.

Prior to July 2004, Reclamation, in conjunction with USFWS, Hoopa Valley Tribe, and Trinity County, were preparing an SEIS for the Trinity River Mainstem Fishery Restoration in compliance with the decisions issued by Judge Wanger (United States District Court, Eastern District of California: CIV-F-00-7124 OWW DLB), as discussed in **Section 1.1**. Pending the outcome of the opinion issued by the United States Court of Appeals for the Ninth Circuit on July 13, 2004, the SEIS has been postponed indefinitely. At this point, the lead agencies do not intend to complete the CEQA portion of the joint SEIS/EIR document, pending the outcome of the litigation.

The TRRP is currently evaluating other restoration projects proposed for the Trinity River. These projects include coarse sediment/spawning gravel supplementation, infrastructure improvement projects to protect private and public property from damage by ROD flows, and watershed improvement projects. Since these projects may occur simultaneously, the lead agencies and other members of the Trinity Management Council (TMC) are making a concerted effort to ensure that the models, data, assumptions, and analyses for these projects are fully coordinated.

Numerous other watershed restoration projects are being planned and implemented throughout the Trinity River basin. The Trinity County Resource Conservation District (TCRCD), the BLM, and the Shasta-Trinity National Forest (STNF), with funding provided by the California Department of Fish and Game's (CDFG's) Coastal Salmon Recovery Program, the State Water Resources Control Board (SWRCB), the U.S. Department of Agriculture, the BLM's Jobs in the Woods Program, and the National Fish and Wildlife Foundation, are implementing numerous upslope watershed restoration projects throughout the basin, including the South Fork Trinity River watershed.

Trinity County, with grant funding provided by CDFG and the SWRCB, has inventoried all county road crossings on fish-bearing streams in the Trinity River basin and is currently implementing the highest ranked migration barrier removal projects. Trinity County has also completed a sediment source

inventory on county roads and is prioritizing and implementing projects to reduce road-related sediment sources. The BLM is conducting a similar inventory of its roads in the Trinity River watershed. It is anticipated that numerous restoration projects will occur based on these inventories. Plan development and environmental review are ongoing for several projects. NEPA and CEQA review is being provided on a project-by-project basis by the appropriate agencies. State, regional, or local entities could be a CEQA lead agency for those projects. In general, either the STNF acts as the NEPA lead agency for projects on National Forest lands. BLM acts as NEPA lead agency for projects on BLM lands.

1.3 Trinity River Restoration Program

The purpose of the TRRP is to implement recovery of the Trinity River and its fish and wildlife populations. The ROD (U.S. Department of the Interior 2000) outlined six specific and integral components of the TRRP:

- implementation of a variable annual flow regime according to recommendations provided in the Trinity River Flow Evaluation Study (TRFES).
- mechanical channel rehabilitation (Hocker Flat will be the first project under this element)
- fine and coarse sediment management
- watershed restoration
- infrastructure improvement
- adaptive environmental assessment and management

The strategy of the TRRP is to create a smaller, dynamic alluvial channel exhibiting all the characteristics of the pre-dam river but at a smaller scale. This approach is intended to balance the restoration goals with maintaining the purpose and use of the TRD.

An integral part of the TRRP is the implementation of an Adaptive Environmental Assessment and Management (AEAM) Program. As described in the FEIS, an AEAM process is important for management of complex physical and biological systems, such as the Trinity River. Under the ROD, subsequent rulings by Judge Wanger, and the opinion of the United States Court of Appeals for the Ninth Circuit, the non-flow components listed above are proceeding. The TRRP office has been established in Weaverville, California, to ensure that these components are implemented in a coordinated fashion in conjunction with the multitude of stakeholders involved. Specific activities of the TRRP include project development, implementation, and monitoring activities throughout the Trinity River basin.

The AEAM Program is a formal, systematic, and rigorous program of learning from the outcomes of management actions, accommodating changes, and rapidly improving management actions. The proposed project has been developed in a manner compatible with the AEAM Program elements. These elements include:

- define measurable goals and objectives
- develop testable hypotheses of how to achieve the goals and objectives through management actions
- predict river response to management actions before implementing these actions
- re-evaluate objectives, refine hypotheses, improve models, and improve management
- continually self-examine AEAM science and management via external peer review

Supported by the July 13, 2004, opinion, the TRRP has identified an initial suite of restoration projects that could be implemented in the next several years consistent with the overall goals and objectives of the TRRP. The TRRP staff is involved in the planning and development of these initial restoration projects on the Trinity River mainstem, with support from DWR and the HVT.

1.3.1 Channel Rehabilitation Activities

Mechanical rehabilitation activities were proposed for the mainstem Trinity River from Lewiston Dam to the North Fork Trinity River confluence. The overall intent of these activities is to selectively remove fossilized berms (berms that have been anchored by extensive woody vegetation root systems and consolidated sand deposits); revegetate and provide conditions for regrowth/sustenance of native riparian vegetation; and recreate alternate point bars and complex fish habitat similar in form to those that existed prior to the construction of the TRD.

The FEIS identified 44 potential channel rehabilitation sites and three potential side-channel sites for consideration by the TRRP. Site selection was based on identifying locations where channel morphology, sediment supply, and high-flow hydraulics would encourage a dynamic alluvial channel. The ability to access and conduct rehabilitation activities on private property was also considered in the selection process. The proposed project entirely encompasses one of the original sites identified in the FEIS near Hocker Flat. As a demonstration project, Hocker Flat offers willing landowners, easy access, and accretion flow from Canyon Creek. Due to the uncertainty of the future flow regimes during the initial planning process (2001-2004), the TRRP identified four additional sites between Canyon Creek and the North Fork of the Trinity River for early implementation. Preliminary planning has been initiated for these rehabilitation projects.

1.4 Type of Environmental Document

This document is designed to comply with both NEPA and CEQA. The NEPA and CEQA laws require that governmental agencies evaluate the environmental impacts of their proposed actions before making formal commitments to carry them out and that the public be involved in the evaluations. NEPA is a federal law that applies to federal agencies, whereas CEQA is a California law that applies to state and local agencies. For this project, NEPA requires preparation of an EA and CEQA requires preparation of an EIR. By preparing a single document that complies with both statutes, the involved agencies have been able to avoid unnecessary duplication of effort.

The *CEQA Guidelines* identify several types of EIRs, each applicable to different project circumstances. This EIR has been prepared to function as a project EIR, pursuant to Public Resources Code Section 21156. A project EIR evaluates the environmental impacts of a specific project (*CEQA Guidelines*, Section 15161). This type of EIR focuses primarily on the changes in the environment that would occur because of project implementation and evaluates all phases of a particular project (i.e., planning, construction, and operation). For the reasons set forth in the introduction to this chapter (**Section 1.1**), the "tiering" process is unavailable for the proposed project for purposes of CEQA, although it is available for purposes of NEPA.

1.5 Similarities and Differences between NEPA and CEQA

Although there are similarities between CEQA and NEPA, the two acts are not identical. For example, NEPA is a procedural law requiring agencies to evaluate a range of reasonable alternatives, disclose potential impacts, and identify feasible mitigation. CEQA, in contrast, is partly "substantive" in that it requires an agency to adopt "feasible" mitigation measures for any "significant effect on the environment." In an EIS, as opposed to an EA, reasonable alternatives must be rigorously and objectively evaluated at a greater level of detail under NEPA than is required under CEQA. The threshold for preparing an EIR, as opposed to an EIS, is lower under CEQA than under NEPA. It is therefore not uncommon to have a joint NEPA/CEQA document that is not an EIS/EIR but rather an EA/EIR. This document is an example of an EA/EIR. It has been prepared because DWR, as the CEQA lead agency, determined that the level of controversy surrounding the proposed project is sufficient to trigger the need to prepare an EIR under the low-threshold CEQA standard. The federal lead agency, however, does not believe that an EIS is required under the higher NEPA threshold. Even so, the EA shares many attributes of an EIS, particularly the detailed analysis of alternatives.

Because of the obligation under CEQA to mitigate "significant effects on the environment" when feasible, the characterization of impacts as being either "significant" or "less than significant" is very important under CEQA. For this reason, this EA/EIR has been written in a manner that identifies, for CEQA purposes, "significance thresholds" for anticipated impacts. Some of these thresholds even have the force of law under CEQA. For example, *CEQA Guidelines* Section 15065 requires a "mandatory finding of significance" when a project "has the potential to reduce the number or restrict the range of an endangered, rare or threatened species" listed under either the federal Endangered Species Act (ESA) (16 USC Section 1531 et seq.) or the California Endangered Species Act (CESA) (California Fish & Game Code, Section 2050 et seq.). No such obligation exists under NEPA. CEQA thresholds of significance for other issue areas and resources were developed using applicable regulations, when they exist, or best professional judgment.

CEQA requires that this EA/DEIR propose mitigation measures for each significant impact of the proposed project subject to the approval of an agency governed by California law, even when the mitigation measure cannot be adopted by the "lead agency" (DWR for this project), but can only be imposed by another responsible agency (e.g., CDFG, North Coast Regional Water Quality Control Board [NCRWQCB]).

CEQA and NEPA sometimes use different terms for similar concepts. For example, CEQA uses the term "proposed project" while NEPA uses the term "proposed action." For readability, this document uses "proposed project," except when the context requires NEPA terminology.

1.5.1 NEPA/CEQA PROCESS

This EA/DEIR has been prepared so that Reclamation, as the lead agency under NEPA, and DWR, as the lead agency under CEQA, may respectively meet the requirements of each act. This document is intended to function as a joint environmental document in accordance with 40 Code of Federal Regulations (CFR) Part 1506.2 of the federal Council on Environmental Quality NEPA Regulations and Section 15170 of the *CEQA Guidelines*. The EA/DEIR provides a description of the proposed project's conceptual design alternatives, as well as a comprehensive environmental analysis of the site-specific impacts associated with project implementation.

The EA/DEIR is being circulated to responsible public resource agencies, permitting agencies, trustee agencies, the State Clearinghouse, and interested stakeholders. Written and oral comments received in response to the EA/DEIR will be addressed in a final document that is anticipated to be a Finding of No Significant Impacts/Final Environmental Impact Report (FONSI/FEIR).

CEQA requires the preparation of an EIR when the lead agency makes a determination that there is substantial evidence that the proposed project may have a significant effect on the environment. DWR determined that an EIR should be prepared for this project because preliminary analysis by DWR staff identified the possibility that the level of controversy related to the proposed projects environmental effects could result in disclosing potentially significant environmental impacts, as defined in the *CEQA Guidelines* (California Code of Regulations [CCR] Title 14, Section 15000 et seq.).

DWR staff will review the oral and written comments on the EA/DEIR and respond to them in the final document. It will then make a recommendation to the DWR decision maker on whether to certify the final EIR portion of the EA/EIR under CEQA. If DWR chooses to certify the EIR, it must first adopt "CEQA Findings" addressing whether each significant impact of the proposed project has been mitigated either through mitigation measures or through provisions in the alternatives (*CEQA Guidelines*, Section 15091, subdivision (a)). If, after adopting such findings, DWR is still faced with unmitigated significant impacts or does not have control over the mitigation measures necessary to mitigate certain impacts, it must also adopt a "statement of overriding considerations" before it can approve the proposed project. That statement must set forth the economic, social, or other benefits of the project that it believes outweigh its unmitigated significant environmental impacts (*CEQA Guidelines*, Section 15093).

CEQA requires that, in order to commence the 30-day statute of limitations for any legal challenge to an EIR, the lead agency file a Notice of Determination (NOD) with the County Clerk in the county where the project will occur and with the State Office of Planning and Research (when State agency approvals are required) after deciding to approve a project for which an EIR has been adopted. Filing of the NOD will complete the CEQA environmental review process for the proposed project under CEQA. DWR will then forward this documentation to the NEPA lead agency, along with DWR's recommendation regarding the preferred alternative.

The EA portion of this document has been prepared under NEPA in order to determine whether the Proposed Action (project) will constitute a major federal action that would significantly affect the human environment. If the analysis provided in the EA supports the finding that the Proposed Action would have no significant adverse effect on the environment, a FONSI will be prepared. However, if the EA finds that the Proposed Action would result in a significant effect on the environment, an EIS will be required. At present, Reclamation, based on the analysis set forth in this document, believes that a FONSI will be appropriate and that an EIS will not be required. That determination is subject to change, however, after receipt and consideration of comments provided during the public comment period. In other words, the appropriateness of a FONSI cannot be definitively determined absent a review of information generated through public review. The NEPA process will be complete with the federal lead agency's adoption of a FONSI, unless, through public review or the receipt of other information not presently available, the NEPA lead agency decides that preparation of an EIS is required. A draft FONSI is included in the front of this EA/DEIR.

1.5.2 Mitigation and Monitoring Program

Although there are no NEPA statutes or regulations that explicitly require that all significant project impacts be avoided or mitigated to a less-than-significant level, or that any adopted mitigation measures developed as part of an EA be "monitored" to ensure that they are carried out, Public Resources Code section 21081.6(a), subdivision (a) requires lead agencies under CEQA to "adopt a reporting and mitigation monitoring program for the changes to the project which it has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment."

Throughout this EA/DEIR, mitigation measures have been clearly identified and presented in language that will facilitate establishment of a monitoring and reporting program. Any mitigation measures adopted by DWR as conditions of project approval will be included in a Mitigation Monitoring and Reporting Program (MMRP) to verify compliance. The Draft MMRP is included as **Appendix B,** and the Final MMRP will be included as an appendix to the EA/Final EIR (FEIR). The approval of such a program will be part of any action taken by DWR with respect to the proposed project. When other regional or state agencies subject to CEQA approve portions of the proposed project under their jurisdiction or regulatory power, these "responsible agencies" will be required to adopt their own MMRPs (*CEQA Guidelines*, Section 15097, subd. (d)).

1.6 Scoping and Public Involvement

DWR initiated the public scoping process by forwarding a Notice of Preparation (NOP) of an EIR to the State Clearinghouse on May 17, 2004. The NOP and agency comments on the NOP are included in this document as **Appendix C**.

The NOP was circulated to the public; to local, state, and federal agencies; and to other interested parties in order to solicit comments on the proposed project. The public scoping period was May 17, 2004, through June 17, 2004, and scoping comments were received through June 25, 2004. Reclamation and the DWR held a joint NEPA/CEQA scoping meeting on June 2, 2004, in Junction City, California. During this meeting, members of the public were asked what issues they felt should be addressed in this

EA/DEIR. As the public comment period continued, the lead agencies received letters that helped identify areas of concern. These areas of concern and other oral comments received at the scoping meeting were considered during the preparation of this EA/DEIR. The scoping and public involvement process is also described in **Appendix C**.

The scoping process determined that the proposed project could lead to significant impacts on specific natural resources and on the human environment. Based on the comments received during the scoping process, the issues addressed in this EA/DEIR include the following:

- land use
- geology, fluvial geomorphology, and soils
- water resources
- water quality
- fishery resources
- vegetation, wildlife, and wetlands
- recreation
- socioeconomics, population, and housing
- tribal trust
- cultural resources
- air quality
- environmental justice
- aesthetics
- hazardous materials
- noise
- public services and utilities/energy
- transportation and traffic circulation
- construction-related impacts
- cumulative impacts

These issues were used to develop the descriptions of the resource areas and the associated impact analysis presented in **Chapters 3** and **4**.

1.6.1 Areas of Potential Controversy

The following issues associated with the proposed project are anticipated to be controversial, based on comments received during the public scoping process:

- ownership and placement of excavated material
- impacts to special-status species, including anadromous salmonids
- potential trespass on private lands
- long-term maintenance of the project
- temporary access during construction
- short-term construction impacts
- source of construction funds
- potential effects to Wild and Scenic River Outstandingly Remarkable Values (ORVs)

1.6.2 PUBLIC REVIEW

This document is being circulated to local, state, and federal agencies and to interested organizations and individuals who may wish to review and comment on the analysis provided in this EA/DEIR. Publication of this EA/DEIR initiates the beginning of a 45-day public review period. DWR will determine the need for a public hearing based on the number and nature of comments received during the public comment period. If a hearing is held, public comment on the EA/DEIR will be accepted orally at the meeting. However, to ensure proper interpretation of remarks, written submittals are highly encouraged. Notice of the time and location of the public hearing(s), if required, will be published by DWR prior to the actual hearing date. All written comments and questions regarding the EA/DEIR that raise issues under NEPA, CEQA, or both, should be addressed to:

Doug Schleusner, Executive Director
Trinity River Restoration Program
United States Department of the Interior – Bureau of Reclamation
P.O. Box 1300
1313 South Main Street
Weaverville, California 96093
Phone: (530) 623-1800
Fax: (530) 623-5944

Mr. Schleusner will ensure that DWR, as CEQA lead agency, receives copies of comments submitted so that DWR can review and respond to them, as required by CEQA. The EA/DEIR will be sent to the State Clearinghouse and will be available online at the following Internet address: the Mid-Pacific Region Bureau of Reclamation regional home page for programs and projects: Trinity River Mechanical Rehabilitation <http://www.usbr.gov/mp/>. The NEPA page for the Northern California Area Reclamation office, http://www.mp.usbr.gov/nepa/, should also link to this document. Copies of the EA/DEIR will be available for review at the following locations:

Trinity River Restoration Program
United States Department of the Interior
Bureau of Reclamation
1313 South Main Street
Weaverville, California 96093

Department of Water Resources
2440 Main Street
Red Bluff, California96080

Trinity County Library, Weaverville Branch
211 Main Street
Weaverville, California 96093

Trinity County Planning Department
190 Glen Road
Weaverville, California 96093

Bureau of Land Management, Redding
355 Hemsted Drive
Redding, California 96002

1.7 Purpose and Need for the Action

NEPA regulations require that an EA briefly specify the need to which the agency is responding in proposing the various alternatives, including the proposed action (proposed project) (40 C.F.R. Section 1508.9, subd. (a)). Similarly, CEQA requires that an EIR include a statement of the objectives to be achieved by the proposed project (*CEQA Guidelines*, Section 15124, subd. (b)). The objectives are intended to help the implementing agency develop a reasonable range of alternatives and aid decision-makers in preparing findings, or, if necessary, a statement of overriding considerations.

1.7.1 Purpose and Need Statement

The purpose of the Proposed Action is to implement a discrete suite of channel and riparian rehabilitation measures to provide needed juvenile fish habitat on the mainstem Trinity River in the general vicinity of Hocker Flat. The judicial direction to date authorizes and directs the TRRP to implement non-flow measures described in the ROD that will result in the recovery of the Trinity River and its fish and wildlife populations. Reclamation, through the TRRP, recognizes that the success of non-flow restoration measures depends on existing hydrological conditions and physical processes to some extent. This dependency will be reevaluated prior to issuance of an EA/Final EIR to ensure consistency with judicial decisions. The ROD identified 47 discrete mechanical channel rehabilitation sites on the mainstem Trinity River between Lewiston and Helena, California. Recognizing the importance of adaptive management, the TRRP selected the Hocker Flat location to design and implement a self-maintaining rehabilitation project. The proposed project provides the opportunity to:

- increase the diversity and area of habitat for salmonids, particularly habitat suitable for rearing;
- increase rearing habitat for juvenile salmonids, including coho, Chinook, and steelhead;
- increase the structural and biological complexity of habitat for various species of wildlife associated with riparian habitats;
- increase hydraulic and fluvial geomorphic diversity and complexity;
- provide a demonstration project to evaluate the fate and transport of mercury related to rehabilitation and restoration projects;

- measure/demonstrate the ecological response to changes in flow regimes, morphological features, and aquatic, riparian, and upland habitats; and
- provide a self-maintaining project independent of any future TRD flows.

The need for the Proposed Action results from:

- requirements in the ROD (U.S. Department of the Interior 2000) to restore the Trinity River fishery through a combination of higher releases from Lewiston Dam (up to 11,000 cubic feet per second [cfs]), floodplain infrastructure improvements, channel rehabilitation projects, fine and coarse sediment management, watershed restoration, and an AEAM Program.
- the directive of the United States District Court of the Eastern District of California, in *Westlands Water District, et al., v. U.S. Department of the Interior, et al.* (Civil Action CIV – F – 00-7124-OWW/DLB) (E.D. Cal.) requiring that "[a]ll non-flow measures prescribed by the ROD shall proceed" while the Department of the Interior prepares a supplemental EIS to remedy the defects in the original final EIS prepared for the December 29, 2000, ROD. The July 13, 2004 opinion reversed the requirement for the SEIS. Therefore, the requirement to implement the ROD was upheld.
- the expectation that the AEAM Program will incorporate the experience provided through the planning, design, and implementation of the Proposed Action at Hocker Flat into future restoration and rehabilitation efforts proposed by the TRRP.

The approach and methods incorporated into the Hocker Flat location address many geomorphic and biologic attributes that can be incorporated into the AEAM Program for future restoration and rehabilitation efforts.

1.7.2 Goals and Objectives of the Proposed Action

The goals of the TRRP outlined in the Trinity River Restoration Program Strategic Plan (2003-2008) provide the framework for the specific goals and objectives used to develop the action alternatives for this EA/DEIR. The following goals and objectives support the proposed project, and provided the structure for the development of the alternatives:

- evaluate changes in channel geometry in response to constructing channel and floodplain features designed for the river's current hydrologic regime
- evaluate the evolution of channel planform features in response to designing and implementing the project at a river segment (1 mile) scale
- evaluate the biological response (aquatic, riparian, upland) to changes in the physical environment and incorporate this information into the AEAM Program
- conduct a preliminary assessment of the fate and transport of mercury in response to restoration activities in a historic mining district
- locate the project downstream of Canyon Creek to ensure that natural tributary accretion to mainstem flows maximizes the likelihood of maintaining the site prior to implementation of the ROD-recommended flow regime
- provide safe and reasonable access to the site for project planning, implementation, and monitoring

- develop partnerships with willing participants and encourage positive landowner interest and involvement
- design the project to function with the river's current hydrology estimated at the site
- integrate known fluvial and ecological theories and relationships with the site's measured physical and biological attributes and evaluate the response over a definitive time frame
- minimize in-stream work to reduce construction-related impacts, maximize the river's ability to rehabilitate itself during high flows, and reduce implementation cost and complexity
- attempt to preserve unique and valuable geomorphic and biological features wherever practicable (e.g., hydraulic controls, high quality spawning or adult holding habitat)

The following objectives apply to the responsible and trustee agencies for the proposed project, including the SWRCB, the NCRWQCB, the State Lands Commission (SLC), CDFG, and the HVT:

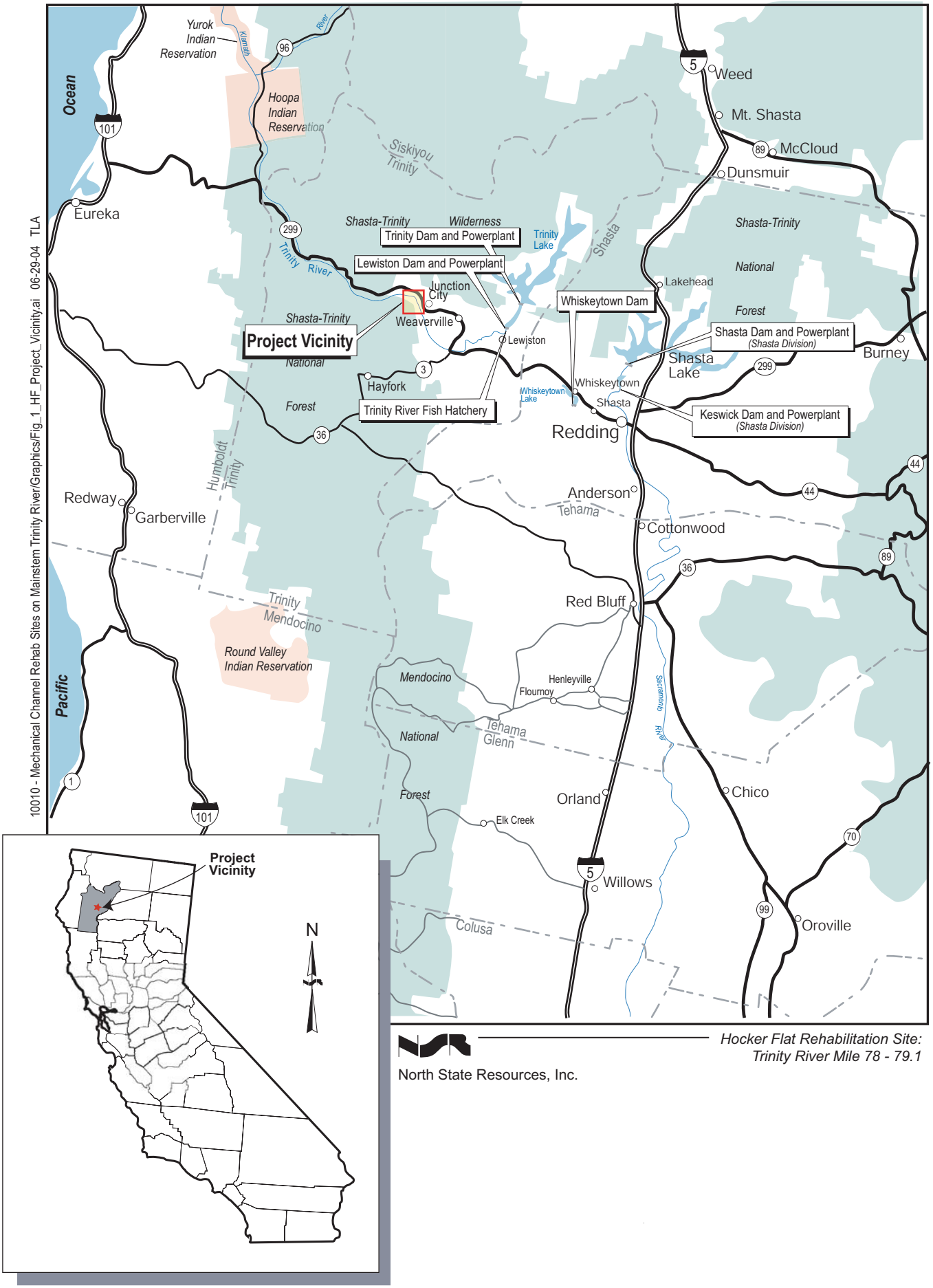
- compliance with the California Water Code to ensure the highest reasonable quality of waters of the state and allocate those waters to achieve the optimum balance of beneficial uses;
- protection of the public trust assets of the Trinity River watershed;
- conservation, restoration, and management of fish, wildlife, and native plant resources; and
- compliance with the Water Quality Control Plan for the Hoopa Valley Indian Reservation to preserve and enhance water quality on the Reservation, and to protect the beneficial uses of water.

1.8 General Setting and Location

The Trinity River originates in the rugged Salmon-Trinity Mountains of northern California, in the northeast corner of Trinity County, California. The river flows generally southward until Trinity and Lewiston dams impound it. From Lewiston Dam, the river flows westward for 112 miles until it enters the Klamath River near the town of Weitchpec on the Yurok Reservation. The Trinity River passes through Trinity and Humboldt counties and the Hoopa Valley and Yurok Indian Reservations, draining approximately 2,965 square miles. The Klamath River flows northwesterly for approximately 40 miles from its confluence with the Trinity River before entering the Pacific Ocean (**Figure 1-1**).

The proposed Hocker Flat project would be located on the Trinity River, immediately downstream from Junction City, a small community in Trinity County, California. The upstream end of Hocker Flat is situated at RM 79.1, directly below the mouth of Canyon Creek. The project would extend downstream approximately 1.1 miles on both sides of the Trinity River. The project area is southeast of Hocker Flat, as shown on the *Junction City, California* 7.5-minute U.S. Geological Survey (USGS) quadrangle map, Township 33 North, Range 11 West, Sections 1 and 12, Mount Diablo Base and Meridian (MDBM), 040° 44' 26" North latitude by 123° 03' 47" West longitude. **Figure 1-2** depicts the general location of the proposed project, relative to other geographic points of interest.

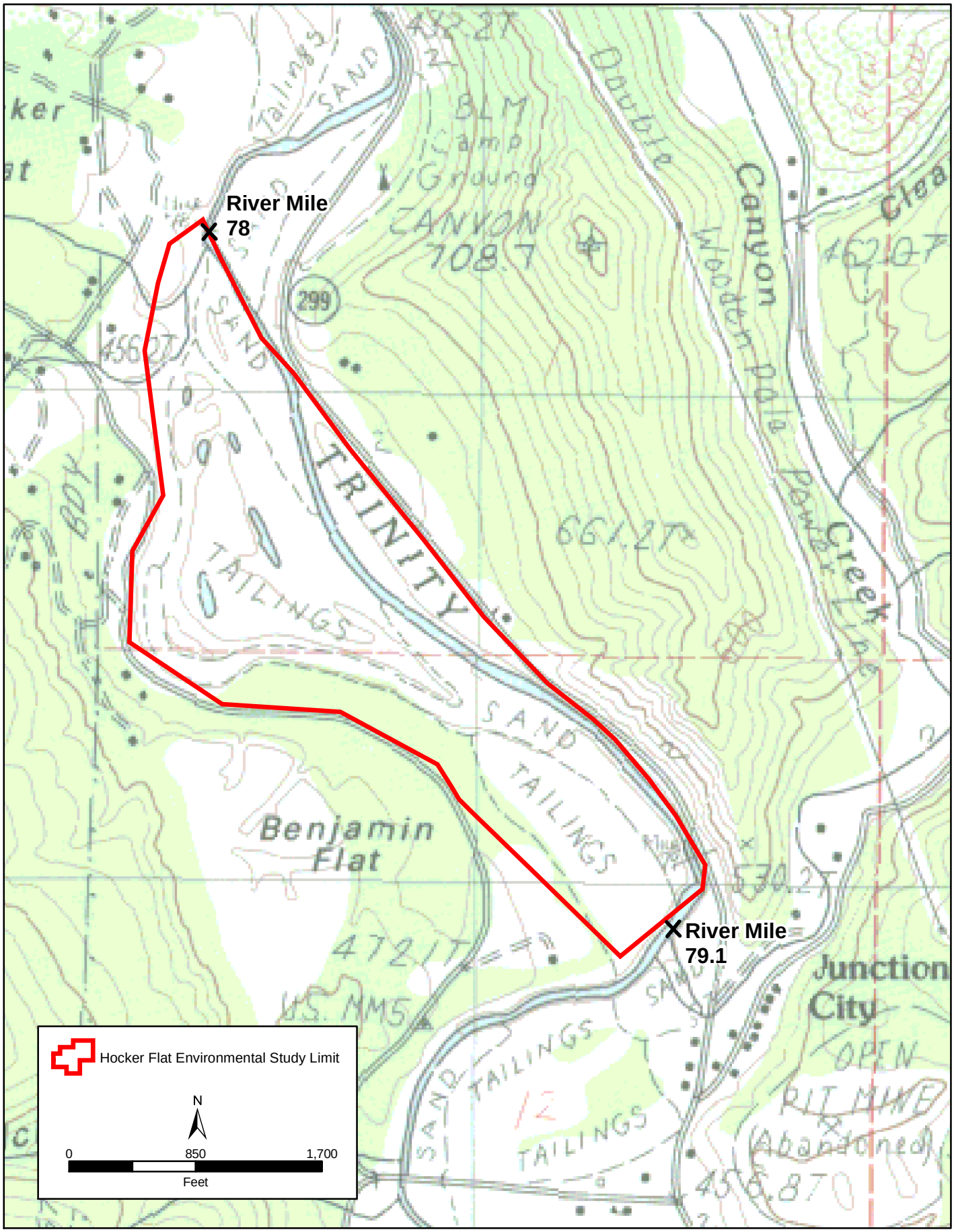
The proposed project encompasses one of the original 44 channel rehabilitation sites described in Appendix C of the FEIS/EIR, Implementation Plan for the Preferred Alternative and the ROD.



North State Resources, Inc.

Hocker Flat Rehabilitation Site:
Trinity River Mile 78 - 79.1

Figure 1-1
Project Vicinity



F:\Projects\10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River\GIS\10010_Hocker_Flat_Location_Fig1-2.mxd Source: NSR, Inc.; USBR; USGS 06-29-04 TLA

North State Resources, Inc.

Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

Figure 1-2
Project Location

The TRRP staff, in conjunction with interdisciplinary review from the TMC technical staff, defined project areas within Hocker Flat based on the type of restoration activities that could be applied. These activities include removal of the riparian berms, restoration of floodplain features, construction of off-channel habitat for aquatic- and riparian-dependent species, and restoration of upland habitat.

1.9 Description of the Proposed Project

The Hocker Flat project includes one of the original potential channel rehabilitation sites identified by the USFWS and the HVT in the FEIS (U.S. Fish and Wildlife Service et al. 2000a). Initially, 44 potential channel rehabilitation sites and three potential side channel sites between Lewiston Dam and the North Fork Trinity River were identified. Subsequently, in a detailed review of potential river rehabilitation areas, a total of 144 potential rehabilitation sites were identified. The initial Hocker Flat site was divided into three areas (CK, CL, and CM) during the detailed review. The 144 sites were selected using criteria that identified physical features and processes such as channel morphology, sediment supply, and high-flow hydraulics that would encourage a dynamic alluvial channel. Factors such as property ownership, access to the sites, and engineering and economic feasibility were also considered in the site selection process.

In general, the approach to the channel rehabilitation effort is to selectively remove fossilized riparian berms (berms that are anchored by extensive woody vegetation and consolidated sand deposits). The berms developed after the TRD was completed as a result of the loss of scour associated with peak flows. Removing the berms, including all vegetation, at strategic locations would promote the alluvial processes necessary for the restoration and maintenance of alternate bar riverine habitats.

As described in the FEIS, the rehabilitation sites exhibit a variety of conditions that require site-specific designs. The FEIS also recognized that, in many instances, the entire site would not require treatment to facilitate rehabilitation. This is because strategically treating certain areas is expected to result in a dynamic alluvial channel that will promote the formation and maintenance of an alternate bar channel in both treated and untreated areas.

Hocker Flat was selected for a demonstration project based on its location downstream of significant accretion flow from two tributaries, Canyon Creek and Reading Creek; its downstream proximity to a substantial source of alluvial sediment, the Canyon Creek delta; and a group of willing landowners. The design team considered a variety of methods and techniques to meet the objective of restoring alluvial processes to this location.

In this EA/DEIR, three restoration activities are evaluated: berm removal, floodplain enhancement, and revegetation of alluvial and upslope features. Within the environmental study limits (ESL) established for the proposed project, the lead agencies used information on the natural resources and socioeconomic conditions to identify 15 strategic locations to consider channel rehabilitation activities. These locations are identified throughout the EA/DEIR as discrete rehabilitation areas. The type, extent, and level of activity within each area may be different under the different alternatives.

These areas were defined by the lead agencies to describe riverine rehabilitation areas, and upslope riparian rehabilitation areas. Riverine rehabilitation areas are labeled with an R preceding the site number (e.g., R-1, R-2).

Upland rehabilitation areas are labeled with a U preceding the site number (e.g., U-1, U-2). The locations of, and additional information on, these areas is provided in **Chapter 2**.

The proposed project includes six rehabilitation activities that may be common to one or more rehabilitation areas within the ESL. Each rehabilitation activity is identified with an alpha code for reference throughout the EA/DEIR. Defined rehabilitation activities are:

A. Vegetation removal

B. Riparian berm removal

C. Trinity River floodplain construction

D. Material transportation

E. Material stockpile and disposal

F. Revegetation

G. Monitoring

The Hocker Flat project was designed to provide suitable rearing habitat for anadromous salmonids and to reestablish geomorphic processes associated with an alluvial river (alternate point bars). By removing the riparian berms and lowering the floodplain in certain locations, the proposed project would allow some degree of channel migration and increase the likelihood of an inundated floodplain in association with 1.5-year recurrence interval flood flows (approximately 6,000 cfs at Hocker Flat).

Activities A–C would occur within all riverine areas included in the proposed project. Because these riverine areas extend for more than 1 mile along the Trinity River, the type and degree of activity will differ for each area. Overall, more than 19 acres of riverine area would be affected under the proposed project. Collectively, more than 80,000 cubic yards would be excavated as part of this proposal. Activities D–F would be performed in all areas included in the proposed project, both riverine and upland. The location and extent of material stockpiled, transported, and placed would differ for each rehabilitation area. The revegetation plan developed for the proposed project would be specific to each area and would include elements to ensure success over time.

1.10 Preparers of the EA/DEIR

In 2002, Reclamation initiated the Trinity River Mechanical Channel Rehabilitation Project EIS/EIR as the NEPA lead agency. Originally, the project was intended to include 25 discrete rehabilitation sites (feather edge and side channels) between Lewiston and the confluence of the North Fork and Mainstem Trinity River. Due to ongoing litigation, the TRRP modified the approach to focus on restoration opportunities downstream of Junction City, California. At the point that DWR accepted the role as

CEQA lead agency, the lead agencies determined that an EA/DEIR would be the appropriate level of documentation for NEPA/CEQA compliance. A small area of project land is administered by the BLM; therefore, BLM has chosen to participate as a cooperating agency in the NEPA process.

1.11 Required Permits and Approvals

Various lead, cooperating, and responsible agencies will use the EA/DEIR for their permitting and approval processes. Additional discussion of these processes is provided in **Chapter 5**. Implementation of any of the action alternatives would require the following federal, state, and local permits and approvals.

1.11.1 FEDERAL

U.S. Army Corps of Engineers

Section 404 of the Clean Water Act (CWA) authorizes the U.S. Army Corps of Engineers (Corps) to issue permits for the discharge of dredged or fill materials into waters of the United States, including wetlands (33 USC 1344). The Corps is authorized to issue either individual or general permits under Section 404. Under its general permit authorization, the Corps has issued a number of permits on a nationwide basis. As long as the activity has complied with the conditions set forth in the applicable nationwide permit, there is no need for a project proponent to apply for an individual permit from the Corps. For several of these nationwide permits, the Corps requires the project proponent to submit a pre-discharge notification to the Corps requesting confirmation of project compliance with conditions of the nationwide permit. Based on a pre-application meeting with the Corps (San Francisco District – Eureka Field Office, July 22, 2004), it appears that the proposed project may be permitted under Nationwide Permit Number 27 (Wetland and Riparian Restoration and Creation Activities).

Reclamation submitted a wetland delineation report pursuant to Section 404 of the CWA for the proposed Hocker Flat project. The wetland delineation report and the Corp's field verification are contained in **Appendix D.**

NOAA Fisheries and U.S. Fish and Wildlife Service

Federally listed species are protected under the mandates of the Endangered Species Act (ESA) of 1973. "Take" of listed species, defined as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or [the] attempt to engage in any such conduct," is prohibited. Either NOAA Fisheries or USFWS, depending on the species, may authorize "take" that is incidental to an otherwise lawful activity. Sections 7 and 10(a) of the ESA provide a method for permitting an action that may result in an "incidental take" of a federally listed species. "Incidental take" refers to "take" of a listed species that is incidental to, but not the primary purpose of, an otherwise lawful activity. Incidental take is permitted under Section 7 for projects on federal land or involving a federal action, while Section 10(a) provides a method for permitting an incidental take resulting from a state or private action. Based on discussion with NOAA Fisheries, certain non-flow measures, including the mechanical rehabilitation projects, were considered in the NMFS Biological Opinion issued in response to the FEIS. Furthermore, NMFS identified the mechanical rehabilitation projects described in the ROD as reasonable and prudent

measures. As required by the NMFS Biological Opinion, the following conditions will be incorporated into the proposed project:

- 4.a. Reclamation shall meet with NMFS annually in March to coordinate during the advanced development and scheduling of habitat rehabilitation projects, including mainstem channel rehabilitation projects, sediment augmentation program, and dredging of sediment collection pools.
- 4.b. The USFWS and/or Reclamation shall provide for review of individual mainstem channel rehabilitation projects via the technical team ("designated team of scientists" [USFWS and Reclamation 2000], "technical modeling and analysis team" [TRMFR DEIS]) or equivalent group, and provide a written recommendation to NMFS concerning whether the projects are similar to those described in the TRMFR DEIS and should be covered by this incidental take statement. If the review process results in a determination that these projects and their impacts to aquatic habitat are substantially different than described in the TRMFR DEIS and USFWS and Reclamation (2000), the technical team will recommend to NOAA Fisheries that additional ESA Section 7 consultation is appropriate.

In addition to the protection they receive under the ESA, salmon species are protected under the mandates of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended in 1996. The MSA established procedures designed to identify, conserve, and enhance Essential Fish Habitat (EFH) for those species regulated under a federal fisheries management plan. EFH refers to those waters and substrates necessary for spawning, breeding, feeding, or growth to maturity (67 FR 2343).

Reinitiating Section 7 consultation under the ESA between Reclamation and NOAA Fisheries and USFWS may be necessary if the conditions under which the Biological Opinions were prepared change significantly. An EFH consultation between Reclamation and NOAA Fisheries may be necessary if adverse effects to salmon or their habitat are identified.

Bureau of Land Management

Wild and Scenic Rivers

Federal protection of the Trinity River, which is part of the Wild and Scenic Rivers System, is required under Section 7 of the federal Wild and Scenic Rivers Act (federal WSRA) to preserve its free-flowing condition; anadromous and resident fisheries; and outstanding geologic, wildlife, flora and fauna, historic and cultural, visual, recreational, and water quality values. Though the Trinity River is designated specifically for its outstandingly remarkable anadromous fishery value, all recreational and free flowing characteristics are to be protected under Section 7 of the federal WSRA. A determination that follows the Evaluation Procedure presented in Appendix C of the Technical Report of the Interagency Wild and Scenic Rivers Coordinating Council, Wild and Scenic Rivers Act: Section 7 is included as **Appendix E**. Under an interagency agreement between the National Park Service, the BLM, and the U.S. Forest Service (USFS), the BLM typically has the responsibility for conducting Section 7 determinations for the Trinity River segment associated with the proposed project.

Northwest Forest Plan

In response to the 1994 ROD for the Northwest Forest Plan (Final Supplemental Environmental Impact Statement for Amendments to Forest Service and Bureau of Land Management Planning Documents

within the Range of the Northern Spotted Owl), the BLM prepared the Mainstem Trinity River Watershed Analysis. The watershed analysis focused on a program of habitat restoration actions along the Trinity River corridor. Although aquatic and riparian resources were emphasized, the watershed analysis primarily evaluated watershed areas and their potential effects on the mainstem Trinity River.

1.11.2 STATE OF CALIFORNIA

California Department of Fish and Game

Streambed Alteration Agreement

DWR, as the CEQA lead agency for the proposed project, is required to obtain a Streambed Alteration Agreement from the CDFG pursuant to California Fish and Game Code Section 1602. This agreement is required because construction of any of the action alternatives would change the natural state of the Trinity River and would necessitate work within the 100-year floodplain.

When a Section 1602 permit application is being processed by the CDFG, the California Resources Agency will be notified of the application and given an opportunity to make the permit conditional on compliance with the California Wild and Scenic Rivers Act.

California Endangered Species Act Take Permit

State-listed species are fully protected under the mandates of the California Endangered Species Act (CESA). On August 30, 2002, the California State Fish and Game Commission (Commission) determined that coho salmon in California warranted protection as a threatened species north of Punta Gorda (including the Trinity River) and as an endangered species south of Punta Gorda under the CESA. The Commission directed CDFG to develop a coho salmon recovery strategy plan within one year. The CDFG completed a plan on January 26, 2004, and Southern Oregon/Northern California Coasts (SONCC) Evolutionarily Significant Unit (ESU) coho salmon were officially state listed as threatened on August 5, 2004.

Under CESA, and upon concurrence from NOAA Fisheries that its Biological Opinion and an Incidental Take Statement for “take” of listed SONCC ESU coho salmon are adequate (pursuant to the federal ESA), DWR may request a CESA Consistency Determination from the Director of the CDFG, pursuant to Section 2080.1 of the California Fish and Game Code. Within 30 days after receipt of the notification, the Director of the CDFG shall determine whether the federal Incidental Take Statement is consistent with CESA. If it is determined to be consistent with CESA, no further authorization or approval is necessary under CESA. If the Director of the CDFG determines that the federal Incidental Take Statement is not consistent, then DWR will be required to obtain a California take permit pursuant to California Fish and Game Code Section 2081(b).

California Wild and Scenic Rivers Act

No permits are required under the California Wild and Scenic Rivers Act (California WSRA). However, compliance with laws related to the federal WSRA may require related permitting and consultation actions. These include the CWA Section 404 permit and Section 401 water quality certification, a National Pollutant Discharge Elimination System (NPDES) permit, the Fish and Game Code Section

1602 Streambed Alteration Agreement, and Endangered Species Act Section 7 Consultation for Endangered Species.

North Coast Regional Water Quality Control Board

Section 401 of the CWA requires that state water quality standards not be violated by the discharge of fill or dredged material into waters of the United States. The SWRCB, through the NCRWQCB, is responsible for issuing water quality certifications, or waivers thereof, pursuant to Section 401 of the Clean Water Act.

The NCRWQCB regulates point source and non-point source discharges through the NPDES. NPDES permits are required for storm water discharges from construction sites that involve more than 5 acres or that contain a hazardous substance in excess of reportable quantities established by the Environmental Protection Agency (EPA).

1.11.3 LOCAL

The Trinity County Floodplain Management Ordinance, found in Section 29.4 of the County Zoning Ordinance, requires a Floodplain Development Permit for projects that alter the Trinity River floodplain on private lands within the jurisdiction of Trinity County. The principal requirement of the permit is certification by a registered professional engineer or architect that construction or replacement of bridges, roadways, and bank slope protection devices will not adversely affect the flood-carrying capacity of any altered portion of the watercourse, and will not cumulatively raise the 100-year floodplain elevations by more than 1 foot in the project area. The ordinance also requires notification of adjacent communities, CDFG, the Corps, NCRWQCB, and DWR prior to any alteration or relocation of a watercourse, and the submission of evidence of such notification to the Federal Insurance Administration and the Federal Emergency Management Agency (FEMA).

The hauling of loads that exceed weight, height, or width limits on Trinity County roads (such as hauling heavy equipment or oversized bridge components) requires an encroachment permit from the Trinity County Department of Transportation. Work that will modify or encroach on County roads, such as the proposed project at the Hocker Flat rehabilitation site may require a Trinity County encroachment permit.

1.12 Legislative and Management History

The following is a brief chronology of the most pertinent legislation, authorities, and management actions that occurred relevant to the Trinity River basin.

- 1855 – Klamath River Reservation established
- 1864 – Hoopa Valley Reservation established
- 1891 – Hoopa Valley Reservation boundary amendment
- 1938 – Rivers and Harbors Act authorized construction of the Central Valley Project (CVP)
- 1955 – Congress authorized the construction and operation of the TRD
- 1964 – The TRD was completed and fully operational

- 1971 – The Task Force, composed of federal, state, and local agencies and tribes, was established
- 1976 – Pacific Fishery Management Council (PFMC) established
- 1980 – USFWS prepared EIS relating impacts of TRD to Chinook salmon and steelhead declines
- 1980 – Public Law 96-335 – Trinity River Stream Rectification Act
- 1980 – Trinity River designated a California Wild and Scenic River
- 1981 – Trinity River designated a Federal Wild and Scenic River
- 1981 – Interior Secretary's Decision to temporarily increase Trinity River instream flows; USFWS is ordered to initiate 12-year Trinity River Flow Evaluation Study
- 1983 – USFWS prepared EIS for Trinity River Restoration
- 1984 – Trinity River Basin Fish and Wildlife Management Act (PL 98-541)
- 1984 – Trinity River Flow Evaluation (TRFE) started
- 1988 – Yurok Reservation recognized and established
- 1988 – Reclamation and USFWS establish an office in Weaverville
- 1991 – Interior Secretary's decision to temporarily increase Trinity River flows to 340,000 af until TRFE completed (Lujan Decision)
- 1992 – Central Valley Project Improvement Act (PL 102-575) (Sec. 3406(b)(23)
- 1992 – Trinity River Water Quality Objectives and Interim Action Plan approved as Clean Water Act standards by the EPA
- 1994 – EIS initiated for Trinity River Mainstem Fishery Restoration program
- 1995 – Reclamation/USFWS Weaverville office is closed
- 1996 – Trinity River Basin Fish and Wildlife Management Act (PL 104-43) reauthorized and amended
- 2000 – Record of Decision for Trinity River Mainstem Fishery Restoration issued by Department of the Interior
- 2001 – Litigation on Record of Decision, filed in United States District Court for the Eastern District of California, results in issuance of preliminary injunction urging Department of the Interior to undertake preparation of Supplemental EIS, although non-flow aspects of the ROD are allowed to proceed.
- 2002 – Reclamation's TRRP office is established in Weaverville
- 2003 – United States District Court enters final judgment requiring Department of the Interior to prepare Supplemental EIS and invalidating certain aspects of Biological Opinions issued by NOAA Fisheries and USFWS
- 2004 – U.S. Court of Appeals for the Ninth Circuit enters opinion reversing District Court with regard to preparation of an SEIS. Immediate implementation of all aspects of the 2000 ROD is mandated.

Additional details on the legislative and management history can be found in the Trinity River Mainstem Fishery Restoration FEIS/EIR (U.S. Fish and Wildlife Service et al. 2000) and Appendix A of this EA/DEIR.

1.13 Indian Tribes

Secretarial Order No. 3175 states that the DOI, "when engaged in the planning of any proposed project or action, will ensure that any anticipated effects on Indian Trust resources are explicitly addressed in the planning, decision, and operational documents that are prepared for the project." This mandate was reaffirmed in a Presidential directive declaring the sovereign rights of Indian tribes and the government-to-government status of relations between the United States and recognized tribes. Accordingly, this EA/DEIR provides a detailed assessment of potential effects on Indian Trust resources and, consequently, on Indian tribes. Consistent with DOI policy, the analysis addresses only those tribes of the Klamath/Trinity Region that are officially recognized by the United States (Pevar 1992): the Hoopa Valley, Karuk, Klamath, and Yurok. Local unrecognized tribes include the Nor-Rel-Muk Nation and the Tsnungwe Tribe.

The Tribal Trust discussion focuses principally on the Hoopa Valley and Yurok tribes, since, of the recognized Indian tribes of the Klamath/Trinity Region, they would be most directly affected by the proposed project. It is acknowledged, however, that the impacts are pertinent to the Karuk and Klamath people, since they share a common regional heritage with the Hoopa Valley and Yurok tribes.

1.14 Integration of Related Environmental Review Requirements

In addition to integrating the NEPA and CEQA processes, this document integrates these processes with the environmental review and consultation requirements of other relevant federal and state programs. The following section provides an overview of the principal environmental statutes that are integrated into the EA/DEIR.

1.14.1 Compliance with Section 401 of the Clean Water Act

Section 401 of the federal CWA requires that state water quality standards not be violated by the discharge of pollutants into waters of the United Sates, including wetlands (33 USC 1344). Under this section, applicants for a permit to conduct activities that may result in a discharge of pollutants into waters of the United Sates must request and obtain a certification from the state in which the discharge would originate. The NCRWQCB will use the information available in this EA/DEIR, the Section 404 permit application, and the CDFG Streambed Alteration Agreement to prepare the Section 401 certification.

1.14.2 Compliance with Section 404 of the Clean Water Act

Section 404 of the CWA authorizes the Corps to issue permits for the discharge of dredged or fill materials into waters of the United States, including wetlands (33 USC 1344). The Corps is authorized to issue either individual or general permits under Section 404. Under its general permit authorization, the Corps has issued a number of permits on a nationwide basis. As long as the activity has complied with

the conditions set forth in the applicable nationwide permit, there is no need for a project proponent to apply for an individual permit from the Corps. For several of these nationwide permits, the Corps requires the project proponent to submit a pre-discharge notification to the Corps requesting confirmation that the project has complied with the nationwide permit conditions.

1.14.3 Compliance with the Federal Endangered Species Act

Section 7 of the ESA requires federal agencies, in consultation with the Secretary of the Interior, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of designated critical habitat for these species. For compliance with Section 7 of the ESA, Reclamation requested and received from the USFWS a list of federally listed endangered and threatened species that may be present in the project area (**Appendix H**). Reclamation consulted with NOAA Fisheries concerning project effects to the SONCC ESU of coho salmon pursuant to Section 7 of the ESA; this ESU of coho salmon is both federally and state listed as threatened. This EA/DEIR, in conjunction with the Biological Opinion that it prepared for the FEIS, will be used by NOAA Fisheries, as described in **Section 1.11.1**.

1.14.4 Compliance with the National Historic Preservation Act

Reclamation has formally consulted with the Office of Historic Preservation (OHP) and the Advisory Council on Historic Preservation (ACHP). This consultation is documented in the Programmatic Agreement between the USFWS, Reclamation, BLM, HVT, the Californian State Historic Preservation Officer (SHPO), and the ACHP regarding implementation of the Trinity River Fishery Restoration Program (**Appendix K**).

1.14.5 Compliance with Federal Wild and Scenic Rivers Act

Section 7(a) of the federal WSRA prohibits departments and agencies of the United States from assisting by loan, grant, license, or otherwise in the construction of any water resources project that would have a direct and adverse effect on the ORVs for which the Wild and Scenic River designation was established.

While the federal WSRA does not prohibit development along a river corridor, it does specify guidelines for the determination of appropriate actions within the bed and banks of a Wild and Scenic River that protect or enhance ORVs. As the designated river manager for the Trinity River between Lewiston and Helena, California, BLM must prepare a Section 7 determination for all proposed water resources projects that would affect the free-flowing characteristics of designated river reaches. This determination will ensure that the proposed project does not adversely affect the values for which the river was designated. This EA/DEIR provides the information necessary to support a WSRA Section 7 determination.

1.14.6 Compliance with Executive Order 11990 (Wetlands)

Executive Order 11990 is an overall wetlands policy for all agencies managing federal lands, sponsoring federal projects, or providing federal funds to state or local projects. The order requires federal agencies to follow “avoidance-mitigation-preservation” procedures and provide the opportunity for public input before proposing new construction in wetlands and requires federal agencies to avoid impacts on wetlands where practicable.

1.14.7 COMPLIANCE WITH FEDERAL EXECUTIVE ORDER 11988 (FLOODPLAIN MANAGEMENT)

Executive Order 11988 requires federal agencies to prepare floodplain assessments for proposals located within or affecting floodplains. If an agency proposes to conduct an action within a floodplain, it must consider alternatives to avoid adverse effects and incompatible development of the floodplain.

If the only practicable alternative involves siting of structures in a floodplain, the agency must minimize potential harm to or within the floodplain and explain why the action is proposed in the floodplain. As discussed in **Section 3.4,** Water Resources, and **Appendix F**, the impact analyses conclude that the proposed project would not constitute a significant encroachment on the base floodplain.

1.14.8 COMPLIANCE WITH FEDERAL EXECUTIVE ORDER 12898 (ENVIRONMENTAL JUSTICE)

Executive Order 12898 requires federal agencies to identify and address disproportionately high and adverse human health and environmental effects of federal programs, policies, and activities on minority and low-income populations. Federal agencies are required to provide opportunities for input in the NEPA process by affected communities and to evaluate significant and adverse effects of proposed federal actions on minority and low-income communities during the preparation of NEPA documents. The NEPA scoping process can be used to solicit information on the concerns of minority and low-income populations. If a proposed federal action will not result in significant adverse impacts on minority and low-income populations, the environmental document must describe how Executive Order 12898 was addressed during the NEPA process. Upon issuance of this draft, the public review process will include a statement from Reclamation that it is soliciting input from the public regarding potential adverse impacts of the proposed project on minority and low-income populations.

CHAPTER 2

Description of Proposed Action and Alternatives

Description of Proposed Action and Alternatives

This chapter describes the Proposed Action and alternatives considered for the proposed project. Included in this chapter is a description of the process used by Reclamation and DWR to identify the Proposed Action and potential alternatives to be fully analyzed in this EA/DEIR. A detailed description of the No-Action Alternative, Proposed Action, and Alternative 1 is provided, along with a detailed account of design criteria, construction criteria and methodologies, and tentative construction schedules.

2.1 Project Overview

The lead agencies for this EA/DEIR considered three alternatives for the purpose of analysis. The No-Action Alternative is considered to be the environmental baseline for purposes of NEPA analysis, while the "existing environment" is considered to be the baseline for CEQA purposes. As a practical matter, this distinction has no real consequence as applied herein, although it sometimes does in situations in which a future No-Action scenario differs significantly from actual existing conditions at the time of document preparation. Alternatives were developed using input from the public, reviewing preliminary engineering data, and considering various social, physical, and biological factors. Pursuant to CEQA requirements, the alternatives were intended to be able to meet most of the basic project objectives (NEPA purpose and need) while substantially lessening or avoiding one or more impacts of the Proposed Action that, absent mitigation or project features operating as de facto mitigation, might be significant. This environmental document evaluates the selected alternatives, including the Proposed Action and the No-Action Alternative, at an equal level of detail. Alternatives considered but not selected for evaluation are briefly discussed at the end of this chapter.

This EA/DEIR addresses restoration activities at the Hocker Flat Rehabilitation Site. It does not address other rehabilitation sites identified in the ROD. The flow regime used to evaluate the proposed project are the flows authorized by the December 9, 2002, "Memorandum Decision" issued by Judge Oliver W. Wanger of the United States District Court for the Eastern District of California (U.S. District Court 2002). His decision addressed what he found to be legal deficiencies with the December 19, 2000 ROD issued by former Secretary of Interior Bruce Babbitt, and commanded the preparation of a SEIS to remedy those deficiencies. While that process was underway, he set forth a flow regime to remain in place during the interim period. As set forth on pages 136, 137, and 143 of the Memorandum Decision (U.S. District Court 2002), Secretary Babbitt's ROD would govern flow levels for both critically dry and dry years (368,600 afa and 452,600 afa), with the latter figure operating as a cap for controlled flows even in normal, wet, and extremely wet years. The ROD had provided for 646,900 afa in normal years, 701,000 in wet years, and 815,200 in extremely wet years. Based on the July 13, 2004 opinion issued by the United States Court of Appeals for the Ninth Circuit, the ROD flows are deemed to constitute the "existing [hydrological] environment" for CEQA purposes, and are considered part of both the No Project Alternative (for CEQA) and the No-Action Alternative (for NEPA). In the event this opinion is

overturned, the EA/Final EIR or FONSI/FEIR, as appropriate, will reexamine the basis for the existing [hydrological] environment. The hydrological environment in the vicinity of the proposed project includes the accretion flow from tributaries such as Canyon Creek, as described in **Section 3.4**, Water Resources.

2.2 Project Location

The Trinity River originates in the rugged Salmon-Trinity Mountains of northwest California, approximately 10 miles southwest of the town of Weed, California. The river flows generally southward until Trinity and Lewiston dams impound it. From Lewiston Dam, the river flows westward for 112 miles, terminating at the Klamath River near the town of Weitchpec on the Yurok Reservation. The Trinity River drains approximately 2,965 square miles, and encompasses portions of Trinity and Humboldt counties and the Hoopa Valley and Yurok reservations. The Klamath River flows northwesterly for approximately 40 miles from its confluence with the Trinity River before entering the Pacific Ocean. In general, the proposed project focuses on a 1.1-mile reach of the Trinity River, immediately downstream of Canyon Creek in the general vicinity of Junction City, California. The direct, indirect, and cumulative impacts assessed in this EA/DEIR occur within the Trinity River basin. A description of the proposed project location is provided below.

About a 1.1 mile-reach of the Trinity River is included in the proposed project Environmental Study Limit (ESL). Specifically, this reach extends from River Mile (RM) 79.1 downstream to RM 78.0. This reach corresponds with the intersection of Canyon Creek Road and SR 299. It is located within the *Junction City, California* 7.5-minute United States Geological Survey (USGS) quadrangle map, Township 33 North, Range 11 West, Sections 1, 12, and 13, Mount Diablo Base Meridian (MDBM), 040° 44' 26" north latitude by 123° 03' 47" west longitude.

2.3 Development of Alternatives

This section describes the alternatives that were developed for the proposed project to address the Purpose and Need, and the Goals and Objectives outlined in **Chapter 1**. This section also describes the No-Action condition, which represents the baseline for NEPA purposes. As noted earlier, No-Action conditions and "existing conditions" (a CEQA concept) are essentially the same. To ensure that a reasonable range of alternatives is considered under NEPA and CEQA, the lead agencies developed alternatives that are responsive to the Purpose and Need, the Goals and Objectives of the proposed project, and public comments submitted during scoping. In order for an alternative to be carried forward for further consideration, it needs to demonstrate the ability to meet most of the basic purposes and objectives of the proposed project.

The selection of potentially feasible alternatives, which will ultimately lead to a preferred alternative, was driven by a number of factors. For an alternative to be considered potentially feasible (and therefore subject to full NEPA and CEQA analysis), it must have the ability to meet most of the purposes and objectives identified for the proposed project. Alternatives that failed to do so were excluded from further consideration (see **Section 2.7**, Alternatives Considered but Eliminated from Further Evaluation).

The initial screening process considered alternatives that met the requirements discussed in **Section 1.7**. These considerations included flow regimes (seasonal and inter-annual), potential for resource impacts, and engineering limitations. This preliminary list of alternatives incorporated input provided at the public hearing held on June 2, 2004, in Junction City, California, and from interested agencies and public participants during the scoping process.

Additional screening criteria were developed to narrow the list of potentially feasible alternatives. The secondary screening process identified alternatives that could achieve most of the basic project purposes and objectives, and that responded to environmental concerns raised during the scoping process. The following criteria were applied in order to evaluate the proposed project's ability to meet the purpose and needs established in **Chapter 1**.

- **Effectiveness** – methods, materials and performance of previous Trinity River restoration projects (pilot projects), and channel rehabilitation projects in similar environments that have documented long-term successful performance under similar circumstances were considered.
- **Implementation** – practical execution, including potential public acceptance issues, permitting, and land use issues. Constructability and complexity of maintaining the proposed project over time were also considered.
- **Environmental** – impact to environmental resources with emphasis on special-status species, including native anadromous salmonids (both short-term construction-related impacts and long-term maintenance associated with TRD flow releases). Impacts to aquatic habitat and jurisdictional wetlands were considered in the type and location of proposed activities.
- **Cost** – relative comparison of cost for each alternative, including construction and revegetation costs were considered. Cost was used to identify alternatives that were significantly out of proportion with other alternatives.

The interdisciplinary team evaluated three alternatives for this site, in accordance with the criteria outlined above. This evaluation resulted in identifying two action alternatives for the proposed project. These alternatives were formulated from public input, engineering feasibility, scientific information, and professional judgment, in a manner consistent with NEPA and CEQA. A summary of the fully analyzed alternatives is presented in the following section. Analysis of the anticipated impacts associated with each alternative is presented in **Chapter 3**.

The No-Action Alternative represents ongoing activities and operations and is intended to meet the state *CEQA Guidelines*, Section 15126.6, subdivision (e)(2) as "would be reasonably expected to occur in the foreseeable future if the proposed project were not approved" (CELSOC 2002). As previously discussed, the No-Action (No-Project, CEQA) Alternative is predicated on the conditions described in the December 9, 2002, "Memorandum Decision" issued by Judge Oliver W. Wanger of the United States District Court for the Eastern District of California. In particular, the hydrologic elements authorized in this memorandum will be used as the existing condition (environmental baseline). The No-Action Alternative is described in the following section.

2.4 Project Setting

The ESL for the proposed project encompasses 151 acres on both sides of the Trinity River, immediately downstream from the confluence of Canyon Creek (**Figure 2-1**). The project location encompasses one of the sites originally identified in the ROD; however, this EA/DEIR has expanded the original site boundaries to the proposed project ESL shown on **Figure 2-1**. For orientation and description purposes, references to river left and river right assume an observer is looking downstream. The Trinity River essentially bisects the ESL into two discrete sections, river left and river right. For readability, the EA/DEIR will use these references to river left and river right throughout the remainder of the document.

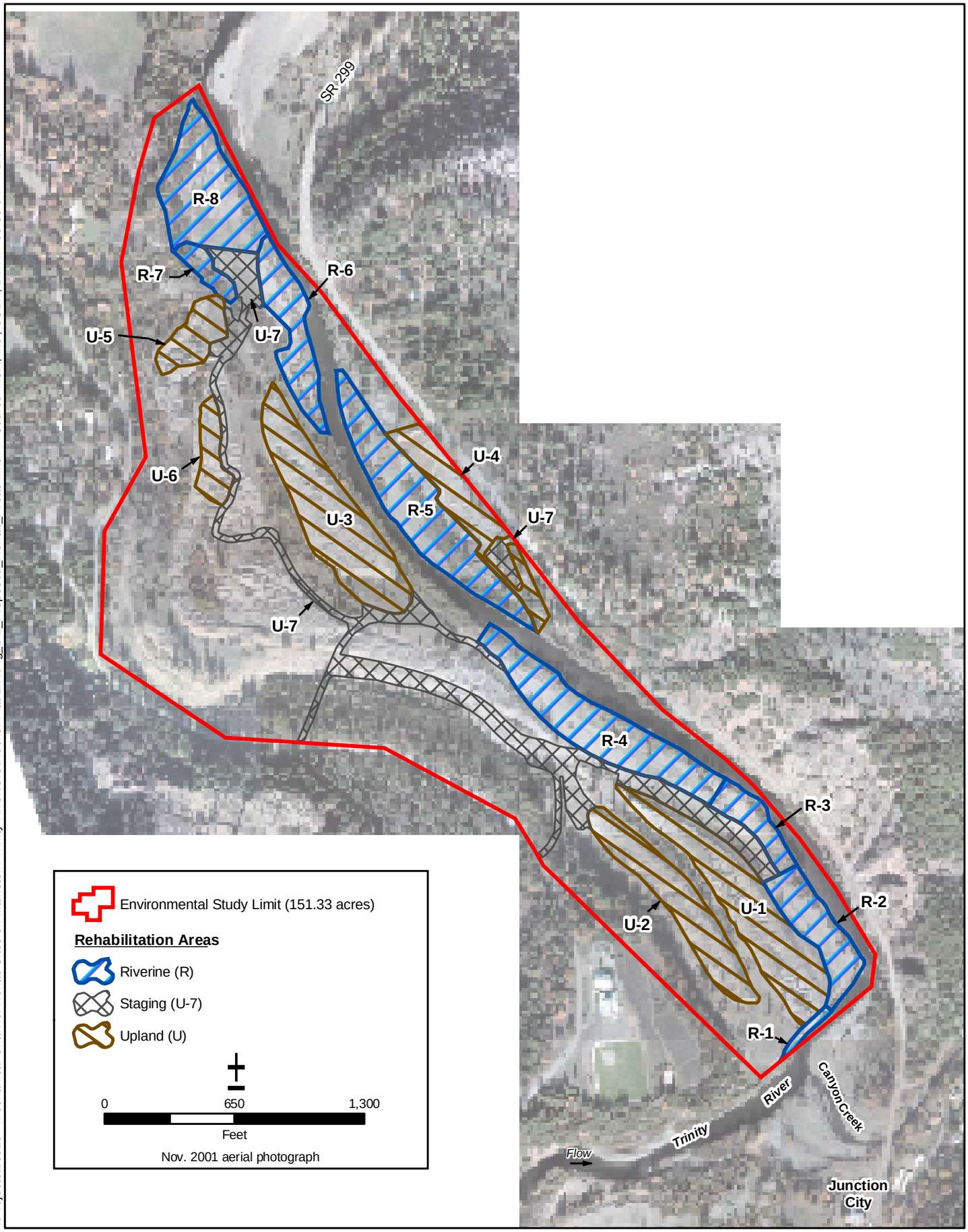
Prior to the 1940s, the area locally known as Hocker Flat was a part of the historic Hocker Ranch. This ranch was settled in conjunction with the mining activities that occurred between 1850 and 1900. Prior to the construction of SR 299 in the 1930s, Hocker Ranch operated a ferry across the Trinity River, and offered food and lodging for travelers between Redding and Eureka. Large-scale bucket-line dredges were used to mine the alluvial deposits underlying the Hocker Ranch in the 1940s. This activity resulted in alterations to the bed and banks of the Trinity River prior to the construction of the TRD. Although this dredge activity substantially modified the morphology of the channel between the valley walls, unregulated flows continued to provide the geomorphic elements to maintain a meandering channel typical of a normally functioning alluvial river (U.S. Fish and Wildlife Service 1995).

The construction and operation of the TRD resulted in a dramatic change in the flow regime of the Trinity River downstream of Lewiston Dam. One of the fundamental changes in the river between Lewiston and Helena was the formation of “fossilized berms.” These berms are large deposits of fine sediment anchored by well-established riparian communities. These berms have essentially *handcuffed* the river, affecting its ability to maintain the alternate bar sequence in the affected reach. These changes are discussed in detail in the FEIS/EIR and the SEIS/DEIR referenced in **Chapter 1**.

Within the ESL, private lands on both sides of the Trinity River have been developed as commercial sand and gravel mines. The mines on the right side of the river have been in operation for a number of years, and have been developed to the extent authorized by Trinity County. The mines on the left side of the river continue to be developed in an incremental fashion. The extensive nature of the tailing deposits provides opportunities for expansion of this operation in the future. To date, all commercial sand and gravel operations have been conducted above the ordinary high-water of the river.

Between 1990 and 1993, the TRRP initiated a pilot “feathered edge,” or bank rehabilitation program, along the right bank. This program used heavy equipment (i.e., excavators, bulldozers) to remove the fossilized riparian berms and reshape portions of the river channel to pre-TRD configurations. The Jim Smith site, located at RM 78.5, was constructed in 1993, adjacent to the commercial sand and gravel operations on the right side of the river. At this location, the berm was removed and the low water channel width was increased to approximately 100 feet. Monitoring of the site has occurred since 1996, and channel narrowing, point bar formation, and increased channel sinuosity have been observed.

The river right section of the ESL is parallel to SR 299. In this vicinity, the highway parallels the right bank of the Trinity River and, in some instances, the fill slopes extend to the ordinary high-water line of



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North State Resources, Inc.

Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

Figure 2-1
Proposed Action Rehabilitation Areas

the river. In addition to the presence of the highway, gravel mining of historic dredge tailings has occurred on private lands between the river and the highway. At this time, the sand and gravel mining activities on the right side of the river have been discontinued.

Left of the Trinity River, the ESL extends upslope to Trinity County Road 415 (Red Hill Road), and parallels the river for about 1.1 mile in a downstream direction. A commercial sand and gravel operation is limited to one small excavation that operates on an intermittent basis. Access to the river is provided by a series of roads/trails via Red Hill Road.

2.5 Description of Project Areas

Interdisciplinary and interagency evaluation of Hocker Flat as a pilot rehabilitation project resulted in identifying 15 discrete rehabilitation areas within the ESL that are addressed in this EA/DEIR. The type, extent, and level of activity within each area may be different, depending on the alternative. These areas were defined by the interdisciplinary team to include river rehabilitation areas and upslope riparian rehabilitation areas. Riverine rehabilitation areas are labeled with an R preceding the site number (e.g., R-1, R-2). Upland rehabilitation areas are labeled with a U preceding the site number (e.g., U-1, U-2). **Figure 2-1** shows the location of each area relative to the ESL boundary. **Table 2-1** identifies the rehabilitation areas; describes the size (acres) and location (river right/left); and provides a general characterization of the landscape features.

The following section provides a brief discussion of each rehabilitation area in terms of location, ecological setting, and the specific objectives identified for each area. In addition, any special circumstances or design criteria are discussed.

TABLE 2-1
REHABILITATION AREAS

Area	Area Size (acres)[a]	River Right/Left	Landscape Features
R-1	0.29	Left	Hydraulic control, sediment source
R-2	2.85	Left	Functional riparian berm, minimal floodplain
R-3	1.57	Left	Functional riparian berm, minimal floodplain
R-4	6.14	Left	Functional riparian berm, moderate floodplain
R-5	6.40	Right	Functional riparian berm, moderate floodplain
R-6	3.08	Left	Functional riparian berm, moderate floodplain
R-7	0.83	Left	Floodplain, confluence with Hocker Creek
R-8	5.36	Left	Functional riparian system
U-1	6.88	Left	Existing tailings deposits
U-2	4.42	Left	Existing tailings deposits

Area	Area Size (acres)[a]	River Right/Left	Landscape Features
U-3	6.82	Left	Existing sand and gravel excavation and deposits
U-4	3.52	Left	Existing tailings deposits
U-5	1.75	Left	Existing tailings deposits
U-6	1.34	Right	Existing tailings deposits
U-7	11.27	Left and Right	Staging and access locations

[a] Area calculated from project GIS

2.5.1 RIVERINE REHABILITATION AREAS

The riverine rehabilitation areas were delineated through an interdisciplinary process. This process included consideration of the mechanical rehabilitation objectives outlined in the FEIS, the existing conditions of the proposed project site (biology, land ownership, engineering feasibility, and environmental constraints), and the controversy associated with implementing rehabilitation projects prior to an increase in flows. The functionality of the aquatic system was considered, as well as the information available on wetlands that occur throughout the proposed project ESL. The riverine rehabilitation areas presented in this section form the basis for the proposed project.

R-1

Area R-1 is on the left side of the river and extends from the confluence of Canyon Creek, downstream 380 lineal feet along the river bank. This area consists of dredge tailing deposits, underlain by the historic floodplain of the river. Currently, the historic floodplain is projected to be about 15 feet above the active low-flow channel of the river. The oversteepened face of this deposit provides a sediment source (predominantly gravel and cobble) during high flows. High flows events, including accretion flow from Canyon Creek, scour the toe of this deposit, resulting in a reoccurring source of sediment that is available for transport.

The aquatic habitat adjacent to this area consists of a channel confluence pool and a high-gradient riffle. Riparian vegetation within the activity area is limited by the continued erosion of the tailing deposits. Upslope vegetation is minimal to nonexistent.

Objective:

- Maintain this area as an additional source of sediment available to the Trinity River.

R-2

Area R-2 is on the left side of the river and extends about 900 lineal feet downstream (RM 79.08 to 78.91). Within this area, the river makes a pronounced bend to the northwest in response to a geologic control (bedrock outcrop), reinforced by the fill slope of SR 299 and the delta of Canyon Creek. A riparian berm occupies the remainder of this area.

The aquatic habitat adjacent to this area consists of a corner pool and several runs. A small gravel bar is associated with the tailout of the corner pool. Riparian vegetation is well established on the berm. The historic floodplain has a diverse, but sparse assemblage of riparian and upland vegetation types.

Objectives:

- Re-activate floodplain and gravel bar on river left to facilitate river-induced meandering and floodplain development.
- Validate that the constructed floodplain surface will be self-maintaining under the current pre-ROD flow hydrology.
- Recruit riparian vegetation onto the 1.5-year recurrence interval floodplain (bankfull flow determined to be 6,000 cfs).
- Increase the area, quality, and availability of rearing habitat for anadromous salmonids (specifically fry and juvenile life stages) over a range of flows. Physical habitat measurements pre-and post-project will determine project-related changes in habitat**.**
- Increase structural complexity of the types of habitat available and thereby increase the range of anadromous salmonid life history stages that can be supported.
- Increase the quality and quantity of habitat for foothill yellow-legged frog (all life stages).

R-3

Area R-3 is on the left side of the river and extends about 540 lineal feet downstream. This area includes the river left bank and floodplain immediately downstream of Area R-2. Currently, the floodplain is approximately 175 feet wide and is confined by a large tailing deposit, although it requires discharges in excess of 10,000 cfs to inundate this feature (based on the hydraulic model). The river is constricted by a riparian berm that prevents the design flow of 6,000 cfs from accessing the floodplain or scouring the bank.

The aquatic habitat adjacent to this area consists of a low-gradient riffle, a lateral scour pool, and runs. The lateral scour pool is associated with bedrock outcropping on the river right bank about midway through the Area 3 reach. This geologic feature is largely responsible for the variable width of the river and varied depths and velocities in this reach. Riparian vegetation is well established on the berm. Presently, the floodplain has a diverse, but sparse assemblage of riparian and upland vegetation types.

Objectives:

- Retain functional features (riparian vegetation, available floodplain) within this area
- Use area as untreated control (response area) for monitoring activities

R-4

Area R-4 is on the left side of the river and extends about 1,230 lineal feet downstream. This area includes the river left bank and floodplain immediately downstream of Area R-3. The current floodplain ranges between 175 feet and 250 feet in width and is confined by large tailing deposits. Under the

existing condition, discharges in excess of 10,000 cfs are required to inundate the floodplain. The river is constricted by a riparian berm that prevents the design flow of 6,000 cfs from accessing the floodplain or scouring the bank. The river exhibits no sinuosity through this reach, and there is evidence that suggests that historic dredging activities substantially modified the channel in this area. The changes associated with these dredging activities are described in **Section 3.3**.

The aquatic habitat adjacent to this area consists of a low-gradient riffle, and runs. Riparian vegetation is well-established on the berm. Presently, the floodplain has a diverse, but sparse assemblage of riparian and upland vegetation types.

Objectives:

- Develop a point bar along the right side of the river and encourage lateral migration into the left bank at flows > 6,000 cfs (1.5-year recurrence interval/bankfull discharge)
- Retain bankfull width (150 to 170 feet), and narrow the low-flow channel width from 120 feet to between 70 and 90 feet
- Develop a meander wavelength of 1,200 to 1,500 feet and increase the amplitude and sinuosity of the low-flow channel
- Establish conditions such that the flow regime (interim high flows and eventual ROD flows) will scour the bar, preventing re-establishment of riparian vegetation below the designed floodplain elevation and preventing riparian encroachment on the bar surface. Areas below Canyon Creek have a higher likelihood of being self-maintained but will eventually fail without ROD flows.
- Recruit riparian vegetation on upper floodplain surface which are not subject to high-flow scouring
- Allow river to meander in open lower floodplain
- Increase the area, quality, and availability of rearing habitat for anadromous salmonids (specifically fry and juvenile life stages) over a range of flows
- Increase structural complexity and types of habitat available and thereby increase the range of anadromous salmonid life history stages that can be supported
- Increase the quality and quantity of habitat for foothill yellow legged frog (all life stages)

R-5

Area R-5 is on the right side of the river and extends approximately 1,440 lineal feet downstream. This area is directly across the river from the downstream side of R-4 and includes the *Jim Smith Site*. The *Jim Smith Site* references a “feather edge” bank rehabilitation project completed in 1993 by Reclamation. Upslope from this site, excavation of sand and gravel has resulted in several small impoundments and disposal areas between the river and SR 299. Presently, the 1993 project area includes a low-sloped gravel bar with reestablishment of riparian berms. Although floodplain features are present on either side of the *Jim Smith Site*, their functionality is impeded by the redevelopment of the riparian berms.

The aquatic habitat adjacent to this area consists of runs, low-gradient riffles, a high-gradient riffle, and a lateral scour pool. Riparian vegetation has reestablished since the 1993 activities and is well established in the untreated areas. Although the high flow events in 1997 were large enough to scour the bar, encroachment of riparian vegetation continues to encourage the formation of a new berm. Presently, the floodplain has a diverse, but sparse assemblage of riparian and upland vegetation types.

On the river left bank, directly across from Area R-5, a large tailings pile occupies the floodplain (Area U-3). The easterly slopes of the tailings pile extend directly into the river for much of its length. Riparian vegetation has become established along the entire left bank where the tailings pile is currently being mined. This large area left of the river was not considered for rehabilitation activities due to the economic values associated with the tailings.

Objectives:

- Re-activate floodplain and gravel bar on river left to facilitate river-induced meander and floodplain development
- Establish conditions such that the flow regime (interim high flows) will scour the bar, preventing re-establishment of riparian vegetation below the designed floodplain elevation and preventing riparian encroachment on the bar surface. Reach should be self-maintaining below Canyon Creek with interim flows.
- Recruit riparian vegetation on floodplain surfaces not subject to high-flow scouring
- Increase the area, quality, and availability of rearing habitat for anadromous salmonids (specifically fry and juvenile life stages) over a range of flows
- Increase the structural complexity and types of habitat available and, therefore, increase the range of anadromous salmonid life history stages that can be supported
- Increase the quality and quantity of habitat for foothill yellow-legged frog (all life stages)

R-6

Area R-6 is on the left side of the river across from the lower section of Area R-5, and extends approximately 1,000 lineal feet downstream. This area includes the river left bank, floodplain, and high-flow scour channel downstream of Area R-4. A large tailings deposit (Area U-3) separates Area R-4 and Area R-6. The upstream end of this area includes the entrance to a high-flow scour channel that was re-opened during the 1997 flood event. The hydraulic model developed for the proposed project suggests that this channel requires discharges above 18,000 cfs to initiate flow through this feature. A steeply sloped riparian berm is present along the left bank.

The aquatic habitat adjacent to this area consists of a low-gradient riffle, a high-gradient riffle, and a mid-channel pool. Riparian vegetation is well-established on the berm, and the associated floodplain has a diverse assemblage of riparian and upland vegetation types.

Objectives:

- Re-activate the floodplain and gravel bar on river right to facilitate river-induced meandering and floodplain development
- Establish conditions such that the flow regime (interim high flows) will scour the bar, preventing re-establishment of riparian vegetation below the designed floodplain elevation and preventing riparian encroachment on the bar surface. Reach should be self-maintaining below Canyon Creek with interim flows.
- Recruit riparian vegetation on floodplain surfaces not subject to high-flow scouring
- Increase the area, quality, and availability of rearing habitat for anadromous salmonids (specifically fry and juvenile life stages) over a range of flows
- Increase the structural complexity and types of habitat available and thereby increase the range of anadromous salmonid life history stages that can be supported
- Increase the quantity and quality of habitat for foothill yellow-legged frog (all life stages)

R-7

Area R-7 is on the left side of the river west of Area R-6, and extends approximately 400 lineal feet downstream. This area includes a broad floodplain that is inundated by discharges in excess of 18,000 cfs (based on hydraulic model) and extends to the small tributary stream (Hocker Creek) that eventually enters the river downstream of Area R-8.

The aquatic habitat is limited to a short section of Hocker Creek that bisects the floodplain of the Trinity River. Currently, riparian vegetation (i.e., Himalayan blackberry) inhibits the ability to characterize the habitat in Hocker Creek. The Trinity River floodplain in this area has a sparse assemblage of riparian and upland vegetation types, including several cottonwood trees.

Objectives:

- Increase the horizontal and vertical structural complexity of riparian and upland habitats and thereby increase biological diversity in the project area in proportion to habitat created
- Increase opportunity for floodplain inundation

R-8

Area R-8 is on the left side of the river and extends approximately 800 feet to the downstream limit of the proposed project ESL. This area includes the left bank of the river, riparian berm, floodplain, and the deltaic feature at the confluence of Hocker Creek.

Aquatic habitat adjacent to this area is primarily run/glide, with a scour pool on the downstream edge of the ESL. Hocker Creek provides some degree of aquatic habitat within this area; however, riparian vegetation (i.e., Himalayan blackberry) inhibits the ability to characterize this habitat. The berm has dense vegetation, while the floodplain has a sparse assemblage of riparian and upland vegetation types, including a small cottonwood stand.

Objectives:

- Retain functional features (riparian vegetation, available floodplain) within this area.
- Utilize area as untreated control (response area) for monitoring activities

2.5.2 UPLAND REHABILITATION AREAS

The objective for all U areas (except U-7) is to establish a suitable location for disposal of excavated material (i.e., sand, gravel, and cobble) and provide opportunities for re-establishing some degree of upland vegetation. Suitability criteria include locations above (outside of) the 100-year floodplain elevation, locations that reduce observable changes (line and form of tailing piles) in topography, locations that would result in no loss of access to commercial mineral resources, and locations that provide the opportunity for reestablishing upland vegetation.

U-1

Area U-1 is a terrace on the left side of the river. This terrace is occupied by a large deposit of dredge tailings, a remnant of bucket-line dredge operations that occurred between 1930 and 1950. This area is located upslope of Areas R-1, R-2, R-3, and R-4. The lack of soil development since these tailings were deposited inhibits recruitment and survival of vegetation.

U-2

Area U-2 is a terrace on the left side of the river. This terrace is occupied by a large deposit of dredge tailings, a remnant of bucket-line dredge operations that occurred between 1930 and 1950. It is located upslope of Areas R-2, R-3, and R-4. The lack of soil development since these tailings were deposited inhibits recruitment and survival of vegetation.

U-3

Area U-3 is a terrace on the left side of the river. This terrace is occupied by a large deposit of dredge tailings, a remnant of bucket-line dredge operations that occurred between 1930 and 1950. It is located across the river from Area R-5 and upslope from Area R-6. Ongoing extraction of sand and gravel is associated with Area U-3 and has precluded consideration of this area for rehabilitation activities. Existing excavation, access, and disposal areas are associated with the sand and gravel mining activities (Area U-7). The lack of soil development since these tailings were deposited inhibits recruitment and survival of vegetation, although there are riparian features immediately adjacent to this area.

U-4

Area U-4 is the depleted sand and gravel mine on the right side of the river adjacent to Area R-5. The excavated areas of this mine are separated from Area R-5 by a levee of tailings material. Between this levee and SR 299, several large pits have been excavated since 1995, and currently have standing water that appears to fluctuate with the elevation of the Trinity River. The lack of soil development since these tailings were deposited inhibits recruitment and survival of vegetation, although the site has been used by Caltrans as a disposal area on a reoccurring basis and some vegetation has developed over time.

U-5

Area U-5 is a terrace on the left side of the river. This terrace is occupied by a large deposit of dredge tailings, a remnant of bucket-line dredge operations that occurred between 1930 and 1950. It is located upslope of Area R-7, and adjacent to Area U-7 (staging). The lack of soil development since these tailings were deposited in the 1940s inhibits recruitment and survival of vegetation, although there are riparian features immediately adjacent to this area.

U-6

Area U-6 is a terrace on the left side of the river. This terrace is occupied by a large deposit of dredge tailings, a remnant of bucket-line dredge operations that occurred between 1930 and 1950. It is located upslope of Area U-3, and is the rehabilitation area closest to Red Hill Road (300 feet). The lack of soil development since these tailings were deposited in the 1940s inhibits recruitment and survival of vegetation.

U-7

Area U-7 includes the areas identified for access and staging activities. The primary staging area would be located on the left side of the river between Areas R-6 and R-7. A secondary staging area is proposed near Area R-4. A utility corridor bisects the primary staging area, providing an opportunity for electrical service if required for rehabilitation activities. An additional staging area would be located on the right side of the river adjacent to Area U-4. Access to individual areas would be provided via transportation corridors. **Figure 2-1** shows the maximum width of the transportation corridor and staging areas for the proposed project. These corridors would be constructed to blend into the existing topography (limited cut and fill) and avoid wetland and riparian features.

This area contains a diverse assemblage of riparian and upslope vegetation types and habitats. The transportation corridor was designed to minimize impacts to the existing riparian vegetation.

The objective of U-7 is to provide access to each of the rehabilitation areas and provide locations for equipment and personnel staging.

2.6 Description of Proposed Action and Project Alternatives

This section describes the No-Action Alternative and the two action alternatives analyzed in this EA/DEIR. The action alternatives are considered feasible, and each contains features that would avoid or substantially lessen at least one of the significant environmental effects of the proposed project. The alternatives selected for evaluation and assessed in this document represent a reasonable range of alternatives that will provide for meaningful public participation and informed decision-making.

In order to portray the type and extent of rehabilitation activities discussed in this section, a series of cross sections and longitudinal profiles has been prepared for the rehabilitation areas that are part of either the **Proposed Action or Alternative 1. Figure 2-2** illustrates the relative location and stationing for cross sections and longitudinal profiles constructed to characterize the existing ground surface (No-Action Alternative) and provide the reader with graphic representation of the Proposed Action and Alternative 1.

The longitudinal profile of the upland rehabilitation areas shown on **Figure 2-2** illustrate the changes in topography that would occur. **Figure 2-3** compares grading limits (impact areas) for the Proposed Action and Alternative 1. The impact areas shown on **Figure 2-3** were developed to portray the maximum extent of activity (disturbance) that would occur. These areas provide the basis for calculating the acreage of the impacts described in **Chapter 3**. Figure 2-3 Riverine Grading Limits – Proposed Action and Alternative 1

For comparative purposes, figures have been prepared for each rehabilitation area (**Figure 2.4 through Figure 2.14**). These figures illustrate the existing ground surface, with the Proposed Action and Alternative 1 design surface on the same sheet.

2.6.1 ACTIVITIES COMMON TO BOTH ACTION ALTERNATIVES

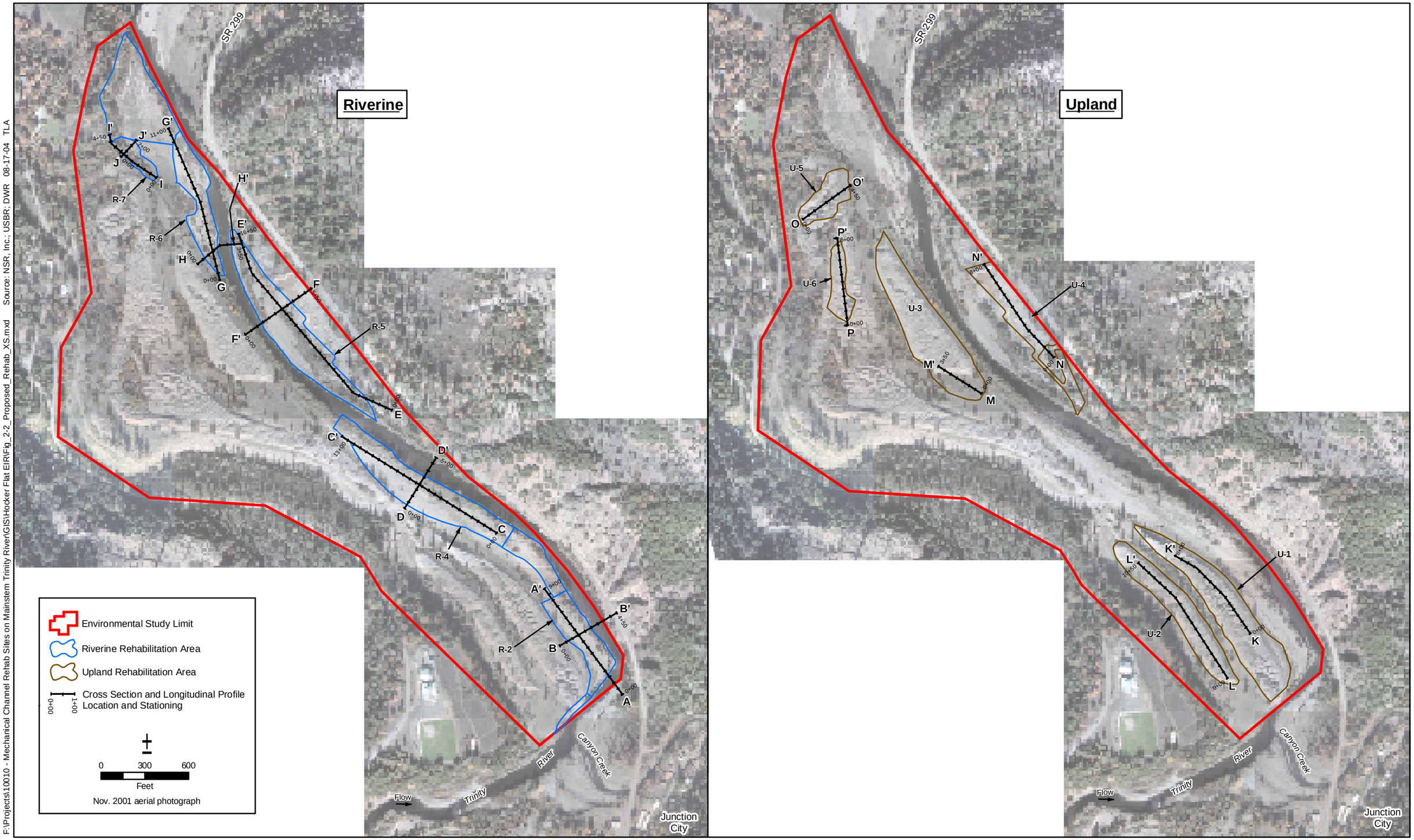
The proposed project entails up to seven activities that may occur in one or more rehabilitation areas, depending on the alternative. The location, extent, and magnitude of these activities may vary between alternatives; however, the nature of the activities would essentially be the same. In this section, the activities common to both action alternatives are identified using an alpha label system, as shown in **Table 2-2.** Where appropriate, this suite of activities is used to illustrate the activities proposed for each rehabilitation area in the following discussion of alternatives, as well as to facilitate the analysis of impacts in **Chapter 3**. For each action alternative, a table has been prepared that provides an overview of the types of activities proposed. If additional activities are required for one or more of the alternatives, these activities are incorporated in the specific alternative description.

TABLE 2-2

Restoration Activities Common to Both Action Alternatives

Activity	Activity Type
A	Vegetation Removal
B	Riparian Berm Removal
C	Trinity River Floodplain Construction
D	Material Transportation
E	Material Stockpile & Disposal
F	Revegetation
G	Monitoring

The following discussion describes the types of activities that may occur and provides a general overview of the specific elements included in each activity.



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Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

Figure 2-2. Cross Section and Longitudinal Profile Locations and Stationing Proposed Rehabilitation Areas

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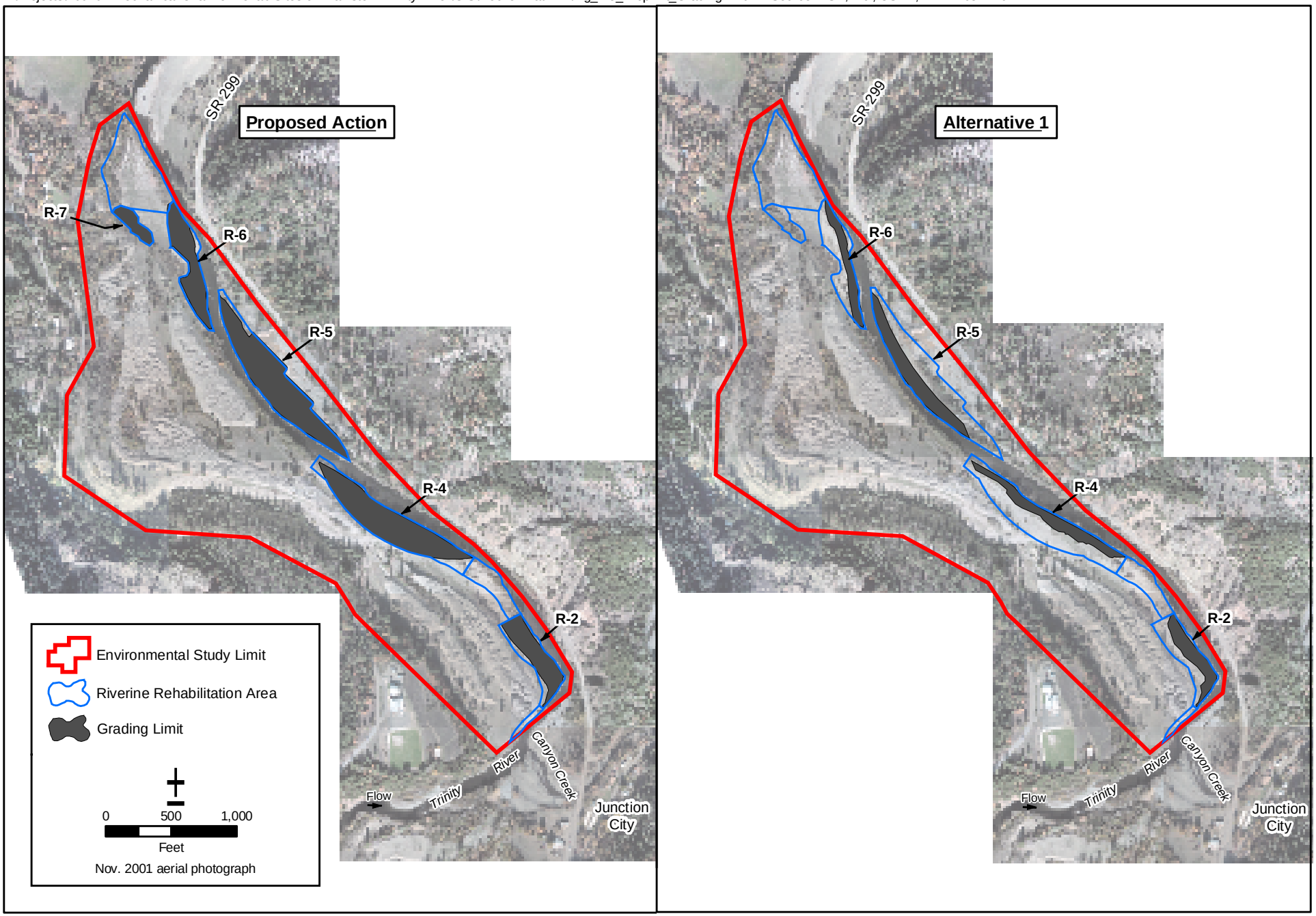


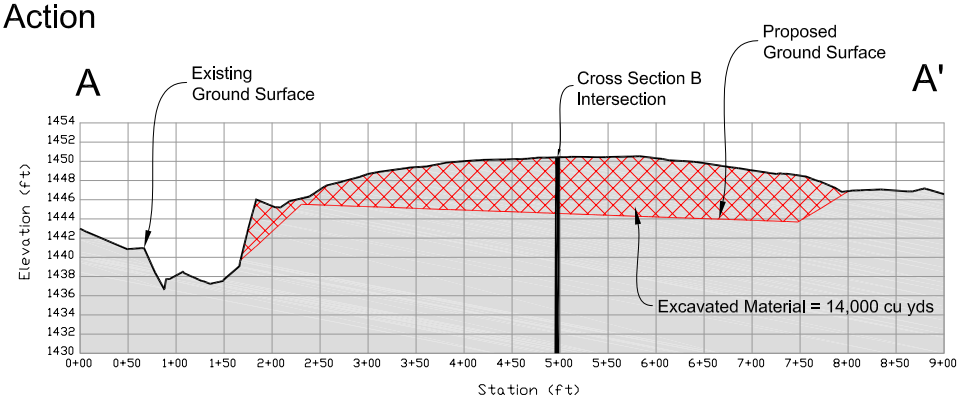
Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

North State Resources, Inc.

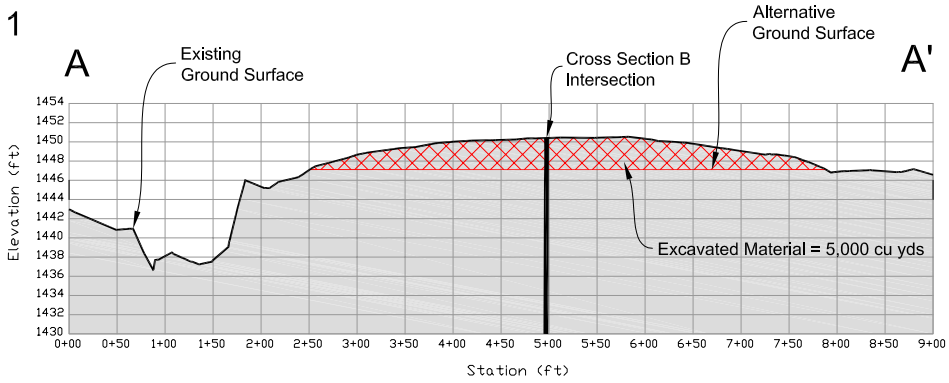
Figure 2-3
Riverine Grading Limits
Proposed Action and Alternative 1

R-2 Longitudinal Profile

Proposed Action

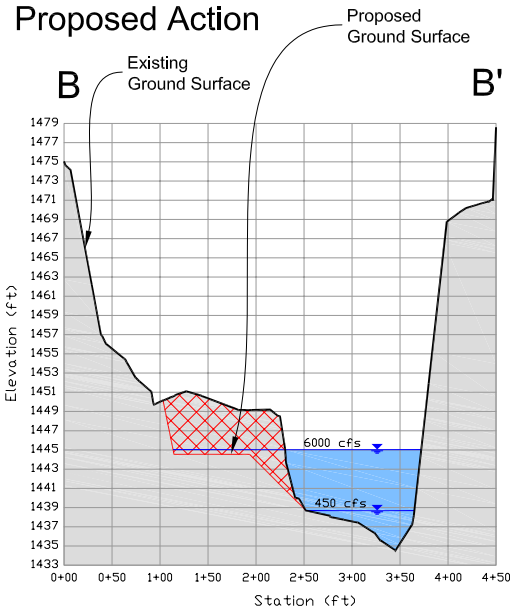


Alternative 1

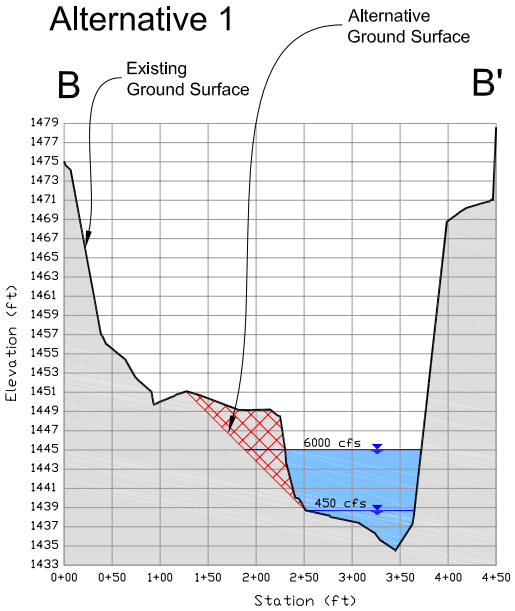


R-2 Cross Section

Proposed Action



Alternative 1



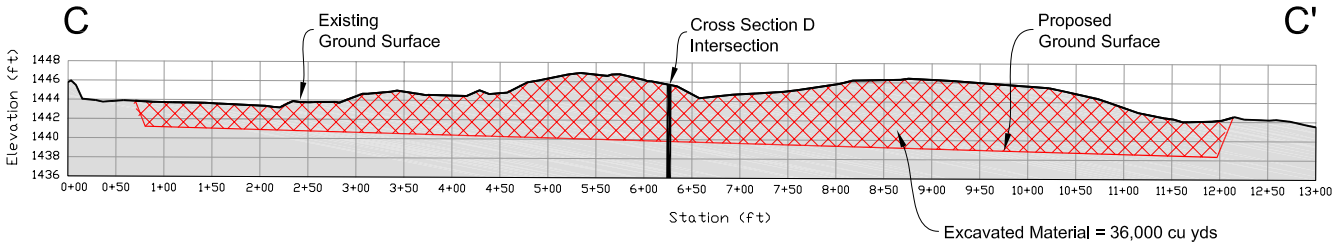
Note: Not to scale
Shown for comparative purposes

F: Projects/10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River/Hocker Flat Project/Graphics/Chapter 2/Fig_2-4_R2_LP_XS.dwg Source: USBR, DWR 06-18-04 TLA

Figure 2-4
R-2 Longitudinal Profile and Cross Section

R-4 Longitudinal Profile

Proposed Action



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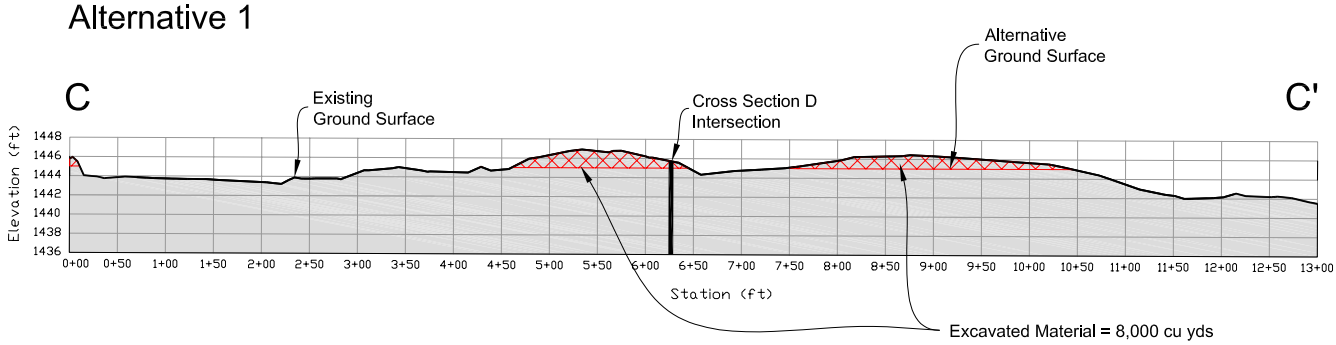
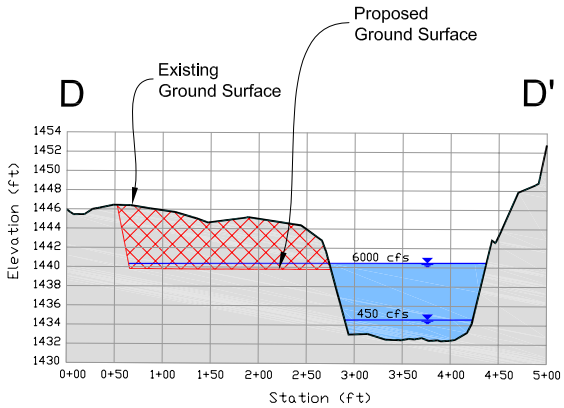


R-4 Cross Section

Proposed Action



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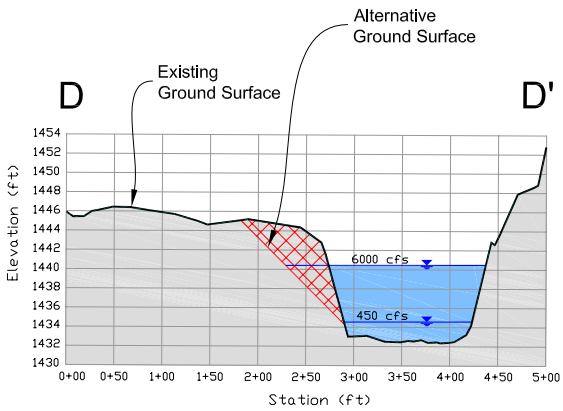


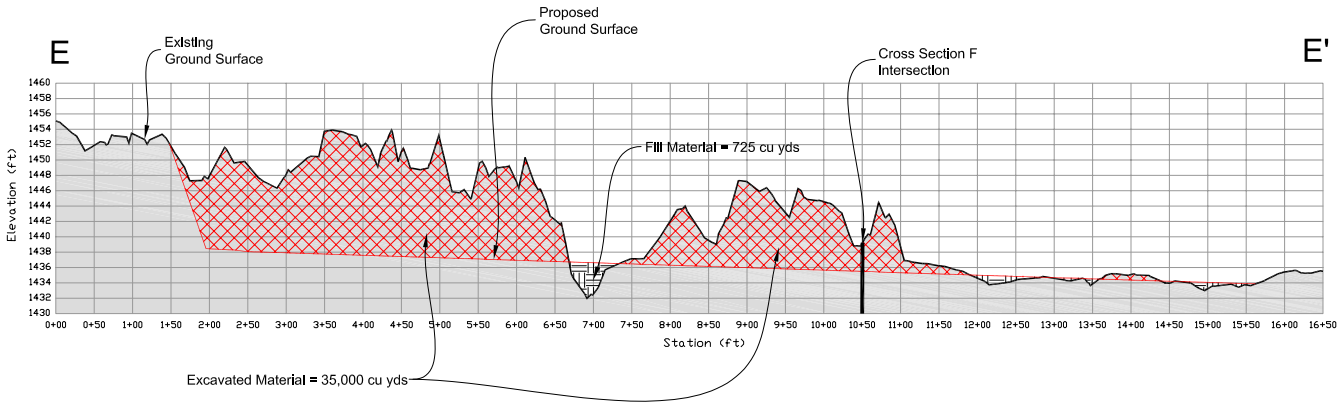
Note: Not to scale
Shown for comparative purposes

F: Projects/10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River/Hocker Flat Project/Graphics/Chapter 2/Fig_2-5_R4_LP_XS.dwg Source: USBR, DWR 06-18-04 TLA

Figure 2-5
R-4 Longitudinal Profile and Cross Section

R-5 Longitudinal Profile

Proposed Action



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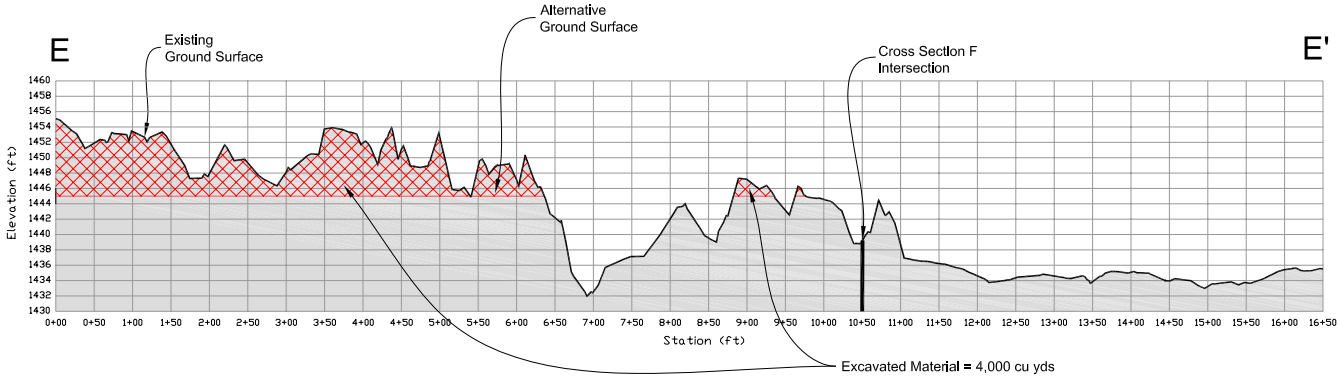
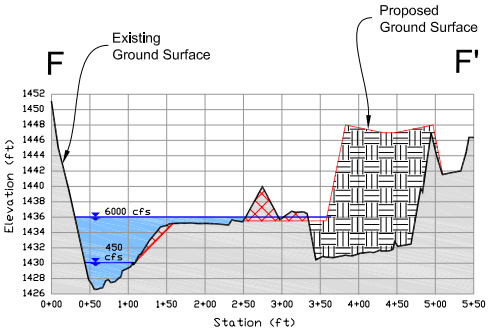


R-5 Cross Section

Proposed Action



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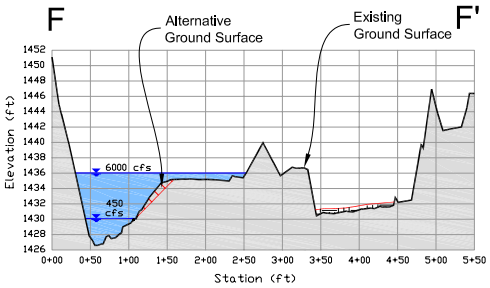

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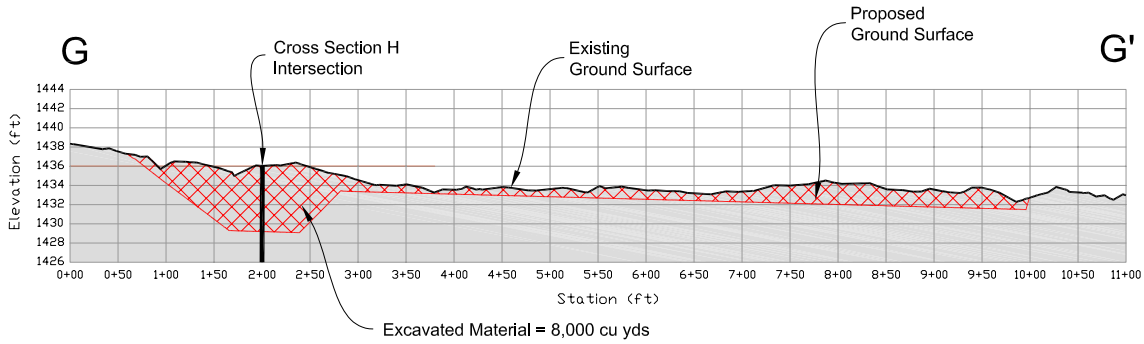
Shown for comparative purposes

F: Projects/10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River/Hocker Flat Project/Chapter 2/Fig_2-6_R5_LP_XS.dwg Source: USBR, DWR 07-01-04 TLA

Figure 2-6
R-5 Longitudinal Profile and Cross Section

R-6 Longitudinal Profile

Proposed Action



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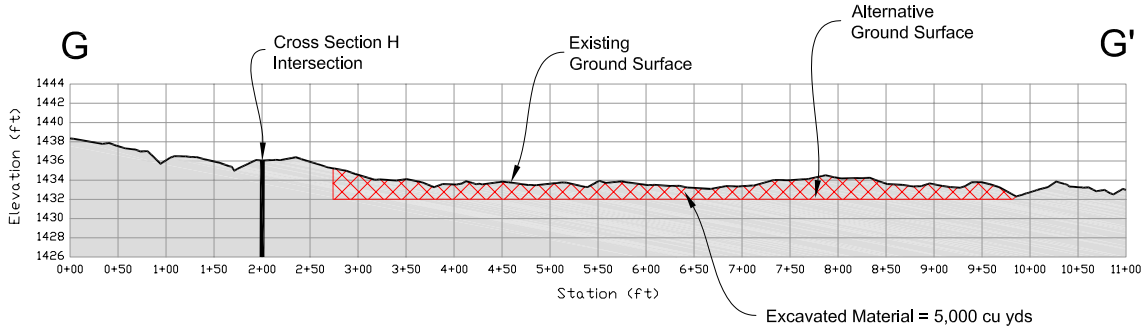
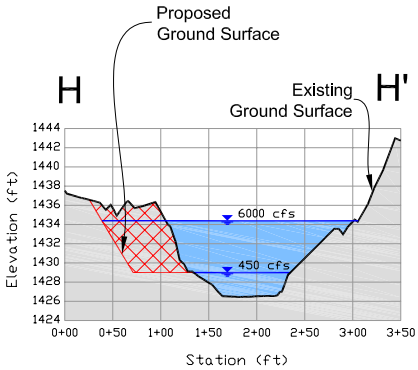


R-6 Cross Section

Proposed Action



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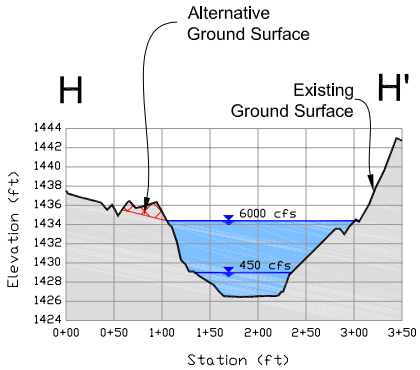

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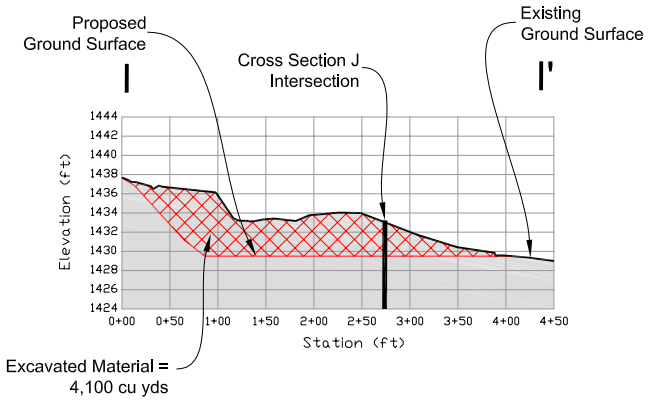
Shown for comparative purposes

F: Projects/10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River/Hocker Flat Project/Graphics/Chapter 2/Fig_2-7_R6_LP_XS.dwg Source: USBR, DWR 07-01-04 TLA

Figure 2-7
R-6 Longitudinal Profile and Cross Section

R-7 Longitudinal Profile

Proposed Action



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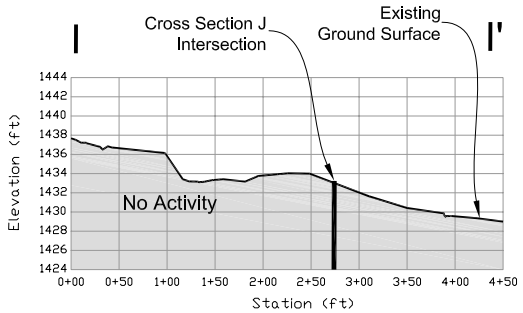
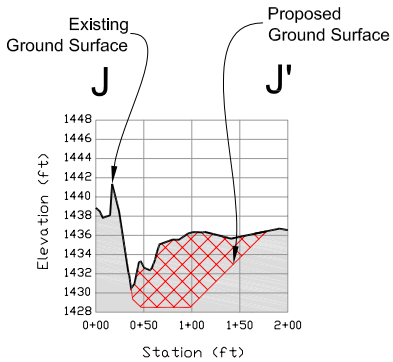


R-7 Cross Section

Proposed Action



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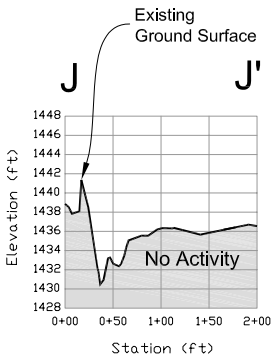


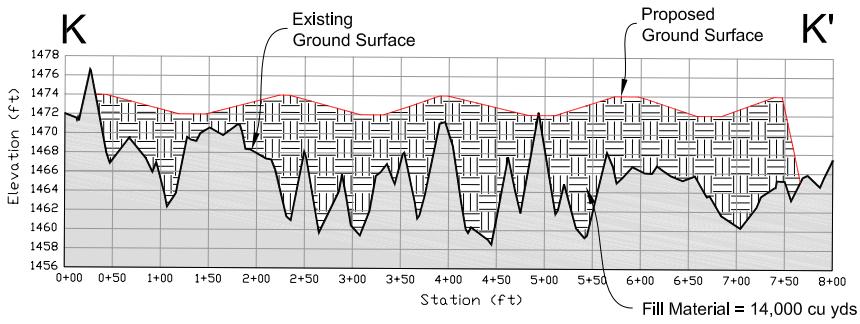
Note: Not to scale
Shown for comparative purposes

F: Projects/10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River/Hocker Flat Project/Graphics/Chapter 2/Fig_2-8_R7_LP_XS.dwg Source: USBR, DWR 07-01-04 TLA

Figure 2-8
R-7 Longitudinal Profile and Cross Section

U-1 Longitudinal Profile

Proposed Action



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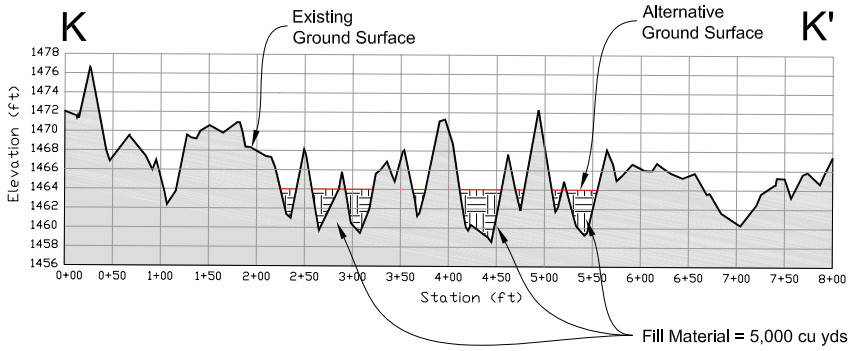


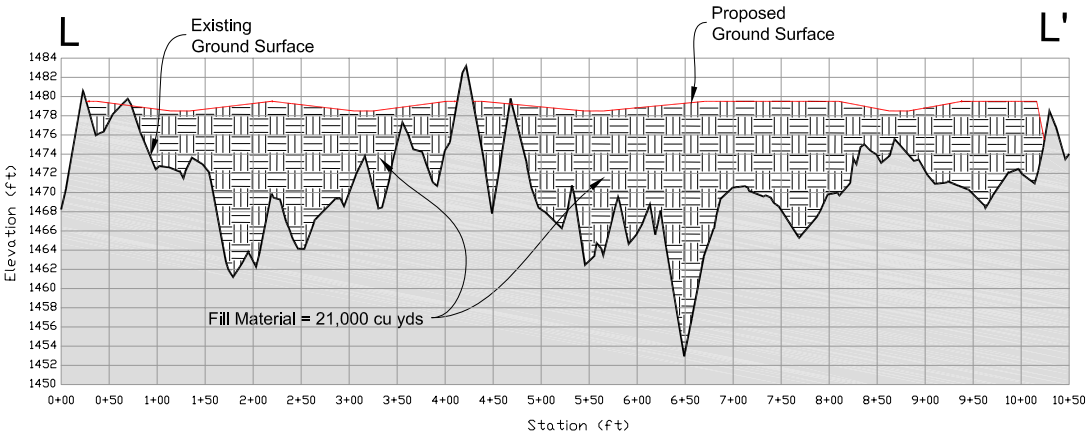
Note: Not to scale
Shown for comparative purposes

F: Projects/10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River/Hocker Flat Project/Graphics/Chapter 2/Fig_2-9_U-1_LP.dwg Source: USBR, DWR 07-01-04 TLA

Figure 2-9
U-1 Longitudinal Profile

U-2 Longitudinal Profile

Proposed Action



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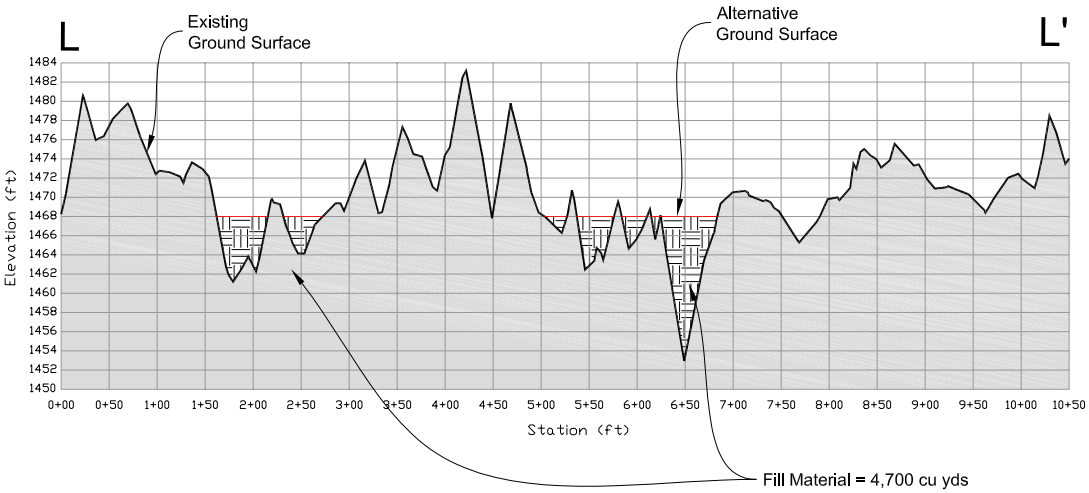


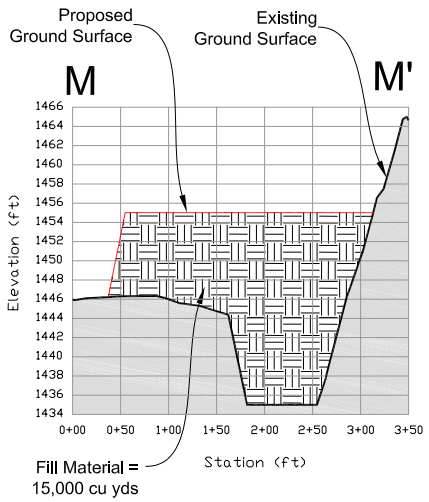
Note: Not to scale
Shown for comparative purposes

F: Projects/10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River/Hocker Flat Project/Graphics/Chapter 2/Fig_2-10_U-2_LP.dwg Source: USBR, DWR 07-01-04 TLA

Figure 2-10
U-2 Longitudinal Profile

U-3 Longitudinal Profile

Proposed Action



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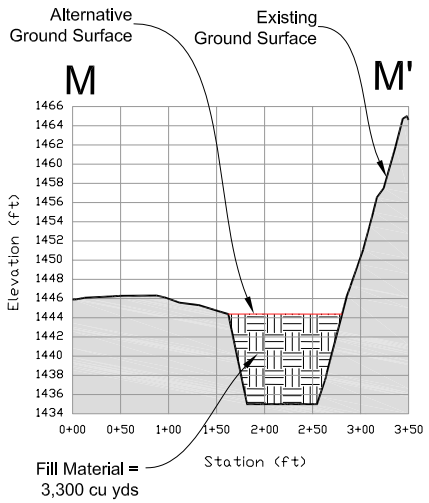


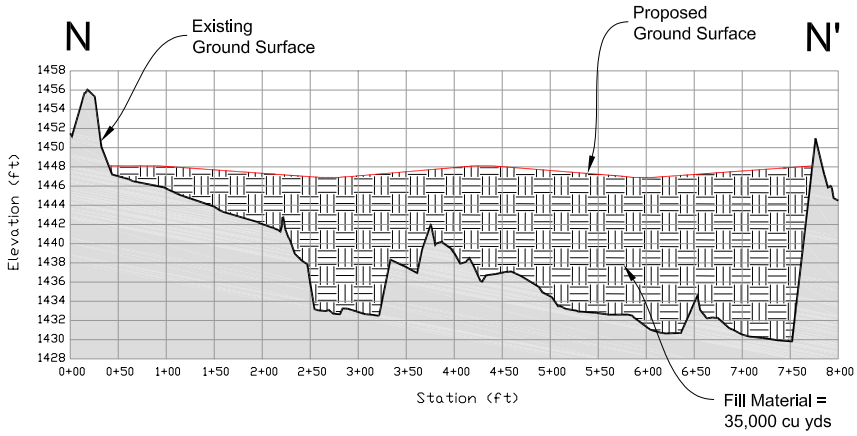
Note: Not to scale
Shown for comparative purposes

F: Projects/10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River/Hocker Flat Project/Graphics/Fig_2-11_U-3_LP.dwg Source: USBR, DWR 07-01-04 TLA

Figure 2-11
U-3 Longitudinal Profile

U-4 Longitudinal Profile

Proposed Action



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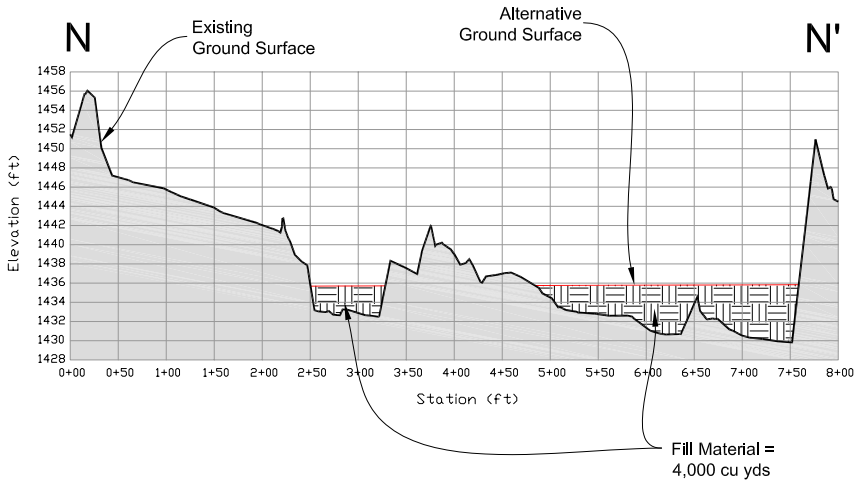


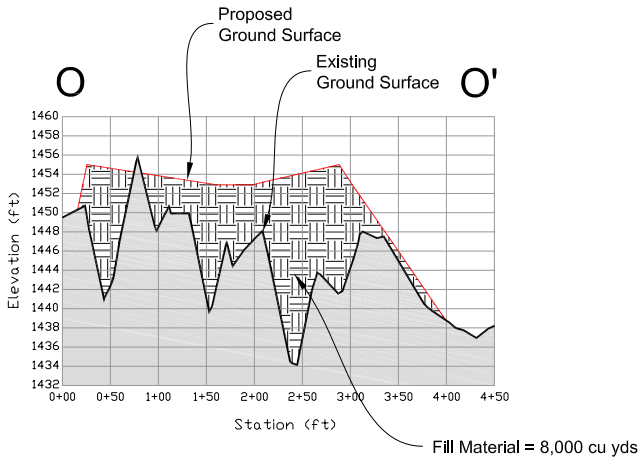
Note: Not to scale
Shown for comparative purposes

F: Projects/10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River/Hocker Flat Project/Graphics/Chapter 2/Fig_2-12_U-4_LP.dwg Source: USBR, DWR 07-01-04 TLA

Figure 2-12
U-4 Longitudinal Profile

U-5 Longitudinal Profile

Proposed Action



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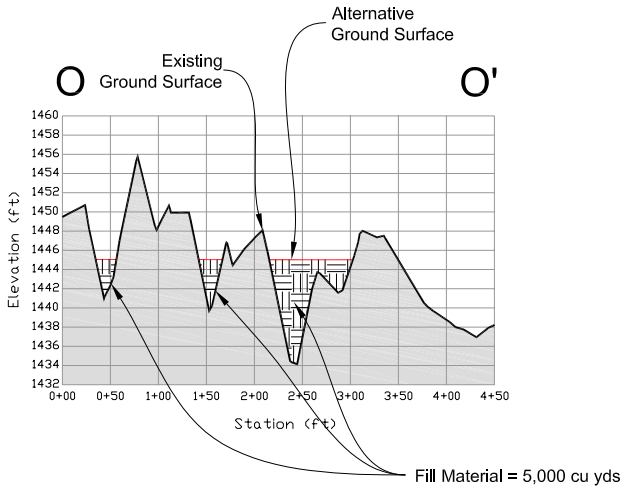


Note: Not to scale
Shown for comparative purposes

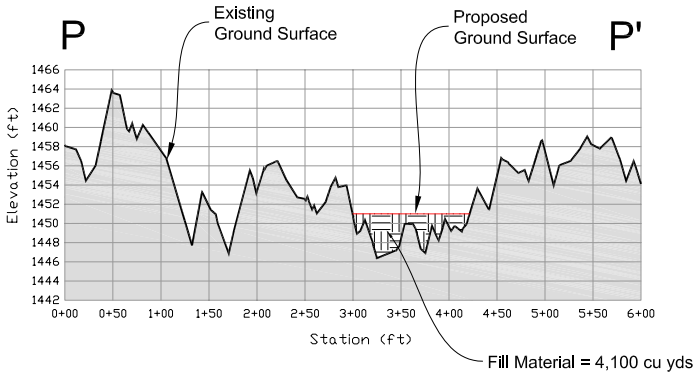
F: Projects/10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River/Hocker Flat Project/Graphics/Chapter 2/Fig_2-13_U-5_LP.dwg Source: USBR, DWR 07-01-04 TLA

Figure 2-13
U-5 Longitudinal Profile

U-6 Longitudinal Profile

This area will be filled with excess material.

Proposed Action



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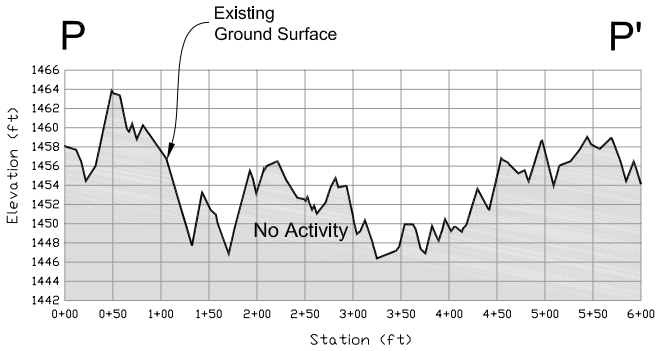

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Shown for comparative purposes

F: Projects/10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River/Hocker Flat Project/Graphics/Chapter 2/Fig_2-14_U-6_LP.dwg Source: USBR, DWR 07-01-04 TLA

Figure 2-14
U-6 Longitudinal Profile

Activity A (Vegetation Removal)

- Clear rights-of-way for work areas and rights-of-way required for access to the work areas using a combination of manual labor and heavy equipment (i.e., chainsaw, excavator, and bulldozer).
- Remove the majority of stumps, roots, and vegetative matter to reduce opportunity for re-colonization of riparian vegetation. Some large woody debris (LWD) may be left in the floodplain to serve as habitat for juvenile salmonids.
- Remove vegetation, rubbish, and objectionable material, as determined by the Contracting Officer.
- Clear adjacent to cut or fill sections to specified limits outside of slope lines.
- Preserve and protect vegetation designated for preservation within clearing limits and vegetation outside clearing limits.

Activity B (Riparian Berm Removal)

- Strip earthen materials from areas to be excavated and slope river bank back at a 10:1 slope from the low-flow water's edge. Excavation will be accomplished using heavy equipment (i.e., excavator, bulldozer, scraper dump trucks).
- Remove material to the pre-dam channel bed surface and to additional depths where directed by Contracting Officer. Estimated depth of excavation is not expected to exceed 6 feet.

Activity C (Trinity River Floodplain Construction)

- Excavate to elevations shown on the drawings or established by the Contracting Officer.
- Excavate in phases as directed by the Contracting Officer to ensure that suitable material is available for finishing upland terraces.
- Apply water for dust abatement as directed by the Contracting Officer. The primary water source for dust abatement would be the Trinity River. Pump intakes will be in conformance with criteria established by NOAA Fisheries and CDFG to prevent impacts to aquatic organisms. Make-up water pumped from the river will pass through a screen at the inlet with maximum ¼-inch openings and a maximum intake velocity of 0.8 feet per second.

Activity D (Material Transportation)

- Transport excavated materials to stockpile area using methods approved by the Contracting Officer.
- Transport excavated material in order to retain as much fine-grained material as possible for capping of the stockpile area.
- Apply water for dust abatement as directed by the Contracting Officer. The primary water source for dust abatement would be the Trinity River. Pump intakes will be in conformance with criteria established by NOAA Fisheries and CDFG to prevent impacts to aquatic organisms. Make-up water pumped from the river will pass through a screen at the inlet with maximum ¼-inch openings and a maximum intake velocity of 0.8 feet per second.

Activity E (Material Stockpile and Disposal)

- Place backfill to the lines and grades shown on the drawings, or as directed by the Contracting Officer.
- Place backfill carefully and spread in uniform layers.
- Waste areas for excavated materials are shown on the plans and specifications.
- Grade waste banks to reasonably even and uniform surfaces that blend with natural terrain.
- Stockpile or chip vegetative materials and spread as directed by the Contracting Officer.

Activity F (Revegetation)

- Planting period will be during wet conditions (fall/winter). Dates to be determined by the Contracting Officer.
- Install plants in planting zones and at spacing indicated on plans and specifications (e.g., plant 20-foot x 20-foot native plant pods separated by 20-foot intervals). Actual surface area encompassed by plantings will be a minimum of one-half of the affected riparian vegetation areas. Natural revegetation between the pods will occur to obtain the full aerial (1:1) replacement of affected riparian vegetation areas.
- Conditions will be developed which will encourage revegetation above the 1.5-year recurrence flow elevation. Natural vegetation, in combination with replanting, will minimize any short-term losses in riparian vegetation and its associated habitat.
- Monitoring of plantings and natural revegetation will determine if additional plantings are required to replace affected aerial values.
- In the event irrigation is necessary for revegetation efforts, the primary water source would be the Trinity River. Pump intakes will be in conformance with criteria established by NOAA Fisheries and CDFG to prevent impacts to aquatic organisms. Make-up water pumped from the river will pass through a screen at the inlet with maximum ¼-inch openings and a maximum intake velocity of 0.8 feet per second.

Activity G (Monitoring)

- Physical habitat will be surveyed to quantify physical changes over time.
- Floodplain water velocities will be measured to determine habitat suitability for juvenile fishes.
- Newly created floodplains will be monitored to determine the extent of their use by fish and amphibians (yellow-legged frogs) during inundation.

2.6.2 NO-ACTION ALTERNATIVE

Under the No-Action (No Project) Alternative, Reclamation and DWR would not proceed with the proposed project, although other activities authorized in the ROD for the FEIS will be implemented (pending resolution of the July 13, 2004, judicial opinion, **Appendix A**). The No-Action (No-Project) Alternative reflects the existing condition within the ESL established for the proposed project. **Section 2.5** describes the setting, characterizes the ecologic elements, and defines the intended objectives of each rehabilitation area.

Under the No-Action Alternative, the mechanical channel rehabilitation measures at the Hocker Flat location as described in the FEIS would not occur. No activities would be conducted in any of the identified rehabilitation areas within the ESL.

2.6.3 PROPOSED ACTION

The Proposed Action would include activities within five riverine rehabilitation areas (R-2, R-4, R-5, R-6 and R-7) and seven upland rehabilitation areas (U-1 through U-7). These activities are expected to immediately result in the development of point bars and floodplain habitat that do not presently exist. Creation of these features would be accomplished through the rescaling of the river channel and floodplain within the riverine rehabilitation areas, although there is an expectation that natural alluvial processes may immediately affect a larger area. This rehabilitation of river function could result in the rapid development of a larger and more complex expanse of river and floodplain habitats. The result of habitat expansion would be increased habitat suitability and availability for salmonids and other native fish and wildlife species. No activities would be conducted below the river's edge as part of the Proposed Action. **Figure 2-3** (Riverine Grading Limits, Proposed Action and Alternative 1) illustrates the approximate location of the grading activities proposed under the Proposed Action.

Under the Proposed Action, activities associated with the five riverine rehabilitation areas would result in the excavation of 97,100 cubic yards of material. The upland rehabilitation areas would be used to deposit 97,100 cubic yards of material. No material would be transported outside the ESL. **Figure 2-3** illustrates the total area where activities are proposed (26.03 acres).

The premise of the Proposed Action is that it would use the suite of rehabilitation activities to modify the type and/or character of aquatic, riparian, and upland habitat in a manner that incorporates an understanding of the functional relationships and natural processes of an alluvial river. The modifications proposed are designed to enable the river to move in the direction of an alluvial river, but rely on the river itself to modify its own form and function over time.

The lead agencies acknowledge that projects of this nature have a high degree of uncertainty in terms of the type and degree of change that may occur. The inherent variability in the flow regime would control the rate and magnitude of change. As a demonstration project, the Proposed Action has incorporated several monitoring requirements designed to identify the type and rate of change, as it affects the physical processes and biological resources associated with the Trinity River. The lead agencies acknowledge that the AEAM Program will incorporate the monitoring elements associated with the proposed project; however the AEAM plan will not be completed prior to the issuance of the EA/Final EIR.

Activities A, B, and C are intended to increase the potential that the river will meander (migrate) out of the channel in which it has been confined by historic dredging activities and, more recently, by riparian berms. In addition to the immediate changes to the channel (i.e., berm removal, floodplain excavation), the Proposed Action would increase the likelihood that the Trinity River would respond in a variety of ways that are unpredictable in terms of timing and locations. An example of this change may be that a scour channel could form on a floodplain, the channel might be used more and more often by the river,

and part of the floodplain might be changed into a medial bar. Conversely, the downstream section of the scour channel may turn into a backwater alcove. These changes are consistent with the Healthy River Attributes described in the FEIS.

Table 2-3 summarizes the type of activities that would occur within each rehabilitation area under the Proposed Action. This table also identifies the figures (**Figures 2-4** through **2-14)** associated with each area. These figures are located at the end of this chapter.

TABLE 2-3

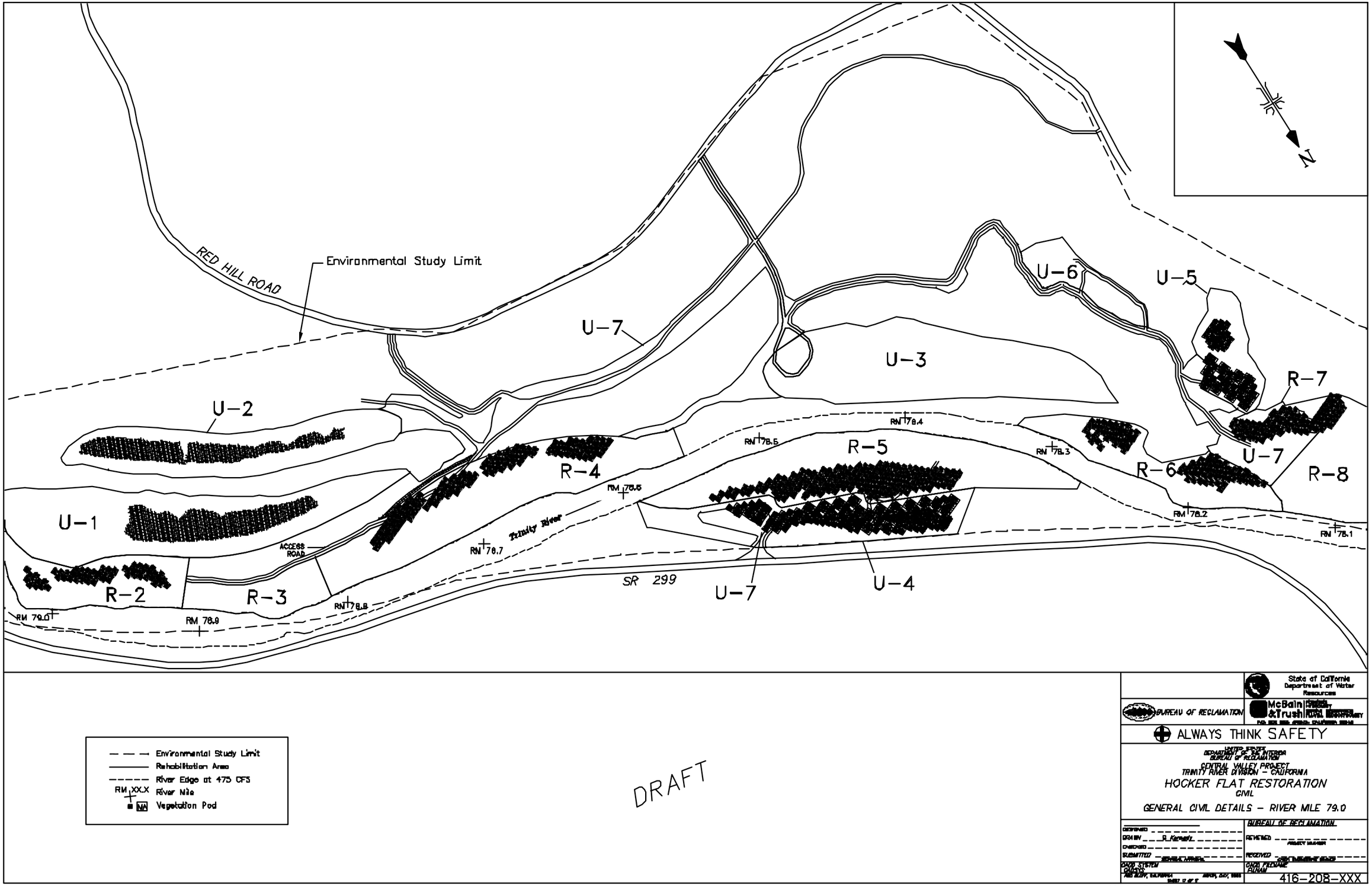
PROPOSED ACTION

Rehabilitation Area (*Figure #)*	Area (acres)[a]	Impact Areas (acres)[a]	Volume (cubic yards)[b]	Potential Activity
R-2 (*2-4)*	2.85	2.24	14,000	A, B, C, D, F, G
R-4 (2-*5)*	6.14	5.24	36,000	A, B, C, D, F, G
R-5 (*2-6)*	6.40	6.22	35,000	A, B, C, D, F, G
R-6 (*2-7)*	3.08	2.73	8,000	A, B, C, D, F,.G
R-7 (*2-8)*	.83	.83	4,100	A, B, D, F, G
TOTAL		**17.26**	**97,100**	
U-1 (*2-9*)	6.88	1.7	14,000	D, E F G
U-2 (*2-10)*	4.42	1.95	21,000	D, E F G
U-3 (*2-11)*	6.82	.91	15,000	D, E, G
U-4 (*2-12)*	3.52	2.45	35,000	D, E F G
U-5 (*2-13)*	1.75	1.36	8,000	D, E F
U-6 (*2-14)*	1.34	1.09	4,100	D, E, G
U-7 (NA*)*	11.27	11.27	NA	A, D, F, G
TOTAL		**20.73**	**97,100**	

[a] Area calculated from project GIS (grading limit boundary, **Figure 2-3**)
[b] R material would be excavated; U material would be disposed of.

In addition to the common activities previously discussed, the following elements are included in the Proposed Action.

- Material stockpiled in U-3 would be free of organic debris and utilized for ongoing sand and gravel operations. Materials contaminated with organic debris (i.e., topsoil) would be placed in other upland locations or stockpiled for revegetation purposes.
- Approximately 500 feet of riparian vegetation and berm would be left upstream of U-3 to address property owner concerns regarding loss of mineral resources.
- Material excavated from R-4 should generally remain on the property of the person from where the material was taken.
- Material excavated from the northern portion of R-4 would be stockpiled on the south edge of U-3 to facilitate ready access by the sand and gravel operation.



Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

North State Resources, Inc

Figure 2-15
Conceptual Revegetation Plan

- Identified concentrations of noxious, invasive, and exotic plant species within the rehabilitation areas would be addressed by implementing the excavation and disposal activities in a manner that ensures that the material is removed, stockpiled, and subsequently buried to reduce the probability of germination.

Figure 2-15 illustrates the conceptual revegetation plan proposed for the rehabilitation areas. The following list describes the type and extent of revegetation proposed for each of the rehabilitation areas.

- U-1, U-2: Revegetation only by hand broadcasting of a grass/forb mix.
- U-3: No revegetation would occur due to active sand and gravel mine.
- U-4: Re-vegetation of the berm separating the riparian planting zone from the elevated terrace and a couple of patches of riparian/upland plants in the terrace adjacent to SR 299 are the only things proposed for this area.
- U-5: Create additional upland wildlife habitat by depositing coarse material from vegetation cleared along the former side channel, pull-out area, and the 10:1 slope excavation into a nearby sterile upland/slope depression in the gravel dredger tailings (made concave). Fines from R-7 and R-6 would be saved and then approximately 1 to 2 feet of these fines would be placed on top of this filled upland area, which would be shaped to act as a catchment basin for rain/snow, the edges sloped and contoured, and the entire area seeded with a grassland seed mix supplemented with selected upland shrubs and annuals as part of an experimental approach to restoration of upland dredger tailing piles. This area would be irrigated as would the east-facing edge.
- U-7: Revegetation as needed to stabilize slopes at project completion.
- R-2, R-5, R-6, R-7: Revegetation will consist of installing plants in planting zones and at spacing indicated on plans and specifications (e.g., plant 20 feet x 20 feet native plant pods separated by 20 foot intervals). Actual surface area encompassed by plantings will be a minimum of one-half of the affected riparian vegetation areas. Natural revegetation between the pods will occur to obtain the full aerial (1:1) replacement of affected riparian vegetation areas.
- R-4: Plant riparian vegetation on upper floodplain surfaces, similar to that in riparian areas, not frequently subject to high-flow scouring. Allow the river to meander into the open lower floodplain by leaving it unvegetated.

Conditions will be developed which will encourage revegetation above the 1.5 year recurrence flow elevation. Natural vegetation, in combination with replanting, will minimize any short-term losses in riparian vegetation and its associated habitat.

Design Elements

The following elements are incorporated into the Proposed Action.

Hydraulics

The proposed project is unique in that the project area is bisected by the boundary between two Federal Emergency Management Agency (FEMA) flood zone designations: zone AE and zone A. Based on this

information, Reclamation established a design criterion stating that the proposed project would not increase flood elevations within or adjacent to the ESL established for the proposed project. This criterion resulted in a stipulation that excavated material would be removed from the riverine rehabilitation areas and placed above the floodplain in the upland rehabilitation areas. An exception was made for rehabilitation area R-5 to avoid impacts to SR 299.

The design of the rehabilitation areas was based on an understanding of the relationships between the flow regime and the hydrologic and hydraulic characteristics of the proposed project. A fundamental constraint was to *do nothing to increase the flood risk in the general vicinity, and to not raise the water surface elevation in the FEMA zone AE.* Evaluation of the proposed project required comparing estimated seasonal baseflows and estimated return-period flows. A U.S. Army Corps of Engineers Hydraulic Engineering Center River Analysis System (HEC-RAS) hydraulic model was developed by DWR and calibrated with known water-surface elevations and flows at various points along the project reach. **Table 2-4** lists the components of the flow regime, the seasonal or other periodic return intervals, and the flow rates that were used to evaluate the alternatives described in this section.

The HEC-RAS model was developed and calibrated to match measured water-surface elevations in the Trinity River within and adjacent to the ESL. The model incorporates DWR data from surveyed cross-sections, including bathymetric and overbank/floodplain topography in the general vicinity of Hocker Flat. To obtain water-surface elevations for design flows, the model was calibrated using surveyed water-surface elevations and known flows (from gage data). The model was determined to be adequate/very accurate for the level of evaluation and design required at this site.

TABLE 2-4

ESTIMATED FLOWS CONSIDERED FOR SITE EVALUATION AND REHABILITATION DESIGN

Flow Description	Flow Event	Flow Rate (cfs)
Summer baseflow[a] (July 22 to October 15 of each year)	Q_s	450
1.5-year return interval design flow	$Q_{1.5}$	6,000
Estimated flow, 1/1/97	Q_{1997}	35,000

[a] Baseflow defined as cfs from TRD release and accretion flow.
Q = return interval

There are two significant flow conditions that were important to the design of the proposed project: the summertime low-flow condition of about 450 cfs, which is the release from Lewiston Dam, and the 1.5-year event (bankfull) flow of 6,000 cfs. The 6,000 cfs 1.5-year event is based on the ROD flow release and estimates developed by McBain and Trush as described in **Appendix F**. This flow information provided the basis for the designs developed for the proposed project. Based on the information provided in this report, the lead agencies determined that the 6,000 cfs design flow would be appropriate for the proposed project. The 450 cfs flow was used to define the elevational constraint necessary to ensure that machinery will not be required to enter the river in order to conduct shoreline work.

A fundamental objective of the Proposed Action is to inundate the constructed floodplain surface with water to a depth of 0.5 feet under the 1.5-year flow. In addition, the floodplain surface was designed to ensure adequate sloping of the bank toward the river to ensure drainage and minimize the opportunity for stranding juvenile salmonids.

The HEC-RAS hydraulic model was developed to calculate the required floodplain elevation and was calibrated for the existing conditions. The calibration was based on water-surface profiles surveyed at low flow, and water profiles and points surveyed at different flows, ranging up through the 6,000 cfs level. After the model was properly calibrated, floodplain elevations were assumed for the proposed project, and the design topography was substituted for the existing ground. The hydraulic model was rerun to see if the floodplains were uniformly inundated by approximately 0.5 feet of water. If not, the floodplain slope was changed to match the slope of the water surface in the channel, and the elevation was moved up or down so that the floodplains were uniformly inundated.

Roadway Approaches

The Proposed Action would require roadway access from SR 299, Trinity County Road 313 (Dutch Creek Road), and Red Hill Road. The approaches would be designed and constructed to conform with the requirements of Caltrans and the Trinity County Transportation Department.

These requirements include:

- Meet requirements established by jurisdictional authority for use of existing roadways and haul routes, including seasonal or other limitations or restrictions, payment of excess size and weight fees, and posting of bonds conditioned upon repair of damage.
- Construct temporary roadways for access from public thoroughfares to serve construction area; the roadways shall be of a width and load-bearing capacity to provide unimpeded traffic for construction purposes.

Drainage

Temporary bridges or culverts would be constructed at stream crossings or cross-drainage channels to allow for unimpeded surface drainage.

Right-of-Way/Easements

Formal right-of-entry agreements would be required with all landowners prior to construction.

Utilities

A power pole may be tied in with power from Red Hill Road to provide electricity, if needed, for irrigation of plantings in R-6.

Construction Criteria and Methods

Construction Process Overview

The following provides a general overview of the construction process. A detailed list of equipment that may be used is provided in **Section 3-16,** Noise.

- Vegetation removal would occur as necessary and in compliance with all regulatory requirements.
- Excavation would begin on the floodplain to bring it down to grade.
- Riparian berms are planned to be excavated last so that finer grained material in the berm can be used to cap spoils areas. To the degree possible, retaining the berm after floodplain construction would allow some retention of runoff prior to its entering the river. This sequence of construction events is expected to reduce the level of construction-related turbidity.
- Feathered edges would be constructed with berm removal. The timing for constructing the feathered edges could be affected by the amount of flow in the river. If for some reason the flow is low when construction starts, but it is anticipated that flows will increase before the floodplain could be excavated, then the feathered edge would be built first to ensure that it is built during the lowest possible flow.
- Final grading would occur as necessary throughout the rehabilitation areas.
- Demobilization of construction equipment and site clean-up would be accomplished prior to acceptance by the Contracting Officer.
- Revegetation would be accomplished in partnership with the Trinity County Resource Conservation District.

In-River Construction

Though heavy equipment will grub tree and shrub roots from the very edge of the river, no construction work will occur below the river edge at low-water, summer base flows.

Traffic Control/Detour

Short-term traffic control is expected, and will be in conformance with the requirements established by the respective jurisdictional authority in conjunction with mobilization/demobilization of heavy equipment or wide-load vehicles.

Contractor Staging and Storage Areas

Staging areas and storage facilities would be placed within area U-7, as described in **Section 2.5**. These areas would be used throughout the duration of the project activities. Some short-term staging and equipment storage/parking is anticipated in the rehabilitation areas as the project is implemented.

Air Pollution and Dust Control

Efforts will be made to minimize air pollution. Reclamation specifications require that the contractor comply with all applicable air pollution control rules, regulations, ordinances, and statutes. Contract documents will specify that the contractor will be responsible for limiting dust by watering construction site areas used by trucks and vehicles. Pump intakes will be in conformance with criteria established by NOAA Fisheries and CDFG to prevent impacts to aquatic organisms. Make-up water pumped from the river will pass through a screen at the inlet with maximum ¼-inch openings and a maximum intake velocity of 0.8 feet per second.

Water Pollution Prevention

The contractor shall implement water pollution control measures that conform to applicable and appropriate permits. The contractor will be required to use extreme care to prevent dirt, debris, and miscellaneous byproducts from entering the stream. Some key water pollution control measures that shall be implemented are listed below:

- The contractor shall exercise every reasonable precaution to protect the Trinity River from pollution from fuels, oils, bitumen, calcium chloride, and other harmful materials and shall conduct and schedule operations to avoid or minimize muddying and silting of the river. Care shall be exercised to preserve roadside vegetation beyond the limits of construction.

- Water pollution control work is intended to provide prevention, control, and abatement of water pollution to the Trinity River, and shall consist of constructing those facilities that may be shown on the plans, specified herein or in the special provisions, or directed by the Contract Officer.

- The contractor shall provide temporary water pollution control measures, including, but not limited to, dikes, basins, ditches, and applying straw and seed, which may become necessary as a result of the contractor's operations. The contractor shall coordinate water pollution control work for all work done under this contract.

- Before starting any work on the project, the contractor shall develop an agency-approved Storm Water Pollution Prevention Plan (SWPPP) to control water pollution effectively during construction of the project. The SWPPP shall show the schedule for the erosion control work included in the contract and for all water pollution control measures that the contractor proposes to take in connection with construction of the project to minimize the effects of the operations on adjacent streams and other bodies of water. The contractor shall not perform any clearing and grubbing or earthwork on the project until the SWPPP has been accepted by responsible agencies.

- Where working areas encroach on live streams, and to the extent practicable, barriers adequate to prevent the flow of muddy water into streams shall be constructed and maintained between working areas and streams. During construction of the barriers, muddying of streams shall be held to a minimum.

- Water containing mud or silt from aggregate washing or other operations shall be treated by filtration, or retention in a settling pond, or ponds, adequate to prevent muddy water from entering live streams.

- Oily or greasy substances originating from the contractor's operations shall not be allowed to enter, or be placed where they will later enter, a live stream.

Tentative Schedule

Total construction time is anticipated to be approximately 140 days. Clearing of vegetation is anticipated to begin in early (February-March) 2005. Construction would take place in summer 2005. Revegetation would take place in the following fall/winter.

Construction associated with the proposed project cannot begin until the environmental documentation has been adopted by Reclamation and DWR and the following have been completed: the final design, plans, contract specifications, and cost estimates; award of contract(s) for work; acquisition of ROWs; acquisition of permits; and design approvals from local, state, and federal agencies.

2.6.4 ALTERNATIVE 1

Alternative 1 would include activities within four riverine rehabilitation areas (R-2, R-4, R-5 and R-6) and seven upland rehabilitation areas (U-1 through U-7). **Figure 2-3** (Riverine Grading Limits, Proposed Action and Alternative 1) illustrates the approximate location of the grading activities proposed under Alternative 1. Activities within the riverine areas are intended to remove the riparian berm adjacent to the Trinity River, providing an opportunity for the river to initiate morphological changes (developing alternate point bars) and increase the available edge habitat for anadromous salmonids in conjunction with the flow regime authorized under the ROD. No activities would be conducted within the active channel (450 cfs), or on other alluvial features within the proposed project ESL. Under this alternative, no excavation would occur associated with floodplains; however, there is an expectation that changes to floodplain features would occur through natural geomorphic and hydrologic processes. These activities are expected to enhance these processes and eventually result in the development of point bars and floodplain habitat that do not presently exist. Creation of these features would be accomplished through the rescaling of the river channel (berm removal) within the riverine rehabilitation areas, although there is an expectation that natural alluvial processes may immediately affect a larger area. This rehabilitation of river function could result in the future development of a larger and more complex expanse of river and floodplain habitats. The result of habitat expansion would be increased habitat suitability and availability for salmonids and other native fish and wildlife species.

Under Alternative 1, activities associated with the four riverine rehabilitation areas would result in the excavation of 22,000 cubic yards of material. Upland rehabilitation areas would be used to deposit 22,000 cubic yards of material. No material would be transported outside the proposed project ESL. **Figure 2-3** illustrates the total area where activities are proposed (16.98 acres).

Table 2-5 summarizes the types of activities that would occur within each rehabilitation area under Alternative 1. This table also identifies the figures (**Figure 2-4** through **2-14**) associated with each area.

In addition to the common activities previously discussed, the following elements are included in Alternative 1.

- Material stockpiled in U-3 would be free of organic debris and utilized for ongoing sand and gravel operations. Materials contaminated with organic debris (i.e., topsoil) would be placed in other upland locations or stockpiled for revegetation purposes.
- Approximately 500 feet of riparian vegetation and berm would be left upstream of U-3 to address property owner concerns regarding loss of mineral resources.
- Material excavated from R-4 should generally remain on the property of the person from where the material was taken.
- Material excavated from the northern portion of R-4 would be stockpiled on the south edge of U-3 to facilitate ready access by the sand and gravel operation.
- Identified concentrations of noxious, invasive, and exotic plant species within the rehabilitation areas would be addressed by implementing excavation and disposal activities in a manner that ensures that the topsoil is removed, stockpiled, and subsequently buried to reduce the probability of germination.

TABLE 2-5

ALTERNATIVE 1

Rehabilitation Area (*Figure #*)	Area Size (acres)[a]	Impact Areas (acres)[a]	Volume (cubic yards)[b]	Potential Activity
R-2 (*2-4*)	2.85	1.5	5,000	A, B, D. G
R-4 (*2-5*)	6.14	2.02	8,000	A, B, D. G
R-5 (*2-6*)	6.40	2.63	4,000	A, B, D, G
R-6 (*2-7*)	3.08	1.38	5,000	A, B, D, G
TOTAL		**7.53**	**22,000**	
U-1 (*2-9*)	6.88	1.7	5,000	D, E, F, G
U-2 (*2-10*)	4.42	4.42	4,700	D, E, F, G
U-3 (*2-11*)	6.82	6.82	3,300	D, E, G
U-4 (*2-12*)	3.52	3.52	4,000	D, E, F, G
U-5 (*2-13*)	1.75	1.75	5,000	D, E, F, G
U-6 (*2-14*)	1.34	1.34	0	D, E, G
U-7 (NA)	11.27	11.27	NA	A, D
TOTAL		**30.82**	**22,000**	

[a] Area calculated from project GIS (grading limit boundary, **Figure 2-3**)
[b] R material would be excavated; U material would be disposed of.

Figure 2-15 illustrates the conceptual revegetation plan proposed for the rehabilitation areas. The following list describes the revegetation proposed for each of the rehabilitation areas.

- U-1, U-2: Re-vegetation only by hand broadcasting of a grass/forb mix.
- U-3: No revegetation would occur due to active sand and gravel mine.

- U-4: Re-vegetation of the berm separating the riparian planting zone from the elevated terrace and a couple of patches of riparian/upland plants in the terrace adjacent to Hwy 299 are the only activities proposed for this area.
- U-5: Create additional upland wildlife habitat by depositing coarse material from vegetation cleared along the former side channel, pull-out area, and the 10:1 slope excavation into a nearby sterile upland/slope depression in the gravel dredger tailings (made concave). Fines from R-6 would be saved and then approximately 1 to2 feet of these fines would be placed on top of this filled upland area, which would be shaped to act as a catchment basin for rain/snow, the edges sloped and contoured, and the entire area seeded with a grassland seed mix supplemented with selected upland shrubs and annuals as part of an experimental approach to restoration of upland dredger tailing piles. This area would be irrigated as would the east-facing edge.
- U-7: Revegetation as needed to stabilize slopes at project completion.
- R-2, R-5, R-6: Revegetation will consist of installing plants in planting zones and at spacing indicated on plans and specifications (e.g., plant 20 foot x 20 foot native plant pods separated by 20 foot intervals). Actual surface area encompassed by plantings will be a minimum of one-half of the affected riparian vegetation areas. Natural revegetation between the pods will occur to obtain the full aerial (1:1) replacement of affected riparian vegetation areas.
- R-4: Plant riparian vegetation on upper floodplain surfaces, as in the other riparian areas, which will not be frequently subject to high-flow scouring. Allow the river to meander into the open lower floodplain by leaving it unvegetated.

Conditions will be developed which will encourage revegetation above the 1.5-year recurrence flow elevation. Natural vegetation, in combination with replanting, will minimize any short-term losses in riparian vegetation and its associated habitat.

Design Elements

The following elements are incorporated into Alternative 1.

Hydraulics

The hydrologic and hydraulic information discussed under the No-Action Alternative, including **Table 2-4,** applies to all actions considered in this EA/DEIR.

Roadway Approaches

Alternative 1 would require roadway access from SR 299, Trinity County Road 313 (Dutch Creek Road), and Red Hill Road. The approaches would be designed and constructed to conform with the requirements of Caltrans and the Trinity County Transportation Department. These requirements include:

- Meet requirements established by jurisdictional authority for use of existing roadways and haul routes, including seasonal or other limitations or restrictions, payment of excess size and weight fees, and posting of bonds conditioned upon repair of damage.

- Construct temporary roadways for access from public thoroughfares to serve construction area, the roadways shall be of a width and load-bearing capacity to provide unimpeded traffic for construction purposes.

Drainage

Temporary bridges or culverts would be constructed at stream crossings or cross-drainage channels to allow for unimpeded surface drainage.

Right-of-Way/Easements

Formal right-of-entry agreements would be required with all landowners prior to construction.

Utilities

A power pole may be tied in with power from Red Hill Road to provide electricity, if needed, for irrigation of plantings in R-6.

Construction Criteria and Methods

Construction Process Overview

The following provides a general overview of the construction process. A detailed list of equipment that may be used is provided in **Section 3-16,** Noise.

- Vegetation removal would occur as necessary and in compliance with all regulatory requirements.
- Riparian berms are planned to be excavated so that finer grained material in the berm can be used to cap spoils areas. This sequence of construction events is expected to reduce the level of construction-related turbidity.
- Feathered edges would be constructed with berm removal. The timing for constructing the feathered edges could be affected by the amount of flow in the river.
- Final grading would occur as necessary throughout the rehabilitation areas.
- Demobilization of construction equipment and site clean-up would be accomplished prior to acceptance by the Contracting Officer.
- Revegetation would be accomplished in partnership with the Trinity County Resource Conservation District.

In-River Construction

Though heavy equipment will grub tree and shrub roots from the very edge of the river, no construction work below the low-water edge (summer base flows) will occur.

Traffic Control/Detour

Short-term traffic control is expected, and will be in conformance with the requirements established by the respective jurisdictional authority in conjunction with mobilization/demobilization of heavy equipment or wide-load vehicles.

Contractor Staging and Storage Areas

Staging areas and storage facilities would be placed within U-7, as described in **Section 2.5**. These areas would be used throughout the duration of the project activities. Some short-term staging and equipment storage/parking is anticipated in the rehabilitation areas as the project is implemented.

Air Pollution and Dust Control

Efforts will be made to minimize air pollution. Reclamation specifications require that the contractor comply with all applicable air pollution control rules, regulations, ordinances, and statutes. Contract documents will specify that the contractor will be responsible for limiting dust by watering construction site areas used by trucks and vehicles. Pump intakes will be in conformance with criteria established by NOAA Fisheries and CDFG to prevent impacts to aquatic organisms. Make-up water pumped from the river will pass through a screen at the inlet with maximum ¼-inch openings and a maximum intake velocity of 0.8 feet per second.

Water Pollution Prevention

The contractor shall implement water pollution control measures that conform to applicable and appropriate permits. The contractor will be required to use extreme care to prevent dirt, debris, and miscellaneous byproducts from entering the stream. Some key water pollution control measures that shall be implemented are listed below:

- The contractor shall exercise every reasonable precaution to protect the Trinity River from pollution from fuels, oils, bitumen, calcium chloride, and other harmful materials and shall conduct and schedule operations to avoid or minimize muddying and silting of the river. Care shall be exercised to preserve roadside vegetation beyond the limits of construction.

- Water pollution control work is intended to provide prevention, control, and abatement of water pollution to the Trinity River, and shall consist of constructing those facilities that may be shown on the plans, specified herein or in the special provisions, or directed by the Contract Officer.

- The contractor shall provide temporary water pollution control measures, including, but not limited to, dikes, basins, ditches, and applying straw and seed, which may become necessary as a result of the contractor's operations. The contractor shall coordinate water pollution control work for all work done under this contract.

- Before starting any work on the project, the contractor shall develop an agency-approved program to control water pollution effectively during construction of the project (SWPPP). The

program shall show the schedule for the erosion control work included in the contract and for all water pollution control measures that the contractor proposes to take in connection with construction of the project to minimize the effects of the operations on adjacent streams and other bodies of water. The contractor shall not perform any clearing and grubbing or earthwork on the project until the SWPPP has been accepted.

- Where working areas encroach on live streams, and to the extent practicable, barriers adequate to prevent the flow of muddy water into streams shall be constructed and maintained between working areas and streams. During construction of the barriers, muddying of streams shall be held to a minimum.
- Water containing mud or silt from aggregate washing or other operations shall be treated by filtration, or retention in a settling pond, or ponds, adequate to prevent muddy water from entering live streams.
- Oily or greasy substances originating from the contractor's operations shall not be allowed to enter, or be placed where they will later enter, a live stream.

Tentative Schedule

Total construction time is anticipated to be approximately 140 days. Clearing of vegetation is anticipated to begin in early 2005 (February-March). Construction would take place in summer 2005. Revegetation would take place in the following fall/winter.

Construction associated with the proposed project cannot begin until the environmental documentation has been adopted by Reclamation and DWR and the following have been completed: the final design, plans, contract specifications, and cost estimates; award of contract(s) for work; acquisition of ROWs; acquisition of permits; and design approvals from local, state, and federal agencies.

2.7 Alternatives Considered but Eliminated from Further Evaluation

2.7.1 Dispose Material on the 100-Year Floodplain

To minimize material haul distance and cost, spoiling material within the 100-year floodplain was considered. This option would involve moving excavated material a short distance and depositing it in an adjacent flat area within the floodplain. After investigation, it was determined that spoiling large amounts of material in the floodplain could result in undesirable changes to FEMA flood elevations both within and outside of the proposed project area.

2.7.2 Export Material Options

This option would involve moving excavated material off site to reduce potential impacts to established FEMA flood elevations. This option was determined to be undesirable because of the cost associated with trucking excavated material to a remote site. Additionally, potential mineral rights issues could prohibit the removal of material from certain ownership areas within the proposed project area.

2.7.3 SIDE CHANNEL CONSTRUCTION

The design team considered three different side channels that would follow the alignment of the existing extreme high-flow scour channel that runs from R-6 through R-7 and along the western edge of R-8. Several factors made these options undesirable. These factors include a large excavation volume, a large width and depth of cut, and the risk that the channel could "silt in" because of the low gradient between R-6 and R-8.

2.7.4 AREA R-8 SCOUR CHANNELS

The design team considered creating scour channels across the surface of R-8. This option was eliminated because it would take a significant flow event to get water up on the floodplain surface, so the channels may rarely come into use.

CHAPTER 3

Affected Environment and Environmental Consequences

Chapter 3

Affected Environment and Environmental Consequences

3.1 Introduction

Chapter 3 describes the affected environment and the environmental consequences of implementing the various alternatives described in Chapter 2. Issues discussed include land use; geology, fluvial geomorphology and soils; water resources; water quality; fishery resources; vegetation, wildlife, and wetlands; recreation; socioeconomics, population, and housing; tribal trust; cultural resources; air quality; environmental justice; aesthetics; hazards and hazardous materials; noise; public services and utilities/energy; and transportation/traffic circulation.

Each section includes a discussion of the affected environment (California Environmental Quality Act [CEQA] existing conditions), environmental consequences (CEQA environmental impacts), methodology, significance criteria (if applicable), and mitigation measures. Some sections address issues that are required to satisfy federal law (e.g., National Environmental Policy Act [NEPA]) but are not required to comply with CEQA. Because CEQA generally does not require lead agencies to consider the purely economic or social effects of proposed projects, **Sections 3.9** (Socioeconomics) and **3.13** (Environmental Justice) were not prepared to comply with CEQA. Individual sections in **Chapter 3** are organized in the following manner.

3.1.1 Affected Environment (CEQA Existing Conditions)

The Affected Environment sections for each of the issues discussed describe the existing regional and local conditions using the most current information available. The information in these sections is used as the environmental baseline for analyzing the significance of potential effects of the Proposed Action and the significance of the effects of project alternatives with respect to each specific resource area (See *CEQA Guidelines*, Section 15125, subd. (a)).

3.1.2 Environmental Consequences (CEQA Environmental Impacts)

As required by the *CEQA Guidelines*, the impacts of a proposed project are defined as “a change in the existing physical conditions in the affected area as they exist at the time the notice of preparation is prepared” (Section 15126.2). For purposes of NEPA, the term “environmental consequences” is synonymous with the term “impact.” The impacts of the project are identified and the level of significance is determined in the following sections of this chapter.

The following subsections are also presented in the Environmental Consequences section for each issue area:

- **Methodology**: This subsection identifies the methods used to analyze impacts, as well as the key assumptions used in the analysis process. Sections that incorporate quantitative assessments reference complementary technical appendices, as appropriate. Key assumptions

used in qualitative analyses are also described for those sections that do not rely on quantitative tools.

- **Significance Criteria**: This subsection presents the criteria and thresholds used to identify potentially significant effects on the environment, in accordance with *California Public Resources Code* (PRC) Section 21082.2 and *CEQA Guidelines* Sections 15064 and 15065. "Thresholds" include guidance provided by the *CEQA Guidelines*, agency standards, legislative or regulatory requirements as applicable, and professional judgment. All impacts that do not exceed the stated significance criteria described for each section are assumed to be less than significant and are therefore not discussed in detail in the document (PRC Section 21100 and *CEQA Guidelines* Section 15128).

- **Summary of Impacts Table**: At the beginning of the Impacts and Mitigation Measures subsection is a table that identifies all the impacts evaluated for that particular environmental issue area (i.e., Land Use, Fishery Resources, etc.). Included in this summary table are the various levels of significance (i.e., No Impact, Less than Significant, Significant) for the alternatives associated with the proposed project, including the No-Action Alternative. To enhance readability, the tables provide additional columns that describe the level of significance after mitigation.

- **Impacts**: At the end of each impact statement heading, the impact significance determination (i.e., No Impact, Less than Significant, Significant) is provided for each alternative evaluated. Following the impact statement, a detailed impact analysis is provided for each alternative that is fully evaluated in the EA/DEIR. In instances where the effects of one alternative are similar to another alternative, redundant impact analysis is not presented; rather a simple statement to the effect that the impacts are similar between the two alternatives is provided. An example of the impact analysis structure is provided below:

Impact 3.2-1: Construction of the proposed project could temporarily disrupt existing land uses adjacent to the project site. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action and Alternative 1.***

No-Action Alternative

Under the No-Action Alternative…

Proposed Action

Construction and maintenance of the Proposed Action…

Alternative 1

Land use impacts associated with Alternative 1 are similar to the Proposed Action…

- **Mitigation**: Potentially feasible mitigation measures that would reduce significant impacts associated with each of the alternatives to less-than-significant levels are provided after each impact discussion. In those instances where no feasible mitigation can be identified, such impacts are identified as significant and unavoidable. An alphanumeric coding system is used to present each mitigation measure. For example, Mitigation Measure 1 would correspond to the first impact statement listed in the impact discussion. Following the mitigation measure(s) is a subheading entitled "Significance After Mitigation" that identifies the level of significance following implementation of the prescribed mitigation measure(s). In those instances where no mitigation measures were proposed because the impact was not significant, a "Not Applicable"

statement follows this subheading. An example of the mitigation measures structure is provided below.

Mitigation Measures

No-Action Alternative

Since no significant impact was identified, no mitigation is required.

Significance After Mitigation: N/A.

Proposed Action

1a: Reclamation shall clearly identify all ...

Alternative 1

1a: Reclamation shall clearly identify all ...

Significance After Mitigation: Less than Significant.

SECTION 3.2

Land Use

3.2 Land Use

This section addresses land use issues related to construction and operation of the proposed project, including project conformance with local and regional plans and policies. The following evaluation is based on a review of local land use plans and policies and field reconnaissance to identify potential sensitive receptors relative to the proposed project construction activities.

3.2.1 AFFECTED ENVIRONMENT/ENVIRONMENTAL SETTING

Regional Setting

Existing Land Uses

The Trinity River basin is composed of the majority of Trinity County and the easternmost portion of Humboldt County. The terrain is predominantly mountainous and forested, with little available farming area. Two scenic byways cross the county: SR 299 and SR 3. Lakes and rivers provide opportunities for fishing and boating. Most of the Hoopa Valley Indian Reservation is within the basin. The largest town in the region is Weaverville, followed by Hoopa, Hayfork, and Lewiston. Land use within the Trinity River basin is greatly influenced by the large amount of public, tribal, and private forest lands, much of which is used for timber production and other natural resource-related uses. Private use along the Trinity River is generally limited to scattered residential and commercial development. SR 299 is the primary travel corridor through Trinity County, connecting the Central Valley with the coastal communities of Humboldt County (**Figure 3.2-1**).

In 1998, 75.2 percent of all land in Trinity County was under federal jurisdiction. The majority of federal lands are governed by the U.S. Forest Service (USFS), which owned 1,463,870 acres in 1998. Other major federal land holdings are managed by BLM (78,928 acres) and Reclamation (268 acres). Thus, federal lands account for 1,543,066 acres out of the total 2,052,980 acres in Trinity County (Center for Economic Development [CED] 2001).

With a population totaling approximately 15,000, the Trinity River basin is very lightly populated. Trinity County had a population of 13,022 in 2000. Throughout the watershed, residential, commercial, and industrial uses tend to be concentrated on relatively flat areas near the Trinity River or its tributaries, as typified by the population centers of Weaverville, Hayfork, Junction City, Willow Creek, and Hoopa. Together, these communities house two-thirds of the basin's population.

The development potential of most of the land in the watershed is restricted by topography, limited private land ownership, and Timber Production Zone zoning (which disallows residential uses and applies to most private land). Both Trinity County's General Plan and tribal planning policies established by the Hoopa Valley Indian Reservation guide development towards already developed areas and discourage development on resource lands. Small communities like Douglas City and Junction City exist along SR 299 on level terrain adjacent to the Trinity River. Development associated with these communities has been primarily residential in nature, typified by scattered single-family residences and mobile homes.

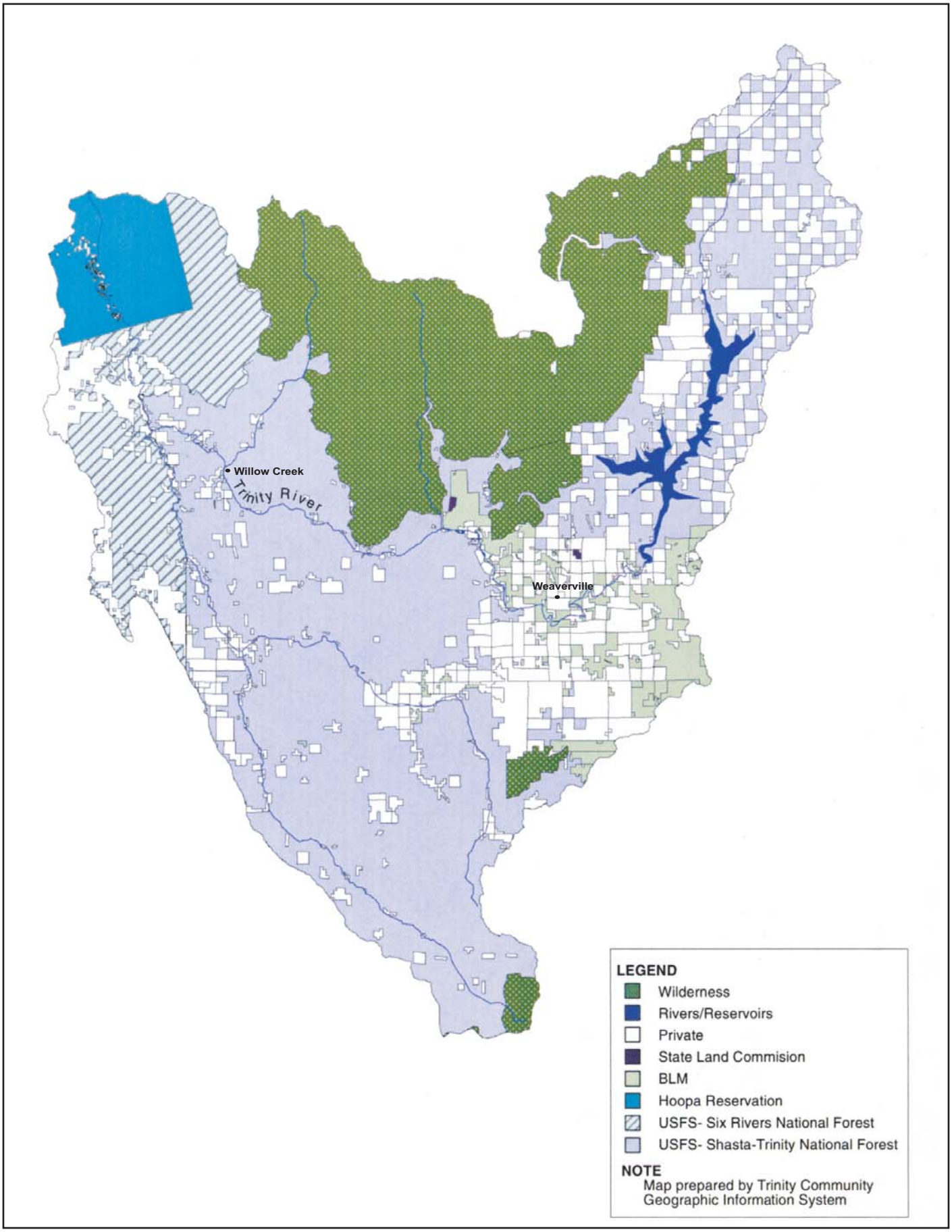


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Figure 3.2-1
Trinity River Basin Land Ownership

Much of this residential development has encroached on the river's floodplain and the floodplains of some of its tributaries. Historic mining activities provided access to mineral materials, and commercial aggregate (gravel and sand) sources continue to be developed in proximity to Weaverville.

Regional Planning Efforts

BLM's Redding Field Office manages public lands in and adjacent to the proposed project area. These lands are managed for multiple uses in conformance with the Redding Resource Management Plan (RMP) and Record of Decision (U.S. Bureau of Land Management 1993). The RMP for the Trinity River Area consists of resource condition objectives, land-use allocations, and management actions, as described later in this section (see *Relevant Plans and Policies*).

The County has outlined land-use categories and land-use designations in the Land Use Element of the General Plan. The following descriptions were taken directly from the Trinity County General Plan. The land use categories and designations are intended to be flexible. They are not zoning districts; however, zoning districts must be consistent with these land use designations. Land use categories consist of Community Development, Village, and Natural Resource. These broad general categories were developed to identify community development areas as opposed to resource lands. **Table 3.2-1** describes these categories and their associated land-use designations. **Figure 3.2-2** illustrates the geographic relationship of the planning areas within the county.

TABLE 3.2-1
TRINITY COUNTY GENERAL PLAN
LAND USE CATEGORIES AND DEFINITIONS

Category	Definition
Community Development (CD)	Those areas in Trinity County that can be described as viable communities. Special efforts are made to positively encourage new development to locate in CD areas, as services are readily available and can be provided more cheaply and conveniently. Typically, CD areas incorporate a number of varied land uses, all of which are critical to the economic well-being and general quality of life for its residents. Land-Use Designations applicable to CD areas include Community Residential; Commercial; Industrial; and Community Expansion.
Village (V)	Those areas that can be described as a small group of residences and/or commercial enterprises. These areas are recognizable as a definite place, but cannot reasonably be called a community with a wide variety of land uses. V areas are typically a minimum support center for a large rural area and/or a travel stop for tourists or other travelers. Land-Use Designations applicable to V areas include Village.
Natural Resource (NR)	Recreational developments such as campgrounds, recreational vehicle parks, marinas, boat launching ramps, picnic area, resorts, and small businesses serving recreationists should be permitted in NR areas, to the extent that they do not damage sensitive environmental resources or commercial value. Land-Use Designations applicable to this category include Open Space, Resource Land, Agriculture, and Rural Residential. Resorts that are otherwise consistent with Open Space, Resource, Agriculture, or Rural Residential will be allowed this designation. However, the theme of any new development in NR areas must emphasize and enhance the natural resource area in which they are located.

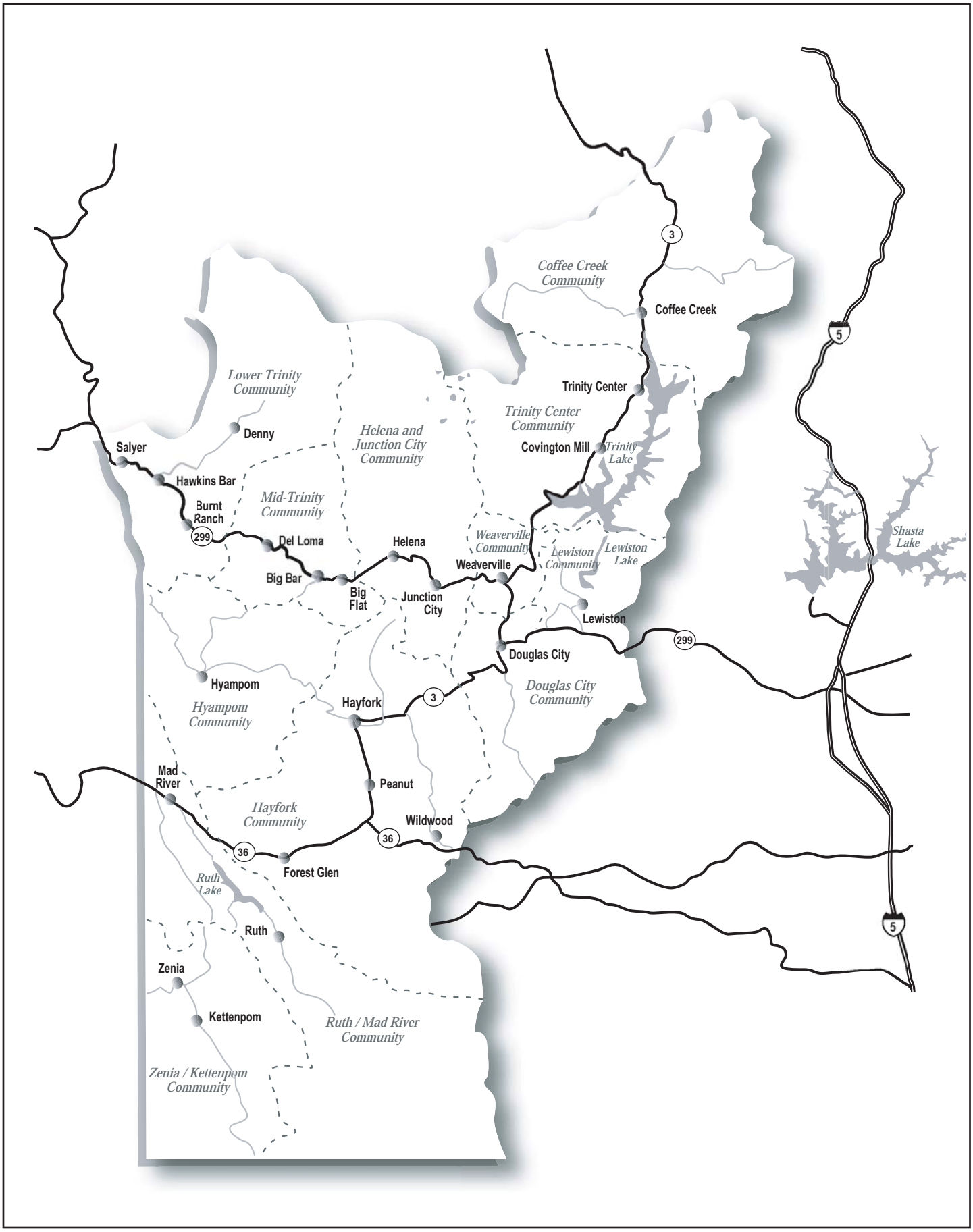

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Figure 3.2-2
Planning Area Boundaries

Table 3.2-2 describes land-use designations within the Natural Resource category applicable to the proposed project and characterizes the nature of these designations.

TABLE 3.2-2
TRINITY COUNTY GENERAL PLAN NATURAL RESOURCE LAND-USE DESIGNATIONS
HOCKER FLAT

Designation	Definition
Open Space	Open Spaces are designated to indicate " natural areas" to be protected for scenic, wildlife habitat, and watershed values. These designations are areas of important natural processes and may include unstable areas, floodplains, and other natural hazard areas.
Resource Lands	Resource Lands are those areas designated for the production of the variety of natural resources that occur within the planning area. Activities necessary for the production of the various resources are encouraged if environmental impacts are within acceptable limits.
Rural Residential	Rural Residential intends to describe locations of rural type residential development. Minimal County services are provided, and in general undesirable. This designation also provides for small home businesses, and small-scale agriculture, subject to controls to prevent nuisances.

Source: Trinity County General Plan, Natural Resource Land Use Category (County of Trinity 2001)

Trinity County's land-use designation categories contain specific zoning districts. **Table 3.2-3** summarizes the zoning districts applicable to the proposed project and summarizes their applicability to each land-use designation as well as the minimum parcel size required for classification into a zoning district type.

Local Setting

The proposed project study area is located in the Trinity River basin between Junction City and Helena, California. The two communities are located along the Trinity River, approximately 9 and 15 miles west of Weaverville respectively. SR 299 runs parallel to the Trinity River. Weaverville, the largest community in Trinity County (population 3,554 [U.S. Census Bureau 2000]), is 45 miles west of Redding, which is in Shasta County. Junction City has an estimated population of 700 people. BLM manages the Junction City Campground for day use and overnight camping immediately downstream of the proposed project. **Table 3.2-4** describes zoning designations applicable to the proposed project. Several residential areas in or adjacent to the ESL are incorporated into the Community Plan of Junction City.

TABLE 3.2-3
TRINITY COUNTY GENERAL PLAN DESIGNATIONS AND ALLOWABLE ZONING DISTRICTS

Allowable Zoning Districts	Village	Resource	Agriculture	Open Space / Conservation	Rural Residential	Community Expansion	Community Development	Single Family Residential (Med.)	Single Family Residential (High)	Commercial	Public Facilities	Minimum Parcel Size
Open Space	x	x	x	x							x	
Rural Residential (RR) -5	x				x		x					5 acres
Rural Residential (RR) -2.5	x				x		x					2.5 acres
Flood Hazard				x								N/a
Scenic Conservation				X								
Minimum Parcel Size	5 M^2	20 acres	10 acres	n/a	1 acre	10 acres	5 M^2	10 M^2	10 M^2	½ acre	2 M^2	

Source: Trinity County General Plan (County of Trinity 2001)

TABLE 3.2-4
TRINITY COUNTY ZONING DISTRICTS AND LAND USE ZONES

Zones	Description
Open Space (OS)	The Open Space Zoning District is intended to protect significant or critical wildlife habitat areas or areas which should not be developed due to public health and safety reasons.
RR-5 acres (RR-5)	This zoning allows for limited residential development in outlying areas of the County where minimal impacts are desirable and the overall character of the landscape, as well as potential for open space, recreation, or resource production is to be preserved. This designation has a minimum parcel size of 5 acres.
RR-2.5 acres (RR-2.5)	This zoning allows for limited residential development in outlying areas of the County where minimal impacts are desirable and the overall character of the landscape, as well as potential for open space, recreation, or resource production is to be preserved. This designation has a minimum parcel size of 2.5 acres.
Flood Hazard (FH)	Established by the County Floodplain Ordinance (315-698), an overlay to identify flood hazard areas within Trinity County. The Flood Hazard (FH) Zoning District includes areas designated as (1) Regulatory Floodway or Zone AE on the Federal Emergency Management Agency' s (FEMA) Flood Insurance Rate Maps (FIRM); (2) areas identified as Zone A along the Trinity River or Coffee Creek, or (3) along streams in accordance with the Trinity County Subdivision Ordinance; or areas identified as 100-year floodplain in a use permit condition or approved flood study.
Scenic Conservation (SC)	An overlay zone used to identify the areas of unusual scenic qualities which are unique to Trinity County and to provide the necessary degree of control on the placement of structures, development of roads, and vegetative management within those areas. Within the proposed project ESL, areas lying within the 100-year floodplain of the Trinity River are designated as SC.

Existing Land Uses

The alluvial feature known as Hocker Flat is incorporated into the Junction City Community Plan area. SR 299 parallels the Trinity River along the right bank. Dutch Creek Road connects SR 299 with Red Hill Road on the left side of the river. Junction City Elementary School and numerous residences are located along Red Hill Road, adjacent to the southern boundary of the proposed project ESL. Large-scale mining efforts historically occurred at Hocker Flat, resulting in vast quantities of dredge tailings throughout the ESL. These dredge tailings have been developed as a commercial source of mineral materials, primarily sand and gravel. Rehabilitation areas U-3 and U-4 include ongoing mining and reclamation activities.

Planning Designations

The parcels around Hocker Flat are primarily zoned for Rural Residential use, with a minimum parcel size ranging from 2.5 to 5 acres, as well as Open Space along the 100-year floodplain of the Trinity River. The parcels located directly along the river fall into Flood Hazard and Scenic Conservation Overlay zoning districts.

Proposed Land Uses

In general, all parcels within the ESL have been subdivided to the fullest extent possible under existing zoning designations; therefore, future rural residential development on the river side of Red Hill Road is

unlikely. Located directly adjacent to the Trinity River, many of the parcels within the ESL are currently zoned Flood Hazard and Open Space making further development of these areas difficult.

3.2.2 REGULATORY FRAMEWORK

Relevant Plans and Policies

Bureau of Land Management Redding Resource Management Plan and Record of Decision (1993)

The BLM RMP for the Trinity River Area consists of resource condition objectives, land-use allocations, and management actions. Resource condition objectives are the goals established for the decision area and are listed in descending priority order. Land-use allocations prescribe general management categories (e.g., visual resources and recreation opportunity classes), specific limitations to full resource use (e.g., leasable mineral restrictions), or formal designations (e.g., Area of Critical Environmental Concern, wild and scenic river corridor, etc.) that are needed to meet the resource condition objectives and/or to comply with federal law. Management actions are implementation measures that ensure that the resource condition objectives are met and that alert the public and BLM to specific follow-up actions that are anticipated to implement specific land-use management alternatives.

Resource Condition Objectives

1. Enhance recreation opportunities related to use of the Trinity River, including mineral collection.
2. Maintain scenic quality along the river corridor.
3. Protect and enhance the anadromous fisheries of the Trinity River.
4. Interpret and protect key cultural and natural resources for the public including Hocker Flat.

Land Use Allocations

1. Designate [public lands in the management area] as the corridor for this “Recreational” component of the National Wild and Scenic Rivers System.
2. Manage all public lands as Visual Resource Management (VRM) Class II.
3. Manage all public lands within the corridor as Roaded Natural or Semi-Primitive Motorized.
4. Withdraw specific cultural resources from mineral entry, including Hocker Flat. Withdraw anadromous fisheries habitat improvements from mineral entry.
5. Offer mineral material disposals only to enhance riparian vegetation or anadromous fisheries habitat, or when not in conflict with the long-term protection of natural values.

Management Actions

A. Modify the existing Trinity River Recreation Area Management Plan [1983] to reflect the designated corridor of the Trinity River (i.e., a “Recreational” component of the National Wild and Scenic Rivers System). Continue implementation of recreational developments and monitoring prescribed in the existing management plan.

Project Consistency with the BLM Resource Management Plan

Table 3.2-5 illustrates the consistency of the proposed project with the BLM Redding Resource Management Plan.

TABLE 3.2-5
CONSISTENCY OF PROPOSED ACTION WITH THE BLM REDDING RMP AND 1993 ROD

Objectives	Assessment of Consistency
1. Enhance recreation opportunities related to use of the Trinity River including mineral collection.	The proposed project is designed to protect existing recreation opportunities along the Trinity River.
2. Maintain scenic quality along the river corridor.	The proposed project will not add any new, visually detracting features to the river corridor.
3. Protect and enhance the anadromous fisheries of the Trinity River.	The proposed project is designed to protect and enhance the anadromous fisheries of the Trinity River (see Fisheries Section).
4. Interpret and protect key cultural and natural resources for the public, including Hocker Flat.	The proposed project is designed to protect existing cultural and natural resources (see Vegetation, Wildlife, and Wetlands and Cultural Resources Sections).
5. Maintain the riparian habitat in Class I or Class II condition.	The overall goal of the proposed project is to restore the Trinity River. Riparian habitat removed as a part of the proposed project will be replaced with a more diverse and historic assemblage of native plants. (see **Section 3.7** and **Appendix E**).

Trinity County General Plan Goals and Objectives

The Trinity County General Plan contains goals and policies designed to guide the future physical development of the county, based on current conditions. The general plan contains all the state-required elements, including community development and design, transportation, natural resources, health and safety, noise, housing, recreation, economic development, public facilities and services, and air quality. The following goals and policies, relative to land use issues associated with the proposed project study area, were taken from the applicable elements of the general plan (Trinity County 2001), including the Junction City Community Plan (1987).

County-Wide Goals and Objectives

Cultural

To retain the rural character of Trinity County

- by encouraging uses that fit with the land;
- by considering the “rights” of the individual when making decisions as well as the “rights” of the community; and
- by seeking information and cooperation from state and federal agencies within Trinity County.

Environmental

To strive to conserve those resources of the County that are important to its character and economic well-being

- by assuring that developments occurring on these lands are compatible with the resources;
- by strongly supporting the County as "lead agency" or as an integral participant in any state or federal project within the County so that all agencies are made aware of local desires and all plans are coordinated;
- by utilizing a sound resource-related planning process in decision-making; and
- by protecting not only rare and endangered species, but also required habitat for more plentiful species.

Land Use Designation

Land Use Designations are broad general descriptions of what type of land use may occur in a specific area. The Junction City Community Plan (1987), as adopted by the County, recognizes five general land use categories. They are Rural Residential, Commercial, Village, Agricultural, and Open Space or Resource. Land Use Goals identified in the plan and applicable to the proposed project include:

Goal I. Develop a land use pattern which implements other elements of the Community Plan.

Goal III. Guide development in such a manner that an acceptable balance is achieved between the costs for public facilities and services and revenues or improvements required of new developments.

Goal IV. Encourage development that is consistent with the land's natural carrying capacity.

Junction City Community Plan Goals and Objectives

This plan covers of approximately 42 square miles (27,000 acres) of area centered on the Trinity River from Maxwell Creek to slightly downstream from Helena.

Land Use

This element of the Plan is intended to provide a clear understanding of how the community functions as a whole as well as ensuring that provisions are made for community growth concurrent with environmental protection. The following goals and objectives are applicable to the proposed project:

Goal: To develop a land use pattern which implements the other elements of the Community Plan.

Goal: To provide a variety of land use types and residential densities within the Plan area.

Goal: To encourage development which is consistent with the land's natural carrying capacity. Objectives consistent with this goal are:

- Assurance that adequate water is available for future development and other beneficial uses.

Goal: To encourage the retention and utilization of resource land for timber production, agricultural uses, and mineral extraction. Objectives consistent with this goal include:

- Encouragement of mineral extraction activities, especially gravel extraction uses, within the Trinity River.

Project Consistency with the Trinity County General Plan and Community Plans

This section compares the goals and objectives of the proposed project to the relevant local planning polices (i.e., Trinity County General Plan, Junction City Community Plan) to determine if there are any inconsistencies.

As described in **Chapter 1,** Introduction, the proposed project would provide the opportunity to:

- increase the diversity and area of habitat for salmonids, particularly habitat suitable for rearing;
- increase rearing habitat for juvenile salmonid, including coho, chinook and steelhead;
- increase structural and biological complexity of habitat for various species of wildlife associated with riparian habitats;
- increase hydraulic and fluvial geomorphic diversity and complexity;
- provide a demonstration project to evaluate the fate and transport of mercury related to rehabilitation/restoration projects;
- measure/demonstrate the ecological response to changes in flow regimes, morphological features, and aquatic, riparian, and upland habitats; and
- provide a self-maintaining project independent of any future TRD flows.

The following project objectives apply to the proposed project's lead/responsible agencies for CEQA purposes:

- Evaluate changes in channel geometry in response to constructing channel and floodplain features designed for the river's current hydrologic regime.
- Evaluate the evolution of channel planform features in response to designing and implementing the project at a river segment (1-mile) scale.
- Evaluate the biological response (aquatic, riparian, upland) to changes in the physical environment, and incorporate this information into the AEAM Program.
- Conduct a preliminary assessment of the fate and transport of mercury in response to restoration activities in a historic mining district.
- Locate the project downstream of Canyon Creek to ensure that natural tributary accretion to mainstem flows maximizes the likelihood of maintaining the site prior to implementation of the ROD-recommended flow regime.
- Provide safe and reasonable access to the site for project planning, implementation, and monitoring.

- Develop partnerships with willing participants, and encourage positive landowner interest and involvement.
- Design the project to function with the river's current hydrology estimated at the site.
- Integrate known fluvial and ecological theories and relationships with the site's measured physical and biological attributes and evaluate response over a definitive time frame.
- Minimize in-stream work to reduce construction-related impacts, maximize the river's ability to rehabilitate itself during high flows, and reduce implementation cost and complexity.
- Attempt to preserve unique and valuable geomorphic and biological features wherever practicable (i.e., hydraulic controls, high-quality spawning or adult holding habitat).

The following objectives apply to the proposed project's responsible and trustee agencies, including the State Water Resources Control Board (SWRCB), the North Coast Regional Water Quality Control Board (NCRWQCB), the State Lands Commission (SLC), California Department of Fish and Game (CDFG), and the HVT:

- compliance with the Water Code to ensure the highest reasonable quality of waters of the state and allocate those waters to achieve the optimum balance of beneficial uses;
- protection of the public trust assets of the Trinity River watershed;
- conservation, restoration, and management of fish, wildlife, and native plant resources; and
- compliance with the Water Quality Control Plan for the Hoopa Valley Indian Reservation to preserve and enhance water quality on the Reservation, and to protect the beneficial uses of water.

The goals and objectives associated with the proposed project are generally compatible with the applicable general plan goals and policies for land use summarized above. The overall goal of the proposed project is restore a segment of the Trinity River so that it functions in a manner that is closer to historic (i.e., pre-Lewiston Dam) conditions. Although there will be some mechanical vegetation removal along the Trinity River floodplain, which is a Scenic Conservation Overlay Zone, the proposed project will include both riparian and upland revegetation efforts intended to provide a more diverse plant assemblage than what is currently present, therefore enhancing the long-term aesthetic values of the river corridor.

3.2.3 Environmental Consequences/Impacts and Mitigation Measures

Methodology

The following section provides a brief overview of the analytic methodologies used in assessing potential impacts of the proposed project on land uses. These methodologies included review for farmland presence, identification of potential Williamson Act contracts, planned land uses, zoning, established uses, neighboring areas, and existing site uses. Impacts to mineral resources were assessed based on the potential change to an approved Mining Use Permit and Reclamation Plan.

Significance Criteria

The impact analysis presented below evaluates potential project impacts on land uses as a result of construction and/or operation of the proposed project. The following significance criteria have been developed based on guidance provided by *CEQA Guidelines* (Appendix G – Environmental Checklist/Initial Study Form). Impacts to land uses would be significant if they:

- Result in land uses that are incompatible with existing and planned land uses adjacent to proposed project facilities
- Conflict with any applicable land use plan, policy, ordinance, or regulation of an agency with jurisdiction over the proposed project adopted for the purpose of avoiding or mitigating an environmental effect
- Disrupt or divide the physical arrangement of an established community
- Result in substantial nuisance effects on sensitive land uses that would disrupt use over an extended time period
- Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan

Impacts and Mitigation Measures

Table 3.2-6 summarizes the potential land use impacts resulting from implementation of the proposed project.

TABLE 3.2-6
SUMMARY OF LAND USE IMPACTS
HOCKER FLAT

Impact	No-Action Alternative	Proposed Action	Alternative 1	Proposed Action with Mitigation	Alternative 1 with Mitigation
1. Implementation of the proposed project could disrupt existing land uses adjacent to the proposed project site.	NI	LS	LS	N/A[1]	N/A
2. Implementation of the proposed project may be inconsistent with the goals, policies, and objectives of the Trinity County General Plan, as well as the local community plans, policies, and ordinances.	NI	LS	LS	N/A	N/A
3. Implementation of the proposed project may affect the availability of a locally important mineral resource recovery site.	NI	LS	LS	N/A	N/A

Notes:
LS = Less than Significant S = Significant NI = No Impact N/A = Not Applicable
[1]Because this potential impact is less than significant, no mitigation is required.

Impact 3.2-1: Implementation of the proposed project could disrupt existing land uses adjacent to the proposed project site. ***No Impact for the No-Action Alternative; Less than Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, the proposed project would not occur. There would be no temporary disruption to existing land uses within or adjacent to the site.

Proposed Action

The existing land uses within the proposed project site are commercial gravel mining and open space. The nearest residences occur outside of the ESL approximately 100 feet west of rehabilitation areas U-5 and U-6. The existing gravel mining operation will not be adversely affected by proposed project construction activities. The TRRP and Jim Smith, owner of the gravel mining operation, will coordinate gravel mining operations and proposed restoration activities within rehabilitation area U-3 to avoid potential conflicts. No agricultural uses exist within the ESL, nor are there any lands designated as Prime Farmland, Unique Farmland, or Farmlands of Statewide Importance. Access to adjacent residences and Junction City Elementary School will be maintained at all times during the proposed project construction phase. Any current recreational access that occurs within the ESL would not be restricted as a result of implementing the proposed project.

Construction of the proposed project could also result in potential nuisance effects to the adjacent residences and students and faculty at Junction City Elementary School, primarily involving noise, air quality, aesthetics, and short-term traffic disruptions. Noise impacts are discussed in **Section 3.16**, air quality impacts are discussed in **Section 3.12**, aesthetics impacts are discussed in **Section 3.14**, and traffic impacts are discussed in **Section 3.18**. Since the proposed project is a rehabilitation effort that would not introduce a new land use within the ESL, no long-term land use impacts will occur as a result of implementing the proposed project.

Alternative 1

Temporary land use impacts associated with the disruption of existing land uses under Alternative 1 would be similar to the Proposed Action. Similar to the Proposed Action, there will be no long-term land use impacts.

Mitigation Measures

No-Action Alternative, Proposed Action, Alternative 1

Since no significant impact was identified, no mitigation is required.

Significance After Mitigation: N/A.

Impact 3.2-2 Implementation of the proposed project may be inconsistent with the goals, policies, and objectives of the Trinity County General Plan, as well as the local community plans, policies, and ordinances. ***No Impact for the No-Action Alternative; Less than Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, the proposed restoration activities would not occur at the Hocker Flat site. There would be no inconsistency with the goals, policies, and objectives of the Trinity River General Plan, or other local community plans, policies, or ordinances.

Proposed Action, Alternative 1

Implementation of restoration activities for either the Proposed Action or Alternative 1 are not anticipated to introduce land uses that are incompatible with existing or proposed land uses, nor would it conflict with any land use plan, policy, or ordinance. As noted in **Table 3.2-7**, both the Proposed Action and Alternative 1 would be consistent with the County's floodplain ordinance.

TABLE 3.2-7
CONSISTENCY WITH TRINITY COUNTY' S FLOODPLAIN ORDINANCE
HOCKER FLAT

Objectives	Assessment of Consistency
1. Protect human life and health.	The Proposed Action and Alternative 1 are designed to ensure continued protection of human life and health.
2. Minimize expenditure of public money for costly flood control projects.	Not applicable to the Proposed Action or Alternative 1.
3. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public.	The Proposed Action and Alternative 1 are designed to protect public safety.
4. Minimize prolonged business interruptions.	Not applicable to the Proposed Action or Alternative 1.
5. Minimize damage to public facilities and utilities, such as water and gas mains, electricity, telephone, sewer lines, streets and bridges located in areas of special flood hazards.	The Proposed Action and Alternative 1 are designed to minimize damage to public facilities and utilities.
6. Help maintain a stable tax base by providing for sound use and development of areas of special flood hazard so as to minimize future flood blight areas.	Not applicable to the Proposed Action or Alternative 1.
7. Ensure that potential buyers are notified that property is in an area of special flood hazard.	Not applicable to the Proposed Action or Alternative 1.
8. Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.	Not applicable to the Proposed Action or Alternative 1.
9. Minimize impacts to fish and wildlife resources that are associated with floodplains where such resources do not conflict with public health and safety.	Construction access and staging within the riparian habitats adjacent to the proposed project ESL will be minimized to the extent feasible. All riparian areas disturbed by construction activities will be rehabilitated. The Proposed Action and Alternative 1 are designed to increase potential habitat for fish and wildlife resources.

Source: Trinity County Floodplain Management Ordinance

The County's General Plan includes the following objectives regarding fill and encroachments within a flood hazard zoning district:

TABLE 3.2-8
CONSISTENCY OF PROPOSED ACTION AND PROJECT ALTERNATIVES WITH THE DEVELOPMENT STANDARDS FOR LANDS LYING WITHIN THE FLOOD HAZARD OVERLAY ZONING DISTRICT
HOCKER FLAT

Objectives	Assessment of Consistency
A. Anchoring	
1. All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, and certified by a registered professional architect or engineer.	Not applicable
B. Construction Materials and Methods	
1. All new construction and substantial improvements shall be constructed with flood resistant materials as specified in FEMA technical Bulletin TB 2-93, and utility equipment resistant to flood damage	Not applicable.
2. All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.	The proposed project does not involve the placement of any new construction or improvement to any existing structures within the floodplain. Natural substrates (i.e., cobbles, gravels, and sands) will be redistributed within the proposed project ESL to improve river functions.
3. All new construction and substantial improvements shall be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.	Not applicable
4. All new construction and substantial improvements within zones AH or AO shall be constructed so that there are adequate drainage paths around structures on slopes to guide floodwaters around and way from proposed structures.	Not applicable. Only Zones AE and A are included in the ESL.
C. Elevation and Floodproofing	
1. New construction and substantial improvement of any structure shall have the lowest floor, including basement, a. in an AO zone elevated above the highest adjacent grade to a height equal to or exceeding one foot above the depth number specified in feet on the FIRM, or elevated at least three feet above the highest adjacent grade if no depth number is specified; and b. in all other zones (AE, AH, and A 1-30), elevated not less than one foot above the base flood elevation. Nonresidential structures may meet the standards in Section 3.C.2 (below). Upon completion of the structure, the elevation of the lowest floor, including basement, shall be certified by a registered professional engineer or surveyor to be properly elevated. Such certification, or verification, shall be provided to the Floodplain Administrator.	Not applicable to the proposed project.

TABLE 3.2-8
CONSISTENCY OF PROPOSED ACTION AND PROJECT ALTERNATIVES WITH THE DEVELOPMENT STANDARDS FOR LANDS LYING WITHIN THE FLOOD HAZARD OVERLAY ZONING DISTRICT HOCKER FLAT

Objectives	Assessment of Consistency
C. Elevation and Floodproofing	
2. Nonresidential construction shall be elevated in conformance with Section 3.C.1 (above), or together with attendant utility and sanitary facilities: a. be flood proofed so that below the elevation recommended under section 3.C.1, the structure is watertight with walls substantially impermeable to the passage of water; b. have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and c. be certified by a registered professional engineer or architect that the standards of this subsection are satisfied. Such certification shall be provided to the Floodplain Administrator.	Not applicable to the proposed project.
3. For all new residential construction and substantial improvements fully enclosed areas below the lowest floor that are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement shall follow the guidelines in FEMA Technical Bulletin TB 1-93 and TB-93 and must exceed the following minimum criteria: a. have a minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding. The bottom of all openings shall be no higher than one foot above grade. Openings may be equipped with screens, louvers, valves, or other coverings, or devices, provided that they permit the automatic entry and exit of floodwaters; and b. be certified by a registered professional engineer or architect.	Not applicable to the proposed project.
D. Fill and Other Floodplain Encroachments	
1. All fill and other encroachments shall be certified by a registered professional engineer or architect not to increase the Base Flood Elevation more than 12 inches. Such a certification shall be provided to the Floodplain Administrator.	Implementation of either the Proposed Action or Alternative 1 involves removal of alluvial (fill) materials from the floodplain and will not result in a rise in the base flood elevation.

As noted in **Table 3.2-8**, the Proposed Action and Alternative 1 would be consistent with the County's development standards for lands lying within the Flood Hazard Overlay zoning district. The Hocker Flat site is located within the Junction City Community Planning Area. The County General Plan and Junction City Community Plan (1987) include the following goals and associated policies regarding construction of new facilities within a flood hazard-zoning district:

TABLE 3.2-9
CONSISTENCY WITH THE TRINITY COUNTY GENERAL PLAN AND JUNCTION CITY COMMUNITY PLAN
HOCKER FLAT

Objectives	Assessment of Consistency
Trinity County General Plan Safety Element	
1. Reduce the loss of life and property by establishing development standards for areas subject to flooding: a. Require all development to meet federal, state, and local regulations for floodplain management protection, including the encouragement of upgrading existing structures to meet adopted standards. b. Require all development to meet the development standards of the National Flood Insurance Act regulations in Title 44 CFR Section 60.3, as implemented through the County Zoning Ordinance section 29.4 c. Prohibit the creation of new parcels that have no building sites outside of the 100-year floodplain, except for the creation of open space parcels. d. The County's Disaster Response Plan should include procedures to protect the public from flooding hazards. e. Maintain or return to Open Space lands subject to flooding.	The Proposed Action and Alternative 1 will comply with the objectives and policies that are applicable. Lands within the ESL that are currently designated as Open Space will remain as open space. The TRRP will submit the necessary data and certified forms to Trinity County in accordance with the County Floodplain Management Ordinance. The County will then submit the data to various agencies including FEMA. FEMA will be asked to provide a Conditional Letter of Map Revision (CLOMR) prior to implementation of the project commenting on whether the proposed project would meet National Flood Insurance Program Standards.
2. Reduce the potential for the loss of life and property from dam failure inundation	Not applicable to the proposed project.
Junction City Community Plan - Hazards	
1. Protect public and private developments from hazards. a. Insure that future developments do not create flood hazards either to themselves or to downstream developments.	The Proposed Action and Alternative 1 are designed to ensure continued protection of downstream property.
2. Incorporate Flood Hazard Zoning on those areas of the Plan subject to flooding.	After the project is completed, data will be provided by the TRRP to the County containing as-built surveys and hydraulic information. The County will provide the data to FEMA which will determine if a Letter of Map Revision (LOMR) is appropriate. In the absence of an LOMR, the County may revise its floodplain management criteria if data derived from the project provide more appropriate flood hazard information than existing data.

As noted in **Table 3.2-9**, the Proposed Action and Alternative 1 would be consistent with Trinity County's General Plan and the Junction City Community Plan.

Rehabilitation activities associated with the Proposed Action and Alternative 1 would not have any effect on future development within Junction City. Therefore, the proposed project would be consistent with the recommended goals and objectives for land use that were identified in the Junction City Community Plan.

Mitigation Measures

No-Action Alternative, Proposed Action, Alternative 1

Since no significant impact was identified for these alternatives, no mitigation is required.

Significance After Mitigation: N/A.

Impact 3.2-3: Implementation of the proposed project may affect the availability of a locally important mineral resource recovery site. ***No Impact for the No-Action Alternative; Less than Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, there will be no impact on locally important mineral resource recovery sites.

Proposed Action, Alternative 1

Rehabilitation activities associated with the Proposed Action and Alternative 1 will not affect the availability of a locally important mineral resource recovery site. As previously discussed, the rehabilitation activities will be coordinated with on-going gravel mining operations within the proposed project ESL. The long-term goal of the proposed project is to restore sections of the Trinity River to conditions more closely resembling historical characteristics, an action that would not have an adverse effect on the availability of local aggregate resources associated with the Trinity River.

Mitigation Measures

No-Action Alternative, Proposed Action, Alternative 1

Since no significant impacts were identified for these alternatives, no mitigation is required.

Significance After Mitigation: N/A.

SECTION 3.3

Geology, Fluvial Geomorphology and Soils

3.3 Geology, Fluvial Geomorphology, and Soils

This section addresses geologic, fluvial geomorphic, and soils issues related to construction and maintenance of the proposed project. The following evaluation is based on review of existing literature and data, along with information obtained in conjunction with the wetland delineation and reconnaissance-level assessment of the local geologic and geomorphic conditions. Hydrology and groundwater are evaluated in **Section 3.4,** Water Resources, and water quality issues are evaluated in **Section 3.5,** Water Quality.

3.3.1 AFFECTED ENVIRONMENT/ENVIRONMENTAL SETTING

Regional Geology

The Trinity River basin occupies portions of two parallel but distinct geologic provinces: the Coast Range Province and the inland Klamath Mountains Province. The presence of both ranges can be attributed to processes associated with plate tectonics, the interaction of mobile plates of the Earth's crust. In both cases, convergent motion of crustal (*lithospheric)* plates, where a relatively thin, dense oceanic plate collided with thicker, more buoyant continental crust, has accreted material to the western edge of North America, meanwhile uplifting and deforming it to produce the rocks and mountains that we see today.

The Coast Range Province, which consists chiefly of the well-known Franciscan Assemblage and its associated basal unit, the South Fork Mountain Schist, is composed of highly disrupted and generally unstable rocks of sedimentary and volcanic origin. It occupies a limited area (~56,000 acres, or <3% of the drainage) at the northwestern extremity of the watershed. The Coast Ranges of northern California represent recent and contemporary accretion and uplift of geologic materials associated with the development of the Cascadia Subduction Zone, which is also responsible for the formation of the Cascade Range of volcanoes to the north and east of the Trinity River basin, including Mt. Shasta and Mt. Lassen.

East of the Coast Ranges, the Klamath Mountains are assembled of older metamorphic and igneous intrusive or *plutonic* rocks. The majority of the mainstem Trinity River basin lies within the Klamath Mountains Geomorphic Province. The Klamath Mountains are divided into the Eastern Klamath, Central Metamorphic, Western Paleozoic and Triassic, and Western Jurassic sub-provinces or *terranes*. These terranes were successively accreted against the western margin of North America over an approximately 300-million-year period of convergent motion of lithospheric plates. Rock units in these terranes generally dip to the east, and older terranes are generally situated east of younger, more westerly terranes. However, great structural complexity and deformation are present both within and between the terranes, presenting enduring geologic problems and precluding useful simplification of their relationships. The Klamath Mountains represent one of the most complete records of the westward growth of the North American continent.

These intrusive rocks are often informally termed *granitic* rocks or granite. Some of the larger intrusions include the Shasta Bally Batholith in the eastern portion of the watershed, and numerous plutons that form the granitic core of the Salmon-Trinity Alps. Granitic rocks are highly erodible, weathering into

individual sand-size grains, and they provide a steady source of fine sediment to the fluvial systems of the watershed.

Several distinct sedimentary units occur within the watershed. The Weaverville Formation consists of Cenozoic non-marine deposits, and is exposed in fault-bounded valleys across the southeastern portion of the watershed. Quaternary terraces and floodplains occur in the largest river valleys within the watershed, and some older alluvial deposits are located in higher topographic positions where uplift has occurred since their deposition. The highest portions of the ranges were glaciated during periods of the Pleistocene epoch (~ 2 million years to 10,000 years before the present). Glacially eroded materials, largely of granitic origin, add to the sediment input to the Trinity River system. The Klamath Mountains have been uplifted to their present elevations during the past 5 million years, and remnants of the former erosional surface that preceded the uplift of the modern range are expressed as broad upland plateaus in the western portion of the watershed.

Mines and Mineral Resources

Geologic properties of many of the terranes, related to their origins as oceanic crust and/or their intrusion by plutonic bodies, have resulted in mineralization that is widely distributed across the watershed. Many minerals of economic importance, including gold, copper, zinc, chromite, manganese, platinum, silver, and mercury are present, and have been mined by a variety of methods from the advent of European settlement to the present. The principal mineral of economic importance is gold, and the Trinity River watershed has the greatest concentration of gold mines in California outside of the Sierra Nevada. Both hardrock (lode) mines and placer (alluvial gravel) mines are present, with activity from 1848 to the present. Large-scale bucket-line dredge operations were also common between 1930 and 1950. These operations resulted in the deposition of massive quantities of tailings in and/or adjacent to the mainstem Trinity River, and numerous tributaries throughout the basin. Placement of these tailings substantially increased sediment supplies and resulted in substantial confinement, and in some cases, relocation of the river channel. After World War II, localized dredging of alluvial gravels and reworking of hydraulic tailings continued, resulting in additional modifications to the channel, and sediment supply.

Local Geology

The proposed project is located immediately downstream of the confluence of Canyon Creek and the Trinity River in the vicinity of Junction City, a small community in Trinity County, California. Rocks of the Salmon Hornblende Schist unit of the Central Metamorphic Belt underlie the site (U.S. Forest Service 2004) and are exposed in rocky bluffs on the northeast side of SR 299. These rocks are highly foliated amphibolite-grade metamorphics, with abundant hornblende. They are very hard and durable, and weather to large angular cobbles and boulders.

Surficial deposits blanket the proposed project site, and consist of recent and modern alluvial floodplain and terrace deposits and historic hydraulic and dredge tailings. Glacial outwash from Canyon Creek, originating in the Trinity Alps, has contributed large quantities of coarse granitic particles to the deposits. Schistose rocks of the Central Metamorphic Belt are the other major component of the unconsolidated

sediments at the site, with lesser amounts of other granitic and metamorphic rocks transported from upstream. Large tailings piles from historic mining dominate the surface topography of the site, occupying portions of the active floodplain and terraces on both riverbanks. The tailings at the Hocker Flat site are predominantly the product of bucket-line dredging of the channel. Residual sediment from hydraulic operations at the Lagrange Mine on Oregon Mountain Summit, including hydraulic highway excavation conducted in the 1930s, is also likely present at the site. Large-scale mining efforts at Hocker Flat continued through the 1950s. Since then, remaining dredge tailings have been developed as a commercial source of mineral materials, primarily sand and gravel. Rehabilitation areas U-3 and U-4 (**Figure 2-1**) are associated with ongoing mining and reclamation activities.

Regional Fluvial Geomorphology

Fluvial geomorphology was fundamental in the evaluation and selection of the preferred alternative for the FEIS/EIR. Addressing the relationships between flow, sediment, and vegetation formed the basis for Appendix C, the Implementation Plan of the Preferred Alternative of the FEIS/EIR. This plan identified a number of actions relative to flow and sediment that would be implemented. The plan, now upheld in the recent opinion from the United States Court of Appeals for the Ninth Circuit, described in **Section 1.1**, included:

- instream release volumes to the Trinity River (dam releases, storage, timing)
- mechanical rehabilitation (high flow and channel projects)
- coarse and fine sediment management program (coarse augmentation, fine control)
- infrastructure modifications (bridges, structure relocations)
- watershed protection program
- adaptive environmental assessment and management

River channels form and are maintained by the dynamic interaction of three primary building blocks: sediment of various size classes, varying quantities and ages of vegetation, and varying amounts of water. Individual rivers are composed of a unique combination of these building blocks, which are determined by soils, climate, and geology. Complex interactions between these three components define the geomorphic environment and provide a diversity of physical structures, such as point bars and riffle-pool sequences that perform a variety of environmental functions. The resulting geomorphic environment typically supports a unique ecosystem that depends on geomorphic processes to maintain its fundamental structure. A change in one or more of the building blocks will change the geomorphic environment (U.S. Fish and Wildlife Service et al. 2000).

Generally, a highly variable flow regime in an alluvial river system will result in a physically complex river that provides substantial ecological benefits. A physically complex river provides a variety of habitats that can be used by different species under a range of flows. Hydrology changes seasonally, daily, and hourly, causing energy inputs to a river to be in constant flux. Varying flows impart varying amounts of energy throughout a river channel and elicit varying responses in the river channel. Flows can mobilize and deposit a wide range of sediment particle sizes (ranging from fine material to large boulders during peak events). This movement and deposition of sediment particles in turn scour and shape the river channel, creating river bars, pools, and riffles, and can force the main channel to shift its position in

the floodplain (**Figure 3.3-1**). Vegetation can be scoured during high flows, leaving open gravel bars and preventing vegetation in the scour zone from maturing.

The construction of the TRD of the CVP replaced the Trinity River's pre-dam hydrology with a greatly reduced, near-constant flow schedule (**Figure 3.3-2**). This reduction in water and associated energy has directly affected the character of the channel (**Figure 3.3-3**). The new, lower flows allowed woody riparian vegetation along the channel to become established and to mature. Sediment berms developed along the channel margins. These berms further anchored the sides of the channel and resulted in the loss of many broad, gently sloping point bars, which changed the pool-riffle-run sequences created by alternate bar sequences to a largely monotypic run habitat. The loss of these bars has substantially reduced the complexity and diversity of riparian and riverine habitats (McBain and Trush 1997). These changes in geomorphic processes and channel geomorphology have decreased the quantity and quality of riverine habitats.

Ten attributes were identified in the Trinity River Flow Evaluation Report (1999) and used in the FEIS/EIR to describe the geomorphic environment and processes of a healthy alluvial river. These attributes were developed specifically for the Trinity River based on an in-depth historical and literature search (McBain and Trush 1997) and a comparison of pre- and post-dam conditions in the watershed. The comparison was largely based on aerial photographs taken before and after dam construction. The healthy river attributes provide a foundation for understanding the dynamic equilibrium of the river, and were used to develop recommendations to meet restoration objectives. Based on the July 13, 2004, opinion issued by the United States Court of Appeals for the Ninth Circuit, the "healthy river" attributes described in the FEIS/EIR provide a benchmark for evaluating potential strategies for improving the fishery within the mainstem Trinity River. The methodology used in the FEIS/EIR assumed that if all 10 of these attributes were present, the Trinity River would have the physical characteristics to support a healthy alluvial river ecosystem. These attributes are listed below:

- Attribute 1. Spatially complex channel geomorphology
- Attribute 2. Flows and water quality are predictably unpredictable
- Attribute 3. Frequently mobilized channelbed surface
- Attribute 4. Periodic channelbed scour and fill
- Attribute 5. Balanced fine and coarse sediment budgets
- Attribute 6. Periodic channel migration
- Attribute 7. A functional floodplain
- Attribute 8. Infrequent channel resetting floods
- Attribute 9. Self-sustaining diverse riparian plant community
- Attribute 10. Naturally fluctuating groundwater table

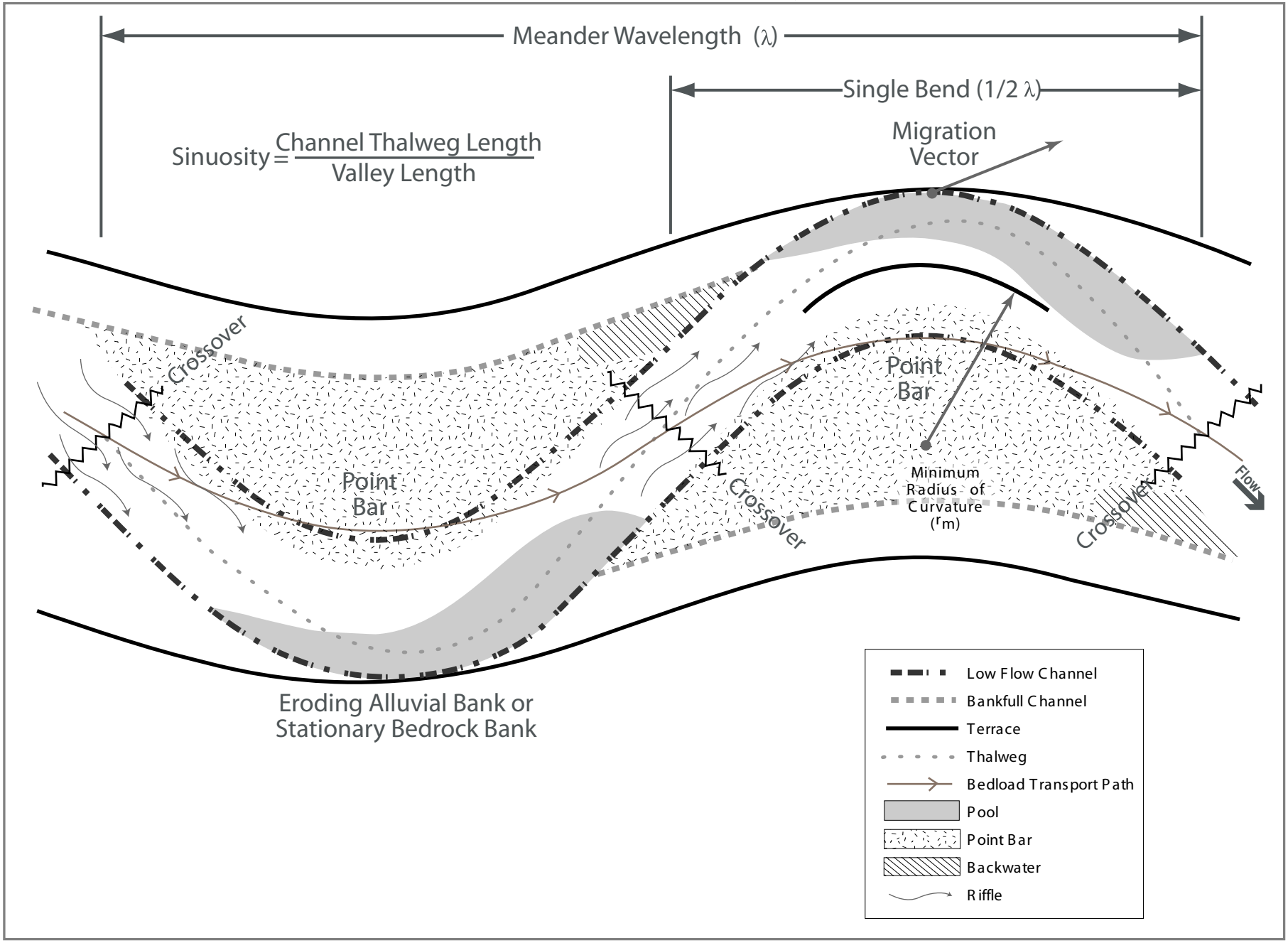


Figure 3.3-1
Alternate Bar Formation

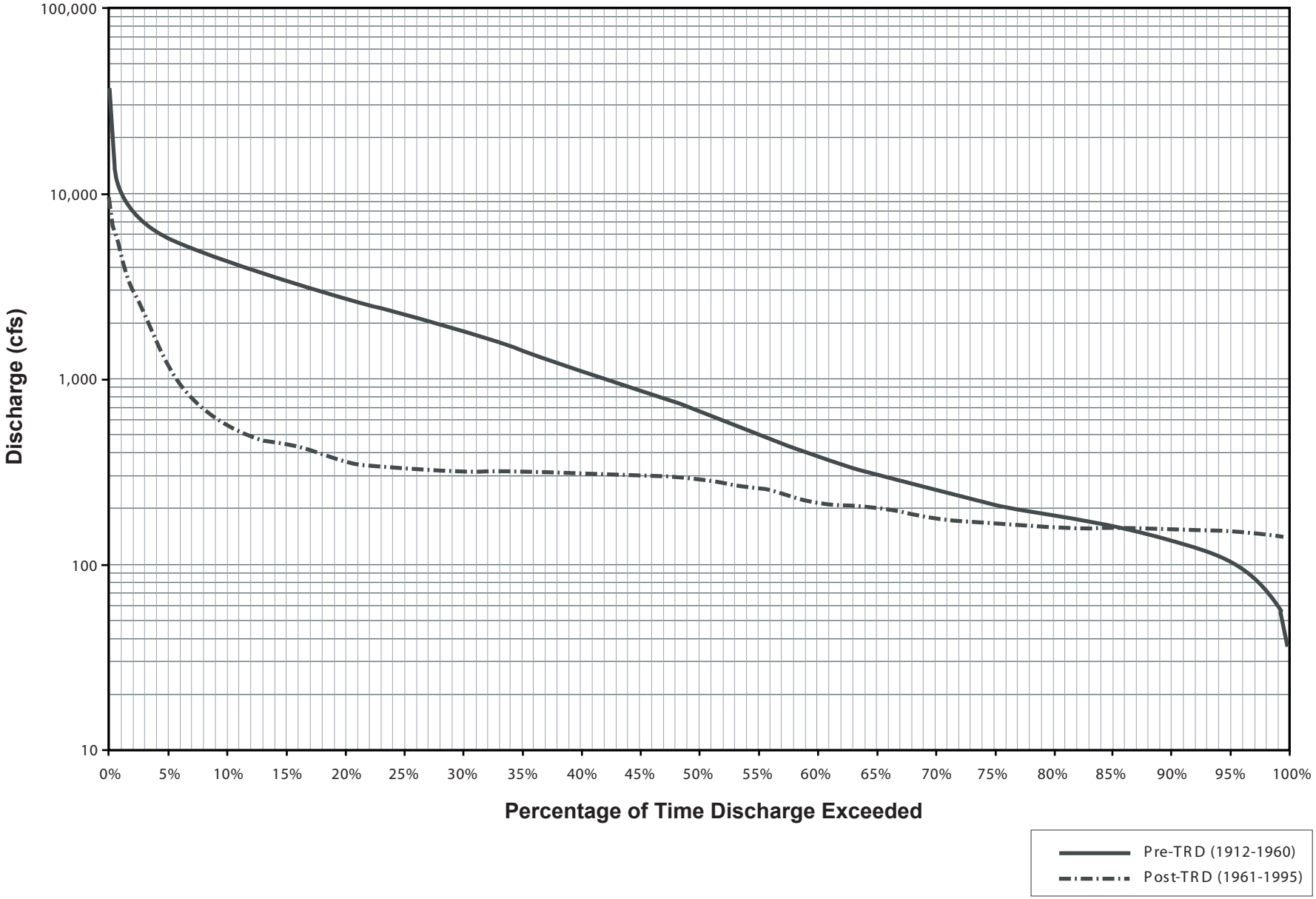
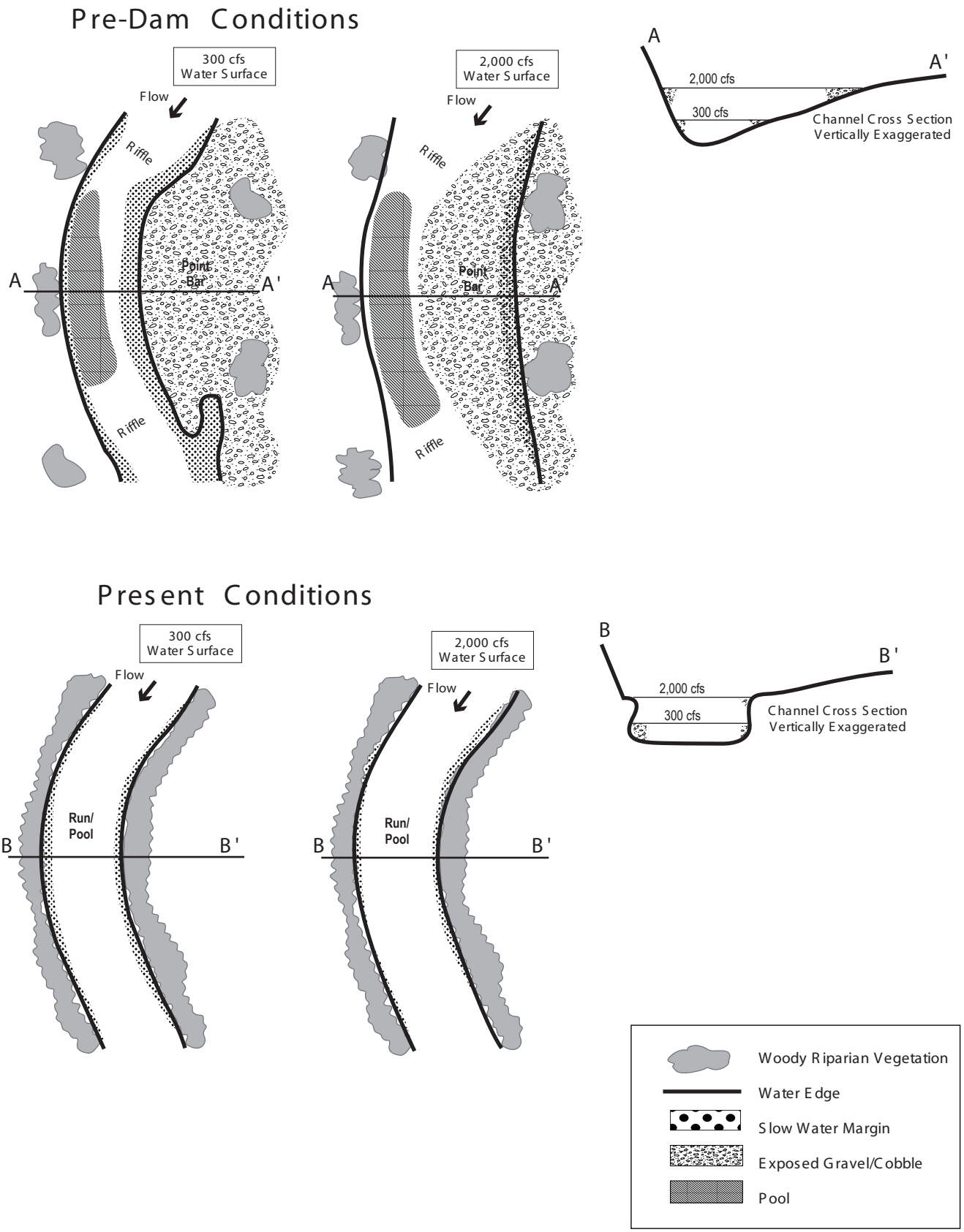


Figure 3.3-2
Pre- and Post-dam Hydrology



F:\Projects\10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River/Hocker Flat Project\Graphics\Chapter 3\Fig_3.3-3_Simplified_Geo.pdf Source: McBain & Trush, Inc. 06/30/04 TLA

Figure 3.3-3
Simplified Geomorphology

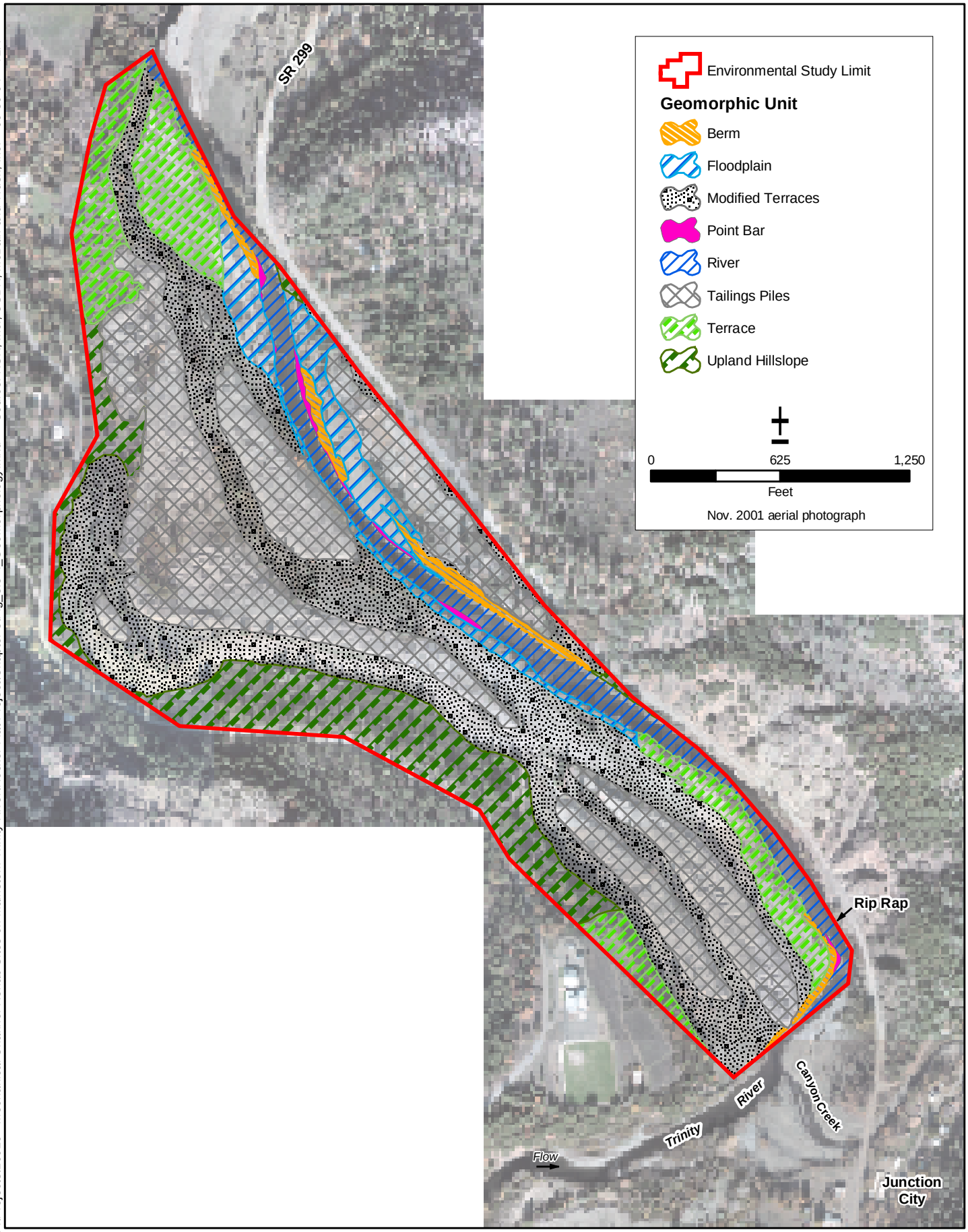
Local Fluvial Geomorphology

The geomorphic environment of the Hocker Flat reach is directly affected by the hydrology, channelbed composition and sediment regime, and riparian vegetation at this location. The reach has a number of distinct landscape features associated with the geomorphic environment. The geomorphic environment typically supports habitat components that depend on a variety of physical processes to maintain its fundamental structure. Modification of the channel and floodplain configuration at the site has altered and simplified the natural diversity of geomorphic processes and energy regimes available for maintenance of a variety of channel forms, habitats, and vegetation structures.

Figures 3.3-1 and **3.3-3** illustrate the generalized geomorphic setting of a typical channel segment similar to the proposed project. **Figure 3.3-4** presents a geomorphic map of the proposed project site and vicinity. Extensive modification of the channel form and other alluvial landforms is evident based on the distribution of natural and anthropogenic features at the site. Channel straightening was initiated by dredge operations in the first half of the 20th century, when channel excavation and the construction of tailings piles confined the river within the limits of its natural floodplain. The location of these tailing deposits corroborates anecdotal information and photographic evidence that the river was physically displaced in conjunction with the dredge operations. **Figure 3.3-5** is an aerial photograph of the site in 1944, which shows the presence of the two large southernmost tailings piles on the left bank (rehabilitation area U-1 and U-2) and an active dredging operation on the right bank floodplain, adjacent to the SR 299 right-of-way. A train of dredger tailings is visible as an elongated linear feature to the southeast of the dredge pond (partial rehabilitation area U-4). Comparison of this historic photograph with modern imagery of the site (**Figure 2.1**) indicates that the dredged channel adjacent to the highway subsequently defined the modern river channel. The right bank floodplain that was present in 1944 has since been removed, probably by a combination of dredging and erosion during major pre-TRD floods. The northern tailings piles on the left bank in the modern photo (rehabilitation areas U-3, U-5, and U-6) are in the approximate location of the former channel.

More recently, riparian berms have formed along the channel margins. This has occurred in response to the establishment of persistent stands of riparian vegetation due to the elimination of scour by high seasonal flows, following the commencement of operation of the TRD. These berms have effectively reduced the sinuosity of the channel, and inhibited the development and migration of alternate point bars. While floodplain features persist, the presence of the tailings deposits and the riparian berms has reduced access to the floodplain for the most frequently recurring floods and diminished its capacity to regulate overbank flows during higher flow events.

The riverine environment at the Hocker Flat site consists of a single channel that has become confined within the riparian berms described above. The left bank of the active channel (river left) is lined with riparian vegetation for its entire extent within the ESL; the right bank is similarly well-vegetated except at the westernmost extremity of the inside meander bend/point bar at the approximate midpoint of the reach. The downstream extremity of the right bank within the ESL occupies the SR 299 embankment, and is densely vegetated with riparian and upland plant communities (**Figure 3.7-1**). The left bank above the

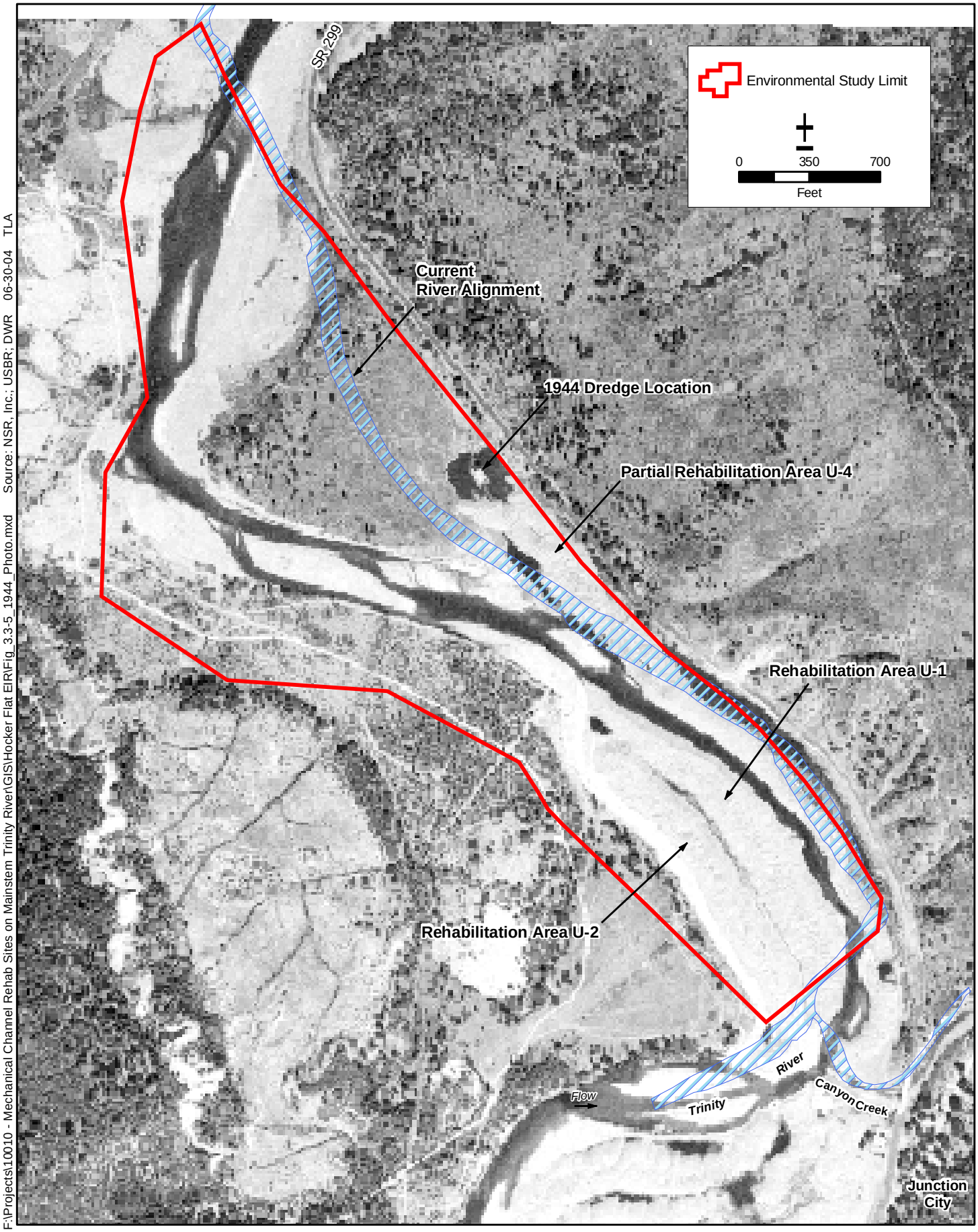


F:\Projects\10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River\Hocker Flat Project\Chapter 3\Fig_3.3-4_Geomorphology.mxd Source: NSR, Inc.; USBR; McBain and Trush, Inc. 06-30-04 TLA

North State Resources, Inc.

Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

Figure 3.3-4
Geomorphology



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North State Resources, Inc.

Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

Figure 3.3-5
Historic Aerial Photograph (1944)

berm has a large area of floodplain and terraces, portions of which are occupied at high flows (**Figure 3.3-4**). A smaller area of floodplain is present on the right bank, in the inflection/point bar area of the gentle meander bend. The formerly active alluvial area constitutes approximately 132 acres, or over 85 percent of the ESL. However, dredge tailings now occupy more than 47 acres, or more than 35 percent of the former active overbank area. On the left bank, tailings piles are less than 100 feet from the active channel near the south end of the ESL, opposite the confluence of Canyon Creek, and also at the inflection point of the outside meander bend. These piles hamper high-flow access for the river to the large natural floodplain/terrace area on the left bank, and prevent point bar migration that would naturally occur over the course of a series of flood flows. Also, most of the terrace area has been anthropogenically modified, and terrace morphology is no longer responsive to inundation during floods. The overbank area is constricted between the tailings piles, so that at flood flows, flow velocities are augmented across the floodplain and terraces, and flows are directed to backwater areas with return flows to the primary channel inhibited as flows recede. Natural sorting of sediment particles between point bar, floodplain, and terrace surfaces has been inhibited by the extent of human-caused disturbance and by the presence of riparian berms.

As described in **Chapter 2**, a portion of the right bank was modified in the early 1990s under a TRRP pilot rehabilitation project. A portion of the berm on the right bank was removed to create a "feather edge," and the channel reconfigured to resemble its pre-TRD planform. Active floodplain and point bar features have developed in response, and are representative of the type of alluvial recovery that is anticipated following completion of the proposed project. However, some encroachment of riparian vegetation and reestablishment of a riparian berm has occurred since this project was completed in 1993.

The aquatic habitat within the active channel at the site consists primarily of run and low-gradient riffle types, with minor areas of pools and glides present (**Figure 3.6-4**). Depths under summer baseflow conditions average 2 to 3 feet; under bankfull conditions, 5- to 7-foot water depths occur. Channel substrates are dominantly cobbles, with lesser amounts of boulders present. Gravels and finer particles are exposed only on the channelbed in the very limited pool habitat that is present. The current condition of the channelbed reflects armoring, due to insufficient flow velocities to mobilize coarse substrate particles.

Geologic Hazards

Seismicity and Seismic Hazards

Seismicity describes the geographic and historical distribution of earthquakes, while seismic hazards describe the risk of loss from damaging earthquakes. According to the Reclamation Dataweb (http://www.usbr.gov/dataweb/dams/ca10196.htm), the vicinity of Trinity and Lewiston dams is located in a region of low historical seismicity and few known Quaternary faults. The region may be subject to low to moderate levels of ground shaking from nearby or distant earthquakes. The most recent (2003) Probabilistic Seismic Hazards Assessment Model for California (California Geological Survey/USGS, http://www.consrv.ca.gov/cgs/rghm/pshamap/pshamain.html) describes the peak ground acceleration with an exceedence probability of 10 percent in 50 years as falling in the range of 0.1-0.2g for the proposed

project site as well as for upstream areas that include the Trinity and Lewiston dam sites. Seismic hazard ratings increase markedly westward from the proposed project site, due to the presence of numerous active seismic structures in the north coastal region of California. Peak accelerations of 0.3 to 0.4g are forecast under the seismic hazards model for the most downstream portions of the Trinity River watershed.

No local Quaternary faults have been identified, although little detailed mapping of Quaternary geologic features has been conducted in the area. Historic earthquake activity in the area has been very low. No areas of Trinity County are described or mapped as Fault-Rupture Hazard Zones under the Alquist-Priolo Earthquake Fault Zoning Act (California Department of Mines and Geology 1997).

Maximum credible earthquakes (MCEs) were determined for potentially significant faults, including Likely, Hat Creek, Freshwater, Mendocino, and San Andreas. These MCEs have projected surface wave magnitudes that range from 7 to 8.5 Ms. A maximum Modified Mercalli Level of VI to VII was also estimated for local seismicity (Trinity County 2001). The Modified Mercalli scale describes the intensity of an earthquake's effects at a given locality. The Mercalli level described above generally equates to a widely felt, often frightening, but minimally to moderately damaging earthquake.

Liquefaction

Liquefaction is a process whereby water-saturated granular soils are transformed to a liquid state during ground shaking. Loose to medium dense sands, gravels, and silts occurring below the water table are prone to liquefaction. The soils bordering the Trinity River in immediate proximity to the proposed project site are predominantly alluvial in nature. These soils have potential to experience liquefaction; however, no detailed analysis was conducted.

Landslides

The potential for landslides triggered by seismic events is not considered significant within the ESL or upstream in the vicinity of the dam sites, due to the low historical seismicity of the region. There is potential for downstream areas with higher seismic risk and unstable geologic materials to experience slope failures during seismic events. Possible effects of large downstream landslides could include temporary landslide damming of the mainstem Trinity River, depending on the volume of failed material and the flow regime at the time of the event. It is unlikely that effects of such an event would persist for a sufficient period to affect the proposed project site.

Slope stability within the ESL is dependent on the underlying geology. The Salmon Hornblende Schist underlying the proposed project site is prone to rock fall and shallow debris slides associated with road cut slopes. Soils developed on this rock type are shallow and prone to surficial erosion. Although landslides are a common occurrence along SR 299, these features typically are intercepted by the highway and rarely contribute material to the river.

Seiches

Seiches could occur upstream of the proposed project as result of seismic, meteorologic, or geologic activities. A seiche is an oscillation or standing wave in a body of water confined in a basin. Seiches commonly arise from a sudden local change in atmospheric pressure, accompanied by wind and, occasionally, tidal currents. They can also occur as the result of ground shaking caused by earthquakes, or by the force of large landslides or debris flows entering a water body. Local water bodies capable of generating a large-scale seiche include Trinity Lake, Lewiston Lake, and Grass Valley Creek Reservoir. The hazard at the proposed project site associated with a seiche involves the overtopping or possible failure of these dams as a consequence of such an event. However, the likelihood of such an event is considered minimal.

Volcanic Activity

Volcanic hazards in the proposed project area are limited primarily to ash fall and minor seiches in Trinity and Lewiston lakes. There are three active volcanoes in the Cascade Range: Mount Lassen, Mount Shasta, and the Medicine Lake Volcano. The proposed project is located approximately 75 to 100 miles south/southwest of these volcanoes and would not likely be significantly affected by a volcanic eruption (Trinity County 2001).

Mercury

The possible presence of mercury in the alluvial environment and mine tailings in the Trinity River system is a potential geologic hazard associated with the proposed project. Mercury is a potent neurotoxin that can bioaccumulate through successive levels of biological systems under certain conditions. Mercury can adversely affect the reproductive success and health of fish and other species; it poses a potential health risk to wildlife and humans who consume fish and other contaminated species. While some mercury may be present in the Trinity River system due to natural occurrence in geologic materials and/or from atmospheric deposition, the most likely source of the introduction of mercury to ecosystems in the watershed is from historic mining activities.

There is one historic mercury mining district in the watershed, the Altoona Mine, located on the East Fork Trinity River, in the upper watershed upstream of Trinity Lake. The Altoona mine is a likely source of mercury contamination in Trinity Lake (May et al. 2002; http://ca.water.usgs.gov/mercury/trinity/abstract.html). However, the most probable significant mercury source at the proposed project site is related to processing of placer gold deposits and reprocessing of hydraulic mine tailings to extract gold. Mercury was used extensively to amalgamate gold from placer deposits in the 19th and 20th centuries, and substantial mercury residues are present in many areas where placer gold mining occurred. Mercury was used for gold extraction from mainstem Trinity River placer deposits and hydraulic tailings, including those within the proposed project ESL.

Sediment samples have been collected at some of the proposed channel rehabilitation sites on the mainstem Trinity River that have mercury concentrations that exceed background levels measured in nearby control watersheds where mining has not occurred. The ability to establish background levels for

mercury is complicated by the mobile nature of the sediments in an alluvial river system. Furthermore, these alluvial materials have been subjected to several periods of mining when mercury may have been introduced into the environment. The USGS is conducting research to evaluate the concentration and chemical states of mercury in sediments and water in the vicinity of the proposed project site, their effects on downstream mercury concentrations and bioavailability, and the impacts of site rehabilitation on mercury concentrations, states, and availability (Ashley et al. 2003). Potential hazards and possible significant environmental impacts associated with the presence of mercury in the Trinity River system and possible impacts related to the proposed project are addressed in **Section 3.5,** Water Quality.

Soils

Soils within the proposed project ESL are described in the *Soil Survey of Trinity County, California, Weaverville Area* (U.S. Department of Agriculture 1998). Two soil map units are associated with the proposed project. Detailed soil descriptions and soil survey maps of the study area are presented in **Appendix D,** Wetland Delineation Report for Hocker Flat**.** The following paragraphs provide a brief characterization of these soil map units.

102 – Atter-Dumps, dredge tailings-Xerofluvents complex

This map unit is associated with alluvial fans, stream terraces, and floodplains that have been altered by dredging operations. Soil units in this complex tend to be very deep and excessively drained. Permeability is rapid in these soils, and available water capacity is very low. Runoff is slow, and the hazard of water erosion is slight. Dumps and dredge tailings consist of nearly barren mounds deposited along stream channels by dredge mining activities. These soils may be subject to flooding during prolonged, high-intensity storms. The effective rooting depth is more than 60 inches, and vegetation associated with this soil type may have riparian and upslope components.

217 – Xerofluvents-Riverwash complex

This map unit is associated with floodplains and stream terraces. It formed in alluvium derived from mixed rock sources, and includes Riverwash inclusions. This map unit may include portions of the channel that are inundated during certain flow events. Permeability is moderate to rapid, and available water capacity is low to very low. Runoff is slow or medium, and the hazard of water erosion is slight or moderate. Riverwash consists of nearly barren, unconsolidated and potentially stratified sediments with a large range of particle sizes. Areas of Riverwash are flooded, channeled, and reworked on a routine basis. The effective rooting depth may exceed 60 inches, and vegetation is primarily riparian in nature.

3.2.2 REGULATORY FRAMEWORK

Local

Trinity County General Plan Goals and Objectives

The Trinity County General Plan contains goals and policies designed to guide the future physical development of the county, based on current conditions. The General Plan contains all the state-required elements, including community development and design, transportation, natural resources, health and

safety, noise, housing, recreation, economic development, public facilities and services, and air quality. The following goals and policies, relative to geology issues associated with the proposed project, were taken from the applicable elements of the General Plan (Trinity County 2001). The General Plan includes the Junction City Community Plan (1987).

County Wide Goals and Objectives

Environmental

To strive to conserve those resources of the county that are important to its character and economic well-being:

- By assuring that developments occurring on these lands are compatible with the resources.

Conservation Element

The following goals and objectives and policies are applicable to the proposed project.

To conserve, preserve and maintain the habitat for wildlife species, plant life and the environment:

- By planning for mineral production and performance so as to avoid destruction, pollution or degradation of surrounding land and of water and air resources. After mineral extraction has been completed, land used for mineral production should be revegetated and restored to its natural condition.
- By identifying all geologic and soil areas and developing standards for restricted development of any hazard areas.

Safety Element

The following goals and objectives and policies are applicable to the proposed project.

Seismic Safety Goal

A. Reduce the threat to life and property from seismic and geologic hazards.

B. Promote safety from seismic and geologic hazards

- Geologic hazards and seismic safety shall be considered in the preparation of environmental documents as required by CEQA.
- The County shall confirm that all construction and grading activities done will not adversely affect the stability of any slope.

Trinity County Zoning Ordinance

Section 12. Mining (Ordinance. No. 315-230, Ordinance. No. 315-596)

Purpose: To provide for the extraction of minerals, essential to the continued economic well-being of the County, while ensuring that mined lands are reclaimed to prevent or minimize adverse effects on the environment and to protect the public health and safety.

Section 30. General Provisions and Exceptions

Use: All of the uses listed in this Section [Section 30], and all matters related directly thereto are declared to be uses possessing characteristics of such unique and special classification as making practical their inclusion in any class of use set forth in the various districts defined herein, and therefore the authority for and location of any of the uses designated shall be subject to the issuance of a Use Permit in accordance with the provisions of Section 32 hereof.

Junction City Community Plan

The Junction City Community Plan (1987) covers approximately 42 square miles (27,000 acres) centered on the Trinity River from Maxwell Creek to slightly downstream of Helena.

Natural Resources

This element of the Plan is intended to identify and protect the various natural resources found within the Plan area by implementing the following goal:

Goal: To encourage the continued use of resource lands for resource production purposes. Objectives consistent with this goal include:

- Encouraging the sound use of mineral resources, especially sand and gravel operations, which also reduce sedimentation of the Trinity River.

Hazards

This element of the Plan is intended to minimize or preclude the occurrence of erosion, landslide, and/or the effects of other geologic events within the proposed project area by identifying potential problem areas and implementing the following goal:

Goal: To deter development away from unstable slopes or soils. Objectives consistent with this goal include:

- The discouragement of development activities on fault zones and landslide areas.
- Assurance that existing development activities in unstable areas are monitored and stabilized.
- Coordinating review of private and public developments with the Natural Resources Conservation Service.

Project Consistency with the Trinity County General Plan and Community Plans

This section compares the goals and objectives of the Proposed Action to the relevant local planning policies (i.e., Trinity County General Plan, Junction City Community Plan) to determine if there are any inconsistencies.

As described in **Chapter 1,** Introduction, the proposed project would:

- increase the diversity and area of habitat for salmonids, particularly habitat suitable for rearing;

- increase rearing habitat for juvenile salmonid, including coho, Chinook and steelhead;
- increase structural and biological complexity of habitat for various species of wildlife associated with riparian habitats;
- increase hydraulic and fluvial geomorphic diversity and complexity;
- provide a pilot project to evaluate the fate and transport of mercury related to rehabilitation/restoration projects;
- measure/demonstrate the ecological response to changes in flow regimes, morphological features, and aquatic, riparian and upland habitats; and
- provide a self-maintaining project independent of any future TRD flows.

The following project objectives apply to the proposed project's lead and responsible agencies for CEQA purposes:

- Evaluate changes in channel geometry in response to constructing channel and floodplain features designed for the river's current hydrologic regime
- Evaluate the evolution of channel planform features in response to designing and implementing the proposed project at a river segment (1-mile) scale
- Evaluate the biological response (aquatic, riparian, upland) to changes in the physical environment, and incorporate this information into the AEAM Program
- conduct a preliminary assessment of the fate and transport of mercury in response to restoration activities in a historic mining district
- locate the proposed project downstream of Canyon Creek to ensure that natural tributary accretion to mainstem flows has a higher likelihood of maintaining the site prior to implementation of the ROD-recommended flow regime
- provide safe and reasonable access to the site for project planning, implementation, and monitoring
- develop partnerships with willing participants, and encourage positive landowner interest and involvement
- design the project to function with the river's current hydrology estimated at the site
- integrate known fluvial and ecological theories and relationships with the site's measured physical and biological attributes and evaluate response over a definitive time frame
- minimize in-stream work to reduce construction-related impacts, maximize the river's ability to rehabilitate itself during high flows, and reduce implementation cost and complexity
- attempt to preserve unique and valuable geomorphic and biological features wherever practicable (i.e., hydraulic controls, high-quality spawning or adult holding habitat)

The following objectives apply to the project's responsible and trustee agencies, including the NCRWQCB, the SLC, the CDFG, and the SWRCB:

- compliance with the Water Code to ensure the highest reasonable quality of waters of the state and allocate those waters to achieve the optimum balance of beneficial uses;
- protection of the public trust assets of the Trinity River watershed;
- conservation, restoration, and management of fish, wildlife, and native plant resources; and
- compliance with the Water Quality Control Plan for the Hoopa Valley Indian Reservation to preserve and enhance water quality on the Reservation, and to protect the beneficial uses of water.

These project objectives are consistent with the applicable general plan goals and policies summarized above.

3.3.3 Environmental Consequences/Impacts and Mitigation Measures

Methodology

Data for the following analysis were taken from existing reports on local and site-specific geology. These reports include the following documents: Soil Survey of Trinity County, California, Weaverville Area (U.S. Department of Agriculture 1998); Trinity River Mechanical Channel Rehabilitation Pilot Project, Wetland Delineation (U.S. Bureau of Reclamation 2003); FEIS/EIR; SEIS/EIR; Trinity River Maintenance Flow Study Final Report (McBain and Trush 1997); Trinity County General Plan; and previously cited online and Geographic Information Systems (GIS) data sources. The proposed project was then analyzed against known geologic, geomorphic, and soil conditions present within the proposed project ESL.

Criteria for Determining Significance

Adverse impacts are considered significant if implementation of project alternatives could subject people, structures, or other resources to geologic or seismic hazards or disrupt, eliminate, or otherwise render unusable geologic or soil resources. Significant impacts would occur if the proposed project would:

- expose people, structures, or critical utility facilities to major geologic hazards (including seismicity, landslides, seiches, and liquefaction);
- involve changes in topography that would result in unstable soil conditions;
- increase erosion rates to a level at which associated sedimentation levels could affect streams, rivers, or other water bodies;
- interfere with existing, proposed, or potential development of mineral resources;
- disturb or eliminate unique geologic or topographic features; and/or
- be inconsistent with the 10 Trinity River healthy alluvial river attributes.

Impacts and Mitigation Measures

Table 3.3-1 summarizes the potential geology, fluvial geomorphology, and soils impacts resulting from construction and operation of the proposed project.

TABLE 3.3-1
SUMMARY OF GEOLOGY, FLUVIAL GEOMORPHOLOGY, AND SOILS IMPACTS
HOCKER FLAT

Impact	No-Action Alternative	Proposed Action	Alternative 1	Proposed Action with Mitigation	Alternative 1 with Mitigation
1. Implementation of the proposed project could result in the exposure of structures and people to geologic hazards, including ground shaking and liquefaction.	NI	NI	NI	NI	NI
2. Construction activities associated with the proposed project could potentially result in increased erosion and short-term sedimentation of the Trinity River.	NI	S	S	LS	LS
3. Implementation of the proposed project would interfere with existing, proposed, or potential development of mineral resources.	NI	LS	LS	N/A[1]	N/A
4. Implementation of the proposed project would be inconsistent with the 10 Trinity River healthy river attributes.	NI	LS	LS	N/A	N/A

Notes:
LS = Less than Significant S = Significant NI =No Impact N/A = Not Applicable
[1]Because this potential impact is less than significant, no mitigation is required.

Impact 3.3-1: Implementation of the proposed project could result in the exposure of structures and people to geologic hazards, including ground shaking and liquefaction. ***No Impact for No-Action Alternative, Proposed Action, and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, no construction activities would occur. There would be no new exposure of structures and people to geologic hazards.

Proposed Action, Alternative 1

Under the Proposed Action and Alternative 1, no permanent structures or facilities would be constructed. There would be no new exposure of structures and people to geologic hazards.

Mitigation Measures

No-Action Alternative, Proposed Action, Alternative 1

Since no significant impact was identified, no mitigation is required.

Significance After Mitigation: N/A.

Impact 3.3-2: Construction activities associated with the proposed project could potentially result in increased erosion and short-term sedimentation of the Trinity River. ***No Impact for No-Action Alternative; Significant Impact for Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, the proposed project would not be constructed. No construction-related erosion or associated sedimentation of the Trinity River would occur.

Proposed Action

Construction of the Proposed Action would temporarily result in soil disturbance, disruption of soil cohesion and armoring, and increased soil exposure to energetic weather conditions, which would increase the short-term potential for wind and water erosion. Increased wind and water erosion and associated downstream sedimentation within the Trinity River would occur if any soils were left exposed during the later winter and early spring periods of high precipitation. Impacts of turbidity levels specific to water quality degradation are analyzed in **Section 3.5**, Water Quality, and associated impacts to anadromous fisheries are analyzed in **Section 3.6**, Fishery Resources.

Susceptibility to erosion is controlled by several factors, including terrain, land use, vegetation, soil type, and local climate. A soil with high erodibility typically experiences more erosion than a soil with low erodibility. However, in the absence of an adverse condition (i.e., rainfall, lack of vegetation), a soil that is classified as highly erodible may not experience significant erosion. In general, significant soil erosion would occur only at locations with steep cuts or fills where a combination of fine sandy to silty soils occurs, which are difficult to revegetate following ground disturbance. Increased soil erosion and potential sedimentation is considered a significant impact.

Alternative 1

Similar to the Proposed Action, construction activities associated with Alternative 1 would temporarily result in soil disturbance, disruption of soil cohesion and armoring, and increased soil exposure to energetic weather conditions, which would increase the short-term potential for wind and water erosion. Increased wind and water erosion and associated downstream sedimentation within the Trinity River would occur if any soils were left exposed during the later winter and early spring periods of high precipitation.

Implementation of Alternative 1 will result in less disturbed area and substantially less volume in terms of material excavated and disposed.

The potential for erosion and associated sedimentation of the Trinity River would be less for Alternative 1 than for the Proposed Action due to the decrease in earthwork associated with removal of the riparian berms. Increased soil erosion and potential sedimentation is considered a significant impact.

Mitigation Measures

No-Action Alternative

Since no significant impact was identified, no mitigation is required.

Significance After Mitigation: N/A.

Proposed Action; Alternative 1

2a: Reclamation or its contractors shall implement the following measures throughout construction:

- Areas where ground disturbance will need to occur shall be identified in advance of construction and limited to only those areas that have been approved by Reclamation.
- All construction vehicular traffic shall be confined to the designated access routes and staging area.
- Disturbance shall be limited to the minimum necessary to complete construction activities.
- All supervisory construction personnel shall be informed of environmental concerns, permit conditions, and final rehabilitation specifications.

2b: Reclamation or its contractors shall prepare an erosion and sedimentation control plan (Storm Water Pollution Prevention Plan [SWPPP]. Measures for erosion control will be prioritized based on proximity to the river. Exposed areas within 50 yards of the river will be covered to reduce potential sediment from reaching the river. The following measures shall be used as a guide to develop this plan:

- Restore disturbed areas to pre-construction contours to the extent feasible;
- Salvage, store, and use the highest quality soil for revegetation;
- Discourage noxious weed competition and control noxious weeds;
- Clear or remove roots from steep slopes immediately prior to scheduled construction;
- Leave drainage gaps in topsoil and spoil piles to accommodate surface water runoff;
- To the extent possible, cease excavation activities during significantly wet or windy weather;
- Use bales and/or silt fencing as appropriate;
- Before seeding disturbed soils, work the topsoil to reduce compaction caused by construction vehicle traffic;

- Filter fences and catch basins shall be placed below all construction activities at the edge of the Trinity River and other surface water features to intercept sediment before it reaches the waterway. These structures shall be installed prior to any grubbing or grading activities.
- Spoil sites shall be located such that they do not drain directly into a surface water feature, if possible. If a spoil site drains into a surface water feature, catch basins shall be constructed to intercept sediment before it reaches the feature. Spoil sites shall be graded and vegetated to reduce the potential for erosion.
- Sediment control measures shall be in place prior to the onset of the rainy season and will be monitored and maintained in good working condition until disturbed areas have been revegetated. If work activities take place during the rainy season, then erosion control structures must be in place and operational at the end of each construction day.

Reclamation will develop the erosion and sedimentation control plan in conjunction with BLM and DWR and in cooperation with the CDFG, NOAA Fisheries, USFWS, and NCRWQCB. Reclamation's project manager will ensure the preparation and implementation of an erosion and sediment control plan prior to the start of construction.

Significance After Mitigation: Less than Significant.

Impact 3.3-3: Implementation of the proposed project would interfere with existing, proposed, or potential development of mineral resources. ***No Impact for the No-Action Alternative; Less than Significant for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, the proposed project would not be implemented, and the current mineral activities would continue unimpeded.

Proposed Action

The Proposed Action could result in a temporary reduction in or cessation of sand and gravel mining activities within the ESL. However, no long-term loss of supply of materials for aggregate mining is anticipated, and some of the spoils materials (Area U-3) produced by the rehabilitation excavations would be available to the mine operator, thus producing a probable net economic benefit to the operator and the county.

Alternative 1

Alternative 1 could result in a temporary reduction in, or cessation of, sand and gravel mining activities within the ESL. However, no long-term loss of supply of materials for aggregate mining is anticipated, and some of the spoils materials produced by the rehabilitation excavations would be available to the mine operator, thus producing a probable net economic benefit to the operator and the county. Overall, the amount of excavation and spoils would be reduced compared to the Proposed Action; therefore, both the possible period of interruption of mining activities and the potential economic benefit to the operator and the county would likely be less than under the Proposed Action.

Mitigation Measures

No-Action Alternative; Proposed Action; Alternative 1

Since no significant impact was identified for these alternatives, no mitigation is required.

Significance After Mitigation: N/A.

Impact 3.3-4: Implementation of the proposed project would be inconsistent with the Trinity River healthy river attributes. ***No Impact for the No-Action Alternative; Less than Significant for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, the proposed project would not be implemented. Implementation of the No-Action Alternative would not be consistent with the 10 Trinity River healthy river attributes.

Proposed Action

Under the Proposed Action, modification of the existing configuration of the Trinity River channel and floodplain would occur. Changes to the channel dimensions, bed and bank particle size distribution, and species abundance and distribution in the riparian vegetation community would occur. The modification is designed to allow the channel, banks, and floodplain to respond to flows in such a manner as to allow the channel environment to evolve to more closely resemble the natural distribution of flow depths and velocities, sediment abundance and size classes, and channel and riparian habitats. Consequently, while impacts to the alluvial environment would occur, they would be consistent with the 10 healthy river attributes and would enhance the long-term health of the riverine and riparian environment. Therefore, these impacts would not be significant. **Table 3.3-2** describes how the Proposed Action would be consistent with each of the 10 Trinity River healthy river attributes.

Alternative 1

Under Alternative 1, modification of the existing configuration of the Trinity River channel and floodplain would occur, but to a lesser degree than under the Proposed Action. Initially, physical changes to the channel would be confined to removal of the riparian berm. Although no activities are proposed to physically modify the dimensions of the channel, the removal of the berm would provide an opportunity for morphological change to occur over time. The foundation of the Healthy River approach outlined in the ROD indicates that changes in the location, size class, and distribution of sediment are expected, although the timing of these changes is dependent on the flow regime. In conjunction with changes to the channel, changes in the species abundance and distribution within the riparian vegetation community would occur. Alternative 1 is designed to allow the channel, banks, and floodplain to respond to flows in such a manner as to allow the channel environment to evolve to more closely resemble the natural distribution of flow depths and velocities, sediment abundance and size classes, and channel and riparian habitats. Consequently, while impacts to the alluvial environment would occur, they would be consistent with the 10 healthy river attributes, and would enhance the long-term health of the riverine and riparian environment. Therefore, these impacts would not be significant. **Table 3.3-2** describes how Alternative 1 would be consistent with each of the 10 Trinity River healthy river attributes.

TABLE 3.3-2
CONSISTENCY WITH THE TRINITY RIVER HEALTHY RIVER ATTRIBUTES:
HOCKER FLAT,
PROPOSED ACTION AND ALTERNATIVE 1

Attribute	Assessment of Consistency
1. Spatially complex channel geomorphology	Implementation of either alternative would significantly alter the Trinity River channel geomorphology. The Proposed Action and Alternative 1 are consistent with Attribute 1 and would enhance the geomorphic complexity within the proposed project ESL.
2. Flows and water quality are predictably unpredictable	Implementation of either alternative would not alter the predictability or variability of Trinity River flows. The Proposed Action and Alternative 1 are consistent with Attribute 2 and would improve the local hydraulics at the site.
3. Frequently mobilized channelbed surface	Implementation of either alternative would significantly and positively alter the mobility of the Trinity River channelbed surface. The Proposed Action and Alternative 1 are consistent with Attribute 3.
4. Periodic channelbed scour and fill	Implementation of either alternative would alter the periodicity of Trinity River channelbed scour and fill by exposing channelbed and bank materials that could be redistributed during higher flows. The Proposed Action and Alternative 1 are consistent with Attribute 4.
5. Balanced fine and coarse sediment budgets	Implementation of either alternative would not significantly alter the fine and coarse sediment budget of the Trinity River. The Proposed Action and Alternative 1 are consistent with Attribute 5.
6. Periodic channel migration	Implementation of either alternative would significantly alter Trinity River channel migration. The Proposed Action and Alternative 1 are consistent with Attribute 6.
7. A functional floodplain	Implementation of either alternative would alter the functionality of the Trinity River floodplain. The Proposed Action and Alternative 1 are consistent with Attribute 7.
8. Infrequent channel resetting floods	Implementation of either alternative would not alter the frequency of channel resetting floods in the Trinity River channel. The Proposed Action and Alternative 1 are consistent with Attribute 8.
9. Self- sustaining diverse riparian plant community	Implementation of either alternative would positively alter the sustainability of the Trinity River riparian community by enhancing the riparian environment to favor diverse riparian plant communities, and directly enhancing the diversity and species suitability of the riparian plants at the site. The Proposed Action and Alternative 1 are consistent with Attribute 9.
10. Naturally fluctuating groundwater table	Implementation of either alternative would not alter the natural fluctuation of Trinity River groundwater. The Proposed Action and Alternative 1 are consistent with Attribute 10.

Source: McBain and Trush 1997

Mitigation Measures

No-Action Alternative; Proposed Action; Alternative 1

Since no significant impact was identified for these alternatives, no mitigation is required.

Significance After Mitigation: N/A.

SECTION 3.4

Water Resources

3.4 Water Resources

This section describes the surface water hydrology and groundwater from both regional and local perspectives, as well as site-specific location hydraulics associated with the proposed project. The following evaluation is based on review of existing literature and data and field reconnaissance to identify local water resource conditions, including private wells within the ESL established for the proposed project. Geology, fluvial geomorphology, and soils issues are evaluated in **Section 3.3**. Fishery issues are evaluated in **Section 3.6**.

3.4.1 AFFECTED ENVIRONMENT/ENVIRONMENTAL SETTING

Regional Hydrology

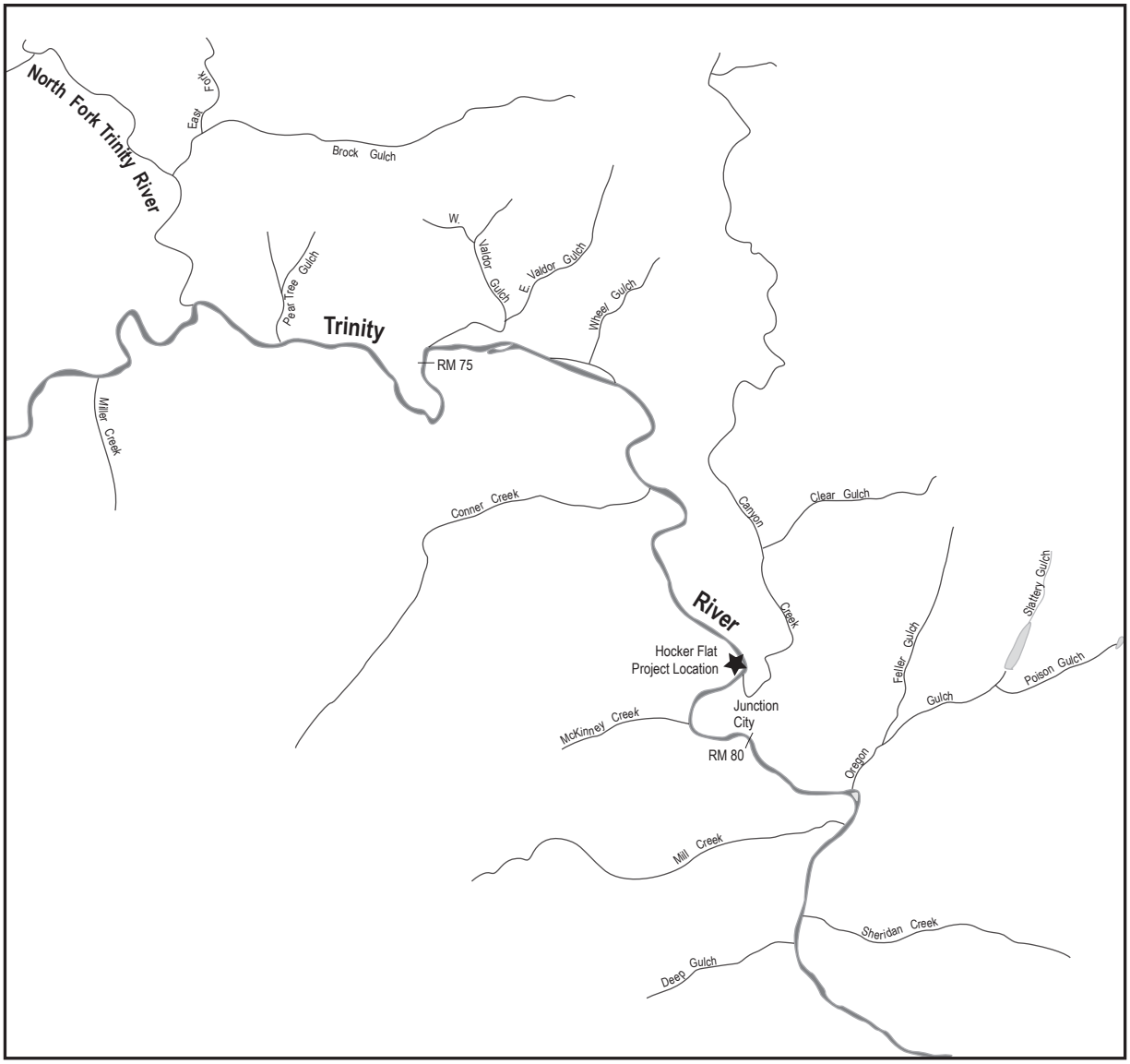
Surface Water Hydrology

The TRD is the major determinant of the hydrologic conditions in the channel of the Trinity River in the reach downstream of Lewiston Dam. Site hydrology associated with the proposed project is enhanced by accretion flow from Canyon Creek, which is a tributary to the Trinity River immediately upstream of Hocker Flat (**Figure 3.4-1)**. The Trinity River drains a watershed of approximately 2,965 square miles, about one-quarter of which is upstream of Lewiston Dam. Elevations range from 9,025 feet above mean sea level (msl) at Mount Eddy at the northeastern extremity of the watershed to 300 feet msl at the confluence of the Trinity and Klamath rivers. The climate is Mediterranean with an average precipitation of 62 inches per year; throughout the basin it varies from 30-70 inches and typically occurs as rain in the lower elevations and snow at the higher elevations.

The Trinity River is the largest tributary to the Klamath River. The mainstem Trinity River flows a total of 170 miles from its headwaters to its confluence with Klamath River at Weitchpec, 43.5 miles upstream from the Pacific Ocean (**Figure 3.4-2**).

Construction on the TRD commenced in 1957 and storage of Trinity River water began in 1960. Operation of the Lewiston and Carr Powerhouses commenced in April 1964. The TRD consists of a series of dams, tunnels, and powerplants that export water from the Trinity River basin into the Sacramento River basin. Trinity and Lewiston Dams currently regulate Trinity River flows below River Mile (RM) 112. With a capacity of 2.4 million-acre feet (maf), Trinity Reservoir is the largest component of the TRD. Releases from Trinity Reservoir are re-regulated in Lewiston Reservoir prior to release downstream into the Trinity River. Lewiston Reservoir also acts as a forebay for the trans-basin export of water into Whiskeytown Reservoir via the Clear Creek Tunnel. Lewiston Dam marks the upstream limit of anadromous salmonid access.

The reach of the Trinity River downstream of Lewiston Dam to the confluence with the North Fork Trinity River is most affected by the changes in hydrologic regimes imposed by diversion through the TRD. Relatively little accretion flow is contributed by tributaries to this reach, and average annual flow volumes at Lewiston Dam have historically been reduced as much as 90 percent**,** compared to pre-dam



River Mile* (RM)

* River mile - the number of river miles upstream from the Trinity River's confluence with the Klamath River.

F:Projects\10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River/Hocker Flat Project\Graphics\Chapter 3\Fig_3.4-1_Local_Hydrology.pdf Source: Trinity River Flow Evaluation Report, 1999 06/30/04 TLA

Figure 3.4-1
Local Hydrology and Tributaries

F:\Projects\10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River\Hocker Flat Project\Graphics\Chapter 3\Fig_3.4-2_Regional_Hydrology.pdf Source: Trinity River Flow Evaluation Report, 1999 06/30/04 TLA

Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

North State Resources, Inc.

Figure 3.4-2
Regional Hydrology

conditions, by TRD diversions. Consequently, this reach has been subjected to the substantial alteration of channel form and function, the greatest deviation from the 10 healthy alluvial river attributes.

Prior to the completion of the TRD, flows in the Trinity River were highly variable, ranging from summer flows of 25 cubic feet per second (cfs) to extreme winter events with instantaneous peak flows greater than 100,000 cfs. The maximum recorded flow at Lewiston was 71,600 in 1955. Annual hydrographs typically followed a seasonal pattern of high winter and spring flows followed by low summer and fall flows. Total annual flow volumes at Lewiston ranged from 0.27-2.7 maf, with an average of 1.2 maf.

From 1962 to 1979, CVP diversions delivered nearly ninety percent of the Trinity River annual water yield (above Lewiston) into the Sacramento River for urban and agricultural use[1]. After 1979, river releases were increased from 110,000 to 340,000 acre-feet/year (af/yr), decreasing the diversion percentage by roughly seventy percent.

Since operation of the dam in 1964, an average of 74 percent of the river's flow or about 988,000 acre-feet (af)s has been exported annually. In recent years (1985-1997), annual exports have decreased to an average of 732,400 af. From 1964-1992, post-dam Trinity River flows at Lewiston had been as low as 121,000 af annually (afa) or approximately 10 percent of pre-dam volumes. From 2001-2004, releases to the Trinity River were dictated by the judgment entered by Judge Oliver Wanger in the federal court litigation described in **Section 1.1**. Under his orders, in critically dry years, releases are total 368,500 afa, while in all other year types (dry, normal, wet, and extremely wet), releases of 452,600 afa are prescribed. Former Secretary of Interior Babbitt's December 19, 2000, ROD had provided higher numbers for normal years (646,900 afa), wet years (701,000 afa), and extremely wet years (815,200). In early 2004, the Hoopa Valley Tribe petitioned the U.S. Circuit Court of Appeals for the Ninth Circuit for an emergency order to release a normal year annual flow in 2004. (The winter of 2003-2004 qualified as a wet year under the terms of the ROD.) This request was granted, and on April 28, 2004, Reclamation released a flow schedule for 2004 that reflected this order. Peak releases of 6,000 cfs from Lewiston Dam occurred from May 16 to May 25, gradually ramping down to 2,000 cfs by June 18, and finally reaching the summer base level of 450 cfs by July 22.

Based on the July13, 2004 opinion, the flow regime described in the 2000 ROD has been reinstated, pending additional judicial review under reconsideration or appeal. According to the terms of the CVPIA, long-term flows cannot go lower, regardless of the 2000 ROD, than 340,000 af annually. Although releases of 340,000 to 452,600 afa represent significant increases compared with the releases made during the period from 1965 to 1992, these higher flows still represent drought conditions for the pre-TRD Trinity River. Based on records of pre-dam flows at Lewiston and post-dam inflow to Trinity Reservoir, 340,000 afa approximates the third lowest flow from 1912 to 1964.

[1] The percentage of the Trinity River diverted to the CVP is the percentage of total reservoir release, not the percentage of the inflow that is diverted.

When certain storage levels in Trinity Lake are exceeded during the period from November 1 through March 31 (**Table 3.4-1**), Reclamation is required to release additional water from Trinity Dam to either the Trinity River or the Clear Creek Tunnel, according to the Central Valley Project Operations Criteria and Plan (OCAP) (Bureau of Reclamation, 1993). If water is released into the Trinity River from Lewiston Dam in excess of minimum fishery releases, it does not count toward the minimum fishery flow.

TABLE 3.4-1
TRINITY LAKE SAFETY OF DAMS CRITERIA
Full Pool is 2370' (2,448,000 af = Top of Glory Hole Spillway)

Target Date	Maximum Storage in AF <Elevation, msl> (Approx. feet below full)
11/1 - 12-31	1,850,000 af <2331' > (39 feet below full)
1/1 - 1/31	1,900,000 af <2334' > (36 feet below full)
2/1 - 2/29	2,000,000 af <2341' > (29 feet below full)
3/1 - 3/31	2,100,000 af <2347.6' > (22.4 feet below full)

Additionally the OCAP states that:

- if the storage approaches 2,100,000 af and hydrologic conditions indicate a high probability of exceeding that limit, releases to the Trinity River should be increased to 1,200 ft3/s (releases through Carr Powerplant should already be at maximum capacity);
- if the storage is at or near 2,100,000 af with a certainty of exceeding that limit, releases to the Trinity River should be increased to 2,500 ft3/s;
- if the storage is above 2,100,000 af, releases from Trinity Dam should be increased to inflow or outlet works capacity, whichever is less; and
- when considering increases to the Trinity River release, all meteorological and hydrologic conditions should be considered. Under favorable circumstances, release changes should be scheduled to minimize downstream fluctuations in flow.

The flood season within the Trinity River basin is typically between October and April, when over 90 percent of the annual precipitation falls. Floods on the Trinity River are controlled to some extent by the TRD. The greatest flood recorded for the area occurred in December 1955, although the ungaged flood of 1861-1862 likely exceeded all known historical events. Floods have also been recorded for the years 1926, 1928, 1937, 1940, 1941, 1948, 1950, 1958, 1960, 1963, 1964, 1972, and 1974 (FEMA 1996) and 1997.

From Lewiston Dam downstream, a number of major tributaries provide accretion flow to the Trinity River, before it enters the Klamath River. These tributaries include Rush Creek, Indian Creek, Weaver Creek, Canyon Creek, the North Fork Trinity River, Big French Creek, New River, South Fork Trinity River, Willow Creek, Horse Linto Creek, Tish Tang Creek, and Mill Creek.

The pattern of winter precipitation increases steadily westward in the basin, as favorable orographic conditions extract more moisture from Pacific weather fronts closer to the coast, and rain shadow effects reduce precipitation in the eastern portion of the watershed. Consequently, winter peak flows in the downstream portions of the mainstem are much higher than those upstream, with greatly reduced influence from the metering of flows by the TRD.

Trinity River flows at the Hoopa gage average around 10,000 cfs during January through March. A peak flow volume of 122,000 cfs was recorded at the Hoopa gage during the January, 1997 flood, while less than 7,000 cfs were released from Lewiston Dam. During the seasonal dry period, following peak spring snowmelt from high mountainous areas of the watershed, flow accretion and its influence on mainstem hydrology decreases dramatically. During summer and fall baseflow periods, tributary accretion flows contribute minimally to low release volumes from the TRD. In general, during low flow periods flow accretion is minimal from Lewiston Dam to Canyon Creek, and becomes most significant downstream of the confluence with the North Fork Trinity River. However, during lower recurrence interval floods, and also for lower exceedence probability average daily flows, tributary accretion substantially exceeds dam release flows within 15-20 miles downstream of Lewiston Dam (McBain and Trush 1997). Tributary flow influence on this reach during flood events and as a proportion of the high range of average daily flows is a reversal of pre-dam conditions, where mainstem flows would almost always exceed the contribution of tributaries. Despite tributary contributions, flood frequency and peak flows in the uppermost reaches of the mainstem below the TRD are greatly reduced compared to pre-dam conditions.

Groundwater

Most usable groundwater in the mountainous Trinity River basin occurs in widely scattered alluvium-filled valleys, such as those immediately adjacent to the Trinity River. These valleys contain only small quantities of recoverable groundwater, and therefore, are not considered a major source. A number of shallow wells adjacent to the river provide water for domestic purposes, although none exist within the ESL established for the project.

Local Hydrology – Hocker Flat

Surface Water Hydrology

The Trinity River within the ESL consists of a single channel that has become confined within riparian berms. The up- and downstream extremities of the right bank within the ESL occupy the SR 299 embankment. The left bank above the berm has a large area of floodplain, portions of which are occupied at high flows. A smaller area of floodplain is present on the right bank, in the inflection/point bar area of the gentle meander bend. The aquatic habitat within the active channel at the site consists primarily of run and low-gradient riffle types, with minor areas of pools and glides present. Canyon Creek, a major tributary channel which enters the mainstem channel immediately upstream of the ESL provides a substantial contribution (flow and sediment) to the Trinity River

As described above, during certain component periods of the annual hydrograph, accretion flow from tributaries substantially augments the TRD releases by RM 79.1, at the upstream end of the site. The timing of peak flow and ramping-down releases under the ROD corresponds to the typical annual period of peak snowmelt floods in the watershed for each of the various water year classes. Extrapolating roughly from the average flow duration curves and flood frequency models presented by McBain and Trush, it is reasonable to assume that in most years, flow accretion between Lewiston Dam and Hocker Flat would approximately double the TRD releases, resulting in the following "ROD release" driven (May peaks) estimated peak flows at the site:

- Extremely Wet Year – 22,000 cfs (TRD maximum release of 11,000 cfs)
- Wet Year – 17,000 cfs (TRD maximum release of 8,500 cfs)
- Normal Year – 12,000 cfs (TRD maximum release of 6,000 cfs)
- Dry Year – 9,000 cfs (TRD maximum release of 4,500 cfs)
- Critically Dry Year – 3,000 cfs (TRD maximum release of 1,500 cfs)

Hydrographs of ungaged tributaries, including Canyon Creek, were estimated using regional hydrologic models. These data will greatly enhance the ability to analyze the extent and period of inundation of features at the site pre- and post rehabilitation. While designed to evaluate the impact of the proposed project on Trinity River flooding, **Appendix F** will be useful in evaluating the functionality of the rehabilitation plan to achieve the goals of the proposed project, i.e. enhancing the 10 healthy alluvial river attributes and consequently improving salmonid habitat. The implementation of the proposed project would provide an opportunity to use the hydraulic model to evaluate the rehabilitated channels' ability to mobilize and redistribute sediments, maintain diverse riparian habitat, and improve the functionality of the floodplain.

Groundwater

Junction City Elementary School has a groundwater well in the immediate vicinity of the ESL established for the proposed project. It is not anticipated that any water supply facilities will be affected by the proposed project.

Groundwater water table interactions with the wetted channel include groundwater contributions to baseflow during low-flow periods, and water table elevation related to increased head in the channel during higher flows. Given the alluvial nature of Hocker Flat and the relative abundance of coarse substrate within these alluvial deposits, dynamic hyporheic flow is likely to occur through these materials during some or all of most water years. Currently existing off-channel wetlands appear to be responsive to changes in stage in the mainstem channel, although the uncertainties associated with variables such as time lag and/or attenuation, substrate composition and evapotransporation limit the ability to predict these changes. Chemical and biological components of groundwater exchange between wetlands, the hyporheic zone, the water table and the channel may have implications for water quality that would be affected by the proposed project.

Floodplain Hydraulics

The floodplain of the Trinity River is identified in the *Flood Insurance Study, Trinity County, California and Incorporated Areas* by the Federal Emergency Management Agency (FEMA). Actual floodplain designations are in the accompanying Flood Insurance Rate Maps (FIRM). **Figure 3.4-3** represents the delineation of the FIRM map as it pertains to the proposed project. The floodplain designations for the Trinity River in the general vicinity of the proposed project were identified from a flood study performed by the Corps (U.S. Army Corps of Engineers 1976). The countywide FIRM map is effective from August 16, 1988 forward; the map section that includes the proposed project was revised effective April 17, 1996. The proposed project ESL, excluding the upland area along the southwest boundary of the ESL, is within the 100-year flood plain otherwise known as the base flood elevation (BFE), and is designated within special flood hazard areas. Two different special flood hazard areas occur within the site (**Figure 3.4-3)**. Approximately the southeast third of the site is in Zone AE. BFE's have been determined for this zone by FEMA; the 1,450-foot and 1,455-foot BFE lines pass through the site in this zone.

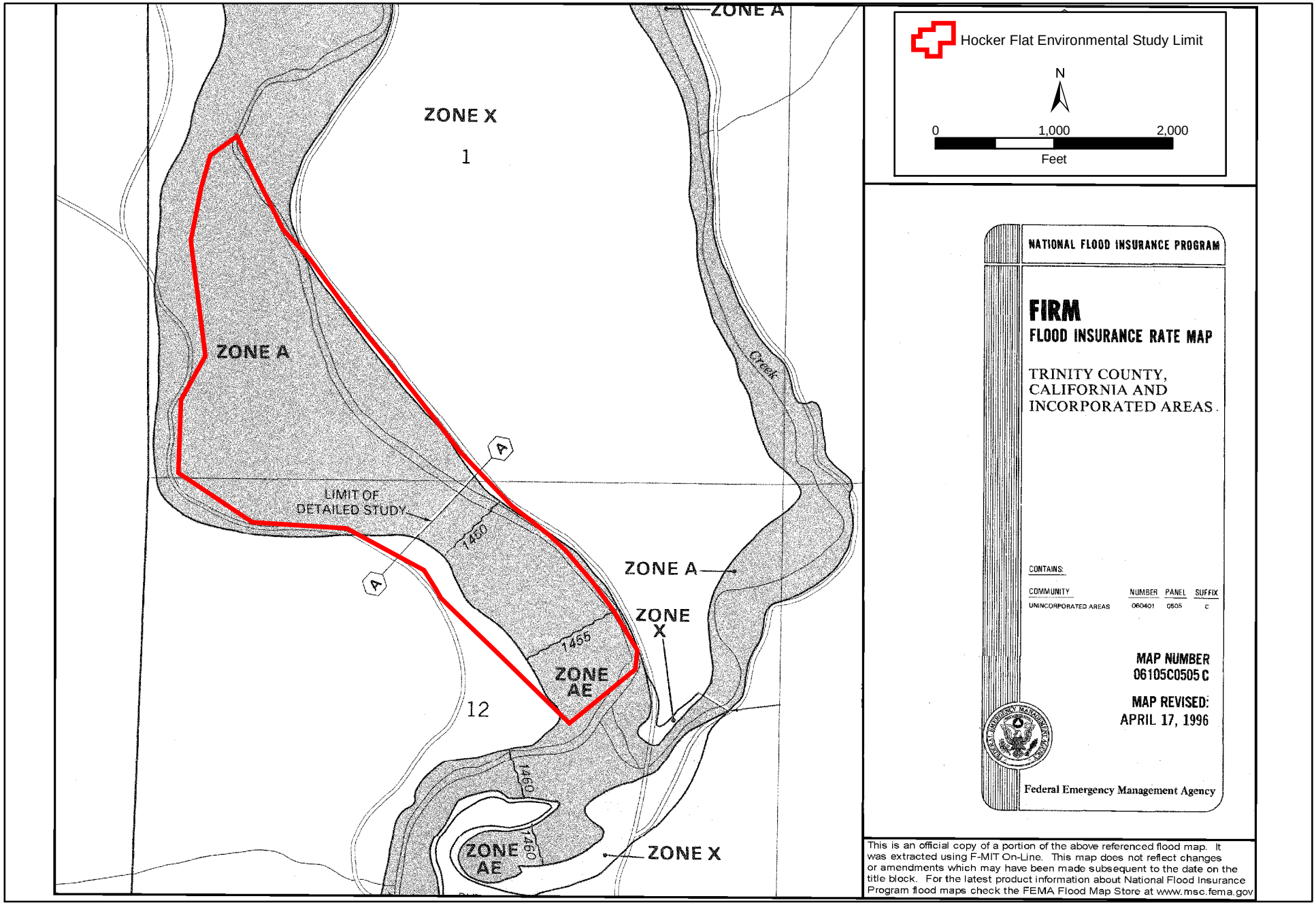
Northwest of this zone, the ESL is in Zone A, where BFE's have not been established by FEMA. No portion of the ESL is designated as falling within a Regulatory Floodway. Portions of Red Hill Road on the west side of the ESL will be inundated during the 100-year flood based on the 1976 Corps study.

To gage the effect of the project on the BFE, water surface profiles for the existing and proposed ground surfaces were developed as part of the hydraulic study. These profiles show that the Proposed Action will not increase the base flood elevation in the area designated Zone AE. After project completion, a new flood study will be performed using as-built topography and the latest hydrology. This new flood study will be used to reestablish base flood elevations in Flood Zone AE, and will be submitted through the County to FEMA.

The flood elevations defined by the FIRM maps are based on the National Geodetic Vertical Datum of 1929. The vertical datum used for modeling and design of the proposed project is North American Datum (NAD) 83 State Plane Coordinate System, therefore elevations will differ between the FIRM map lines and those prepared for the proposed project. Recent studies elsewhere on the river indicate that the flood magnitude determined by the 1976 Corps study may underestimate the actual flood magnitude. As this project and other rehabilitation projects are implemented in the future, updated hydrology and topography could be used to revise the existing flood insurance study and flood insurance rate maps. This issue will be addressed at the appropriate time by FEMA and the County. Under Trinity County's Floodplain Management Ordinance, projects within the floodplain are not to increase the 100-year flood elevations, (BFE) by more than 12 inches. This criterion was used to develop the engineering design of the proposed project.

A Location Hydraulics Study (**Appendix F**) has been conducted by DWR, in conjunction with Reclamation staff. This study analyzes water surface elevations and channel velocities for design flows associated with the proposed project. This study demonstrates what, if any, effects the proposed project alternatives will have on base flood elevations.

F:\Projects\10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River\GIS\Hocker Flat\Fig_3.4-3_100-yr_Floodplain.mxd Source: NSR, Inc.; FIRM 06-29-04 TLA



Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

North State Resources, Inc.

Figure 3.4-3
100-year Floodplain and Flood Insurance Rate Map

3.4.2 REGULATORY FRAMEWORK

Federal

Federal Emergency Management Agency

Projects encroaching on a designated floodplain, as established by the FEMA, are required to prepare a Location Hydraulic Study to assess risk in compliance with Executive Order 11988. A Location Hydraulics Study for the proposed federal proposed project is included as **Appendix F** as set forth in FEMA procedures. This Location Hydraulic Study evaluates and discusses risks and impacts of base floodplain encroachment. The purpose of the evaluation is to ensure that all projects avoid significant floodplain encroachments where practicable.

Trinity County is a participant in the National Flood Insurance Program (NFIP). As a participant in the NFIP, the County is eligible for federal flood disaster assistance funds including damages to roads, bridges, and other public works infrastructure. In addition, federal flood insurance is made available to all property owners throughout the county. In return, the County is required to enforce at a minimum, the standards established by the FEMA. One of these standards requires no rise resultant from construction in the BFE for areas within a regulatory floodway. It also includes minimum standards for areas where no floodways have been established such as the Trinity River. These standards state that no development shall be permitted unless it can be shown that the anticipated development will not increase the water surface elevation of the base flood more than one foot at any point within the community. Minimum standards also require that a Letter Of Map Revision be submitted to FEMA to correct the Flood Insurance Rate Map if base flood elevations increase or decrease.

Federal Executive Order 11988 (Floodplain Encroachment)

The following eight-step decision-making process, as defined by the federal Water Resources Council for implementing Executive Order 11988, will need to be addressed by Reclamation, BLM, and DWR as part of the approval process for the proposed project. The status of each step is also provided.

Step 1: Determine if the Proposed Action is in the base floodplain.

The entire riverine portions and upland area U-5 for both the Proposed Action and alternative 1 are within the floodplain.

Step 2: Provide for public review. The hydraulic analysis prepared by DWR for the proposed project will be made available to the public upon request.

Step 3: Identify and evaluate practicable alternatives to locating in the floodplain.

There are no practicable alternatives. By its nature, the proposed project cannot be relocated, although certain activities (material disposal) were relocated outside the floodplain.

Step 4: Identify the impact of the Proposed Action. Environmental impacts of the proposed project alternatives are detailed in **Chapter 3** and **4** of this EA/DEIR.

Step 5: Minimize threats to life and property and to natural and beneficial floodplain values; restore and preserve natural and beneficial floodplain values. Impacts of the proposed project, including recommended mitigation measures, are presented in **Chapter 3** and **4** of this EA/DEIR.

Step 6: Reevaluate alternatives. The preferred alternative will be identified after public review and comment on the EA/DEIR.

Step 7: Issue findings and a public explanation. Findings will be published upon completion of the EA/Final EIR.

Step 8: Implement the action. The proposed project would be constructed after final environmental clearance has been received, all permits have been issued by responsible agencies, and financing has been secured.

Local

Trinity County Floodplain Management Ordinance

The Trinity County Floodplain Management Ordinance, found in Section 29.4 of the County Zoning Ordinance, requires a Floodplain Development Permit for projects that alter the Trinity River floodplain on private lands within the jurisdiction of Trinity County. The principal requirement of the permit is certification by a registered professional engineer or architect that construction or replacement of bridges, roadways, and bank slope protection devices will not adversely affect the flood-carrying capacity of any altered portion of the watercourse, and will not cumulatively raise the 100-year floodplain elevations by more than one foot in the project area. The Ordinance also requires notification of adjacent communities, the CDF&G, the Corps, the NCRWQCB, and DWR prior to any alteration or relocation of a watercourse, and the submission of evidence of such notification to the Federal Insurance Administration and FEMA.

The Trinity County Floodplain Management Ordinance includes the following goals and policies:

Flood Hazard (FH) Zoning District

Applicability of Flood Hazard (FH) Zoning District

All of the following area shall be zoned FH:

A. Areas designated as a Regulatory Floodway or Zone AE on FEMA's Flood Insurance Rate Maps (FIRM)

B. Areas designated on the FIRM as Zone A along the Trinity River

C. Areas identified as 100-year flood plain on parcel maps and final maps filed for record in accordance with the Trinity County Subdivision Ordinance

D. Areas identified as 100-year flood plain in a use permit condition or other county entitlement

E. Areas identified as 100-year flood plain by a flood study approved by the County Board of Supervisors

Uses Permitted

A. Agricultural uses not involving the construction of structures or other uses which would limit the flow of flood waters

B. Placement and repair of three strand smooth-wire or barbed-wire fencing

C. Maintenance and repair of existing bridges, culverts, and roadways

D. Recreational mining or dredging, not subject to the Surface Mining and Reclamation Act (SMARA)

Uses Permitted Subject to First Securing a Floodplain Development Permit

The following uses may be permitted subject to first securing a Director's Issued Floodplain Development Permit, and, where applicable, complying with Regulatory Floodway provisions excerpted from Section 2.5 of the Trinity County Floodplain Management Ordinance as listed below.

A. Construction of replacement of bridges, culverts, roadways, bank slope protection devices and levees, and fisheries or wildlife habitat improvement projects shall be allowed, provided a certification by a registered professional engineer is provided demonstrating that the net effect of the project, in conjunction with all other projects developed on the affected stream reach since the effective date of the FIRM for said stream, will not cumulatively increase flood waters of the stream by more than one foot in the project area. Such certification shall be provided to the Floodplain Administrator.

B. Substantial improvements to existing structures, subject to compliance with development standards in the Flood Hazard Overlay (FHO) zoning district.

C. Development of structures within the FH zoning district may be permitted upon first securing Floodplain Development Permit, provided that there are no building sites lying outside of the FH zoning district. If approved, development shall comply with development standards in Section 3.4.

Uses Permitted in Regulatory Floodways

A "Regulatory Floodway," lying within an area of special flood hazard as shown on a FIRM map, is an extremely hazardous area due to the velocity of floodwaters, which carry debris, potential projectiles, and erosion potential. The following provisions apply to Regulatory Floodways:

A. Encroachments, including fill, new construction, substantial improvement, and other new development are prohibited within floodways unless certification by a registered professional engineer is provided demonstrating that encroachments shall not result in any increase in [the base] flood elevation during the occurrence of the base flood discharge.

B. If Section 2.5A is satisfied, all new construction, substantial improvement, and other proposed new development shall comply with all other applicable flood hazard reduction provisions in Section 3.4.

C. If Section 2.5A cannot be satisfied, and the Floodplain Administrator determines that no practicable alternative exists to revising the boundaries of the previously adopted floodway, then the Floodplain Administrator may request an amendment to the floodway map, in compliance with 44 CFR Section 65.7, "Floodway Revisions."

Development Standards for Lands Lying Within the Flood Hazard (FH) Zoning District

Development standards for the allowable uses listed above for lands lying within the FH zoning district are the same as development standards for lands lying within the FHO zoning district (Section 3.4).

Flood Hazard Overlay (FHO) Zoning District

Applicability of the Flood Hazard Overlay (FHO) Zoning District

The following areas shall be zoned FHO:

All of those lands as designated on FEMA's FIRMs as Zone AO or AH (areas of shallow flooding), or lands designated as Zone A which are not included in a Flood Hazard zoning district.

Permitted uses:

All uses permitted in the underlying zone shall be permitted in the FHO district, provided that a Floodplain Development Permit shall be obtained prior to commencement of construction and issuance of any other county entitlement.

Development Standards for Lands Lying Within the Flood Hazard Overlay (FHO) Zoning District

The following standards shall be applied to any development proposed within a FHO zoning district or within a special flood hazard area within which development is permitted by this ordinance.

A. Anchoring

1. All new construction and substantial improvements shall be anchored to prevent flotation, collapses, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, and certified by a registered professional architect or engineer.

B. Construction Materials and Methods

1. All new construction and substantial improvements shall be constructed with flood resistant materials as specified in FEMA Technical Bulletin TB 2-93, and utility equipment resistant to flood damage.

2. All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.

3. All new construction and substantial improvements shall be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

4. All new construction and substantial improvements within zones AH or AO shall be constructed so that there are adequate drainage paths around structures on slopes to guide floodwaters around and away from proposed structures.

C. Elevation and Floodproofing

1. New construction and substantial improvement of any structure shall have the lowest floor, including basement:

   a. in an AO zone elevated above the highest adjacent grade to a height equal to or exceeding one foot above the depth number specified in feet on the FIRM, or elevated at least three feet above the highest grade if no depth number is specified; and

   b. in all other zones (AE, AH, and A 1-30), elevated not less than one foot above the base flood elevation. Nonresidential structures may meet the standards in Section 3.4.C.2.

2. Nonresidential construction shall be elevated in conformance with Section 3.4.C.1, or together with attendant utility and sanitary facilities:

   a. be flood proofed so that below the elevation recommended under section 3.4.C.1, the structure is watertight with walls substantial impermeable to the passage of water;

   b. have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and

   c. be certified by a registered professional engineer or architect that the standards of the subsection are satisfied. Such certification shall be provided to the Floodplain Administrator.

D. Fill and other Floodplain Encroachments

All fill and other encroachments shall be certified by a registered professional engineer or architect not to increase the Base Flood Elevation more than 12 inches. Such certification shall be provided to the Floodplain Administrator.

Trinity County General Plan Goals and Objectives

The Trinity County General Plan contains goals and policies designed to guide the future physical development of the county, based on current conditions. The general plan contains all the state-required elements, including community development and design, transportation, natural resources, health and safety, noise, housing, recreation, economic development, public facilities and services, and air quality. The following goals and policies, relative to water resources issues associated with the proposed project were taken from the applicable elements of the general plan (Trinity County 2001), including the Junction City Community Plan (1987).

County Wide Goals and Objectives

Safety Element

The following goals and objectives and policies are applicable to the proposed project.

Flood Hazard Goal

Reduce loss of life and property by establishing development standards for areas subject to flooding.

- Require all development to meet federal, state and local regulations for floodplain management protection; including the encouragement of upgrading existing structures to meet adopted standards
- Require all development to meet the development standards of the National Flood Insurance Act regulations in Title 44 of the Code of Federal regulations, Section 60.3, as implemented through the County Zoning Ordinance section 29.4
- Maintain or return to Open Space lands subject to flooding

Junction City Community Plan Goals and Objectives

This plan consists of approximately 42 square miles (27,000 acres) of area centered on the Trinity River from Maxwell Creek to slightly downstream from Helena.

Hazards

This element of the Plan is intended to protect both private and public investments in structures and related improvements from flood hazards. The potential for flooding has historically been the worst natural disaster within the Plan area. Therefore, the following goal is applicable to this proposed project:

Goal: To protect public and private developments from flood hazards. Associated objectives include:

- Assurance that future developments do not create flood hazards either to themselves or to downstream developments
- Incorporation of Flood Hazard Zoning on those areas of the Plan subject to flooding

Project Consistency with the Trinity County General Plan

This section compares the goals and objectives of the Proposed Action to the relevant local planning policies (i.e., Trinity County General Plan, Junction City Community Plan) to determine if there are any inconsistencies.

As described in **Chapter 1**, Introduction, the proposed project would:

- increase the diversity and area of habitat for salmonids, particularly habitat suitable for rearing;
- increase rearing habitat for juvenile salmonids, including coho, Chinook and steelhead;

- increase structural and biological complexity of habitat for various species of wildlife associated with riparian habitats;
- increase hydraulic and fluvial geomorphic diversity and complexity;
- provide a demonstration project to evaluate the fate and transport of mercury related to rehabilitation/restoration projects;
- measure/demonstrate the ecological response to changes in flow regimes morphological features and aquatic, riparian and upland habitats; and
- provide a self-maintaining project independent of any future TRD flows.

The following project objectives apply to the project's lead/responsible agencies for CEQA purposes:

- Evaluate changes in channel geometry in response to constructing channel and floodplain features designed for the river's current hydrologic regime
- Evaluate the evolution of channel planform features in response to designing and implementing the project at a river segment (1-mile) scale
- Evaluate the biological response (aquatic, riparian, upland) to changes in the physical environment, and incorporate this information into the AEAM Program
- Conduct a preliminary assessment of the fate and transport of mercury in response to restoration activities in a historic mining district
- Locate the project downstream of Canyon Creek to ensure that natural tributary accretion to mainstem flows has a higher likelihood of maintaining the site prior to implementation of the ROD recommended flow regime
- Provide safe and reasonable access to the site for project planning, implementation, and monitoring
- Develop partnerships with willing participants, and encourage positive landowner interest and involvement
- Design the project to function with the river's current hydrology estimated at the site
- Integrate known fluvial and ecological theories and relationships with the site's measured physical and biological attributes and evaluate response over a definitive time frame
- Minimize in-stream work to reduce construction-related impacts, maximize the river's ability to rehabilitate itself during high flows, and reduce implementation cost and complexity
- Attempt to preserve unique and valuable geomorphic and biological features wherever practicable (i.e., hydraulic controls, high-quality spawning or adult holding habitat)

The following objectives apply to the proposed project's responsible and trustee agencies, including the NCRWQCB, the SLC, the CDFG, and the SWRCB:

- Comply with the Water Code to ensure the highest reasonable quality of waters of the state and allocate those waters to achieve the optimum balance of beneficial uses
- Protect the public trust assets of the Trinity River watershed
- Conserve, restore, and manage fish, wildlife, and native plant resources
- Comply with the Water Quality Control Plan for the Hoopa Valley Indian Reservation to preserve and enhance water quality on the Reservation, and to protect the beneficial uses of water

These project objectives are consistent with the applicable general plan goals and policies summarized above.

3.4.3 ENVIRONMENTAL CONSEQUENCES/IMPACTS AND MITIGATION MEASURES

Methodology

The proposed project is designed to avoid placement of any excavated material below the BFE. The HECRAS model was used to evaluate the alternatives described in Chapter 2, and a design criteria was developed to ensure that no proposed project activities would result in an obstruction to flow or an increase in the BFE. The two action alternatives evaluated in this document would be designed to ensure that no increase in base flood elevation over what currently exists would occur.

Also, to reduce the risk of loss, injury or death of individuals within or adjacent to the ESL, specific flood frequencies flows and corresponding water surface elevations were calculated for the proposed project. This was necessary due to the fact that specific hydrologic and hydraulic data were not available from the FEMA FIRM information and the age and datum used in the 1976 Corps study. The Location Hydraulic Study (**Appendix F**) prepared by lead agencies has identified 100-year frequency flood flows based on additional hydrologic data and assuming the full implementation of the flow regime identified in the ROD (DOI 2000).

To assess the sensitivity of the river to placement of material below the BFE, a hydraulic analysis was performed for each alternative to simulate the potential effects of the proposed project (**Appendix F**). The analysis was performed to assess the sensitivity of the river to encroachments, not to assess the feasibility of a specific design.

Significance Criteria

The proposed project would result in a significant impact to hydraulics if one of the following conditions occurred:

- an increase in the base floodwater surface elevation of greater than 1 foot (12 inches);
- substantial alteration of the existing drainage pattern of a site or area, including through the alteration of the course of a stream or river, or substantial increase of the rate or amount of surface runoff in a manner that would result in flooding or- or off-site; or

- exposure of people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

The proposed project would result in a significant impact to groundwater if one of the following conditions occurred:

- a long-term decline in groundwater elevations (or a net reduction in groundwater storage) due to interference with recharge;
- detectable land subsidence;
- violation of any water quality standards of waste discharge requirements intended to protect groundwater quality; or
- detectable degradation of groundwater quality.

Groundwater impacts were assessed at the scale of a groundwater basin or sub-basin. The significance of declining (or increasing) water levels depends in part on the duration and permanence of the impact. Because groundwater elevations fluctuate naturally due to changes in rainfall, short-term changes in groundwater elevations were not considered significant.

Impacts and Mitigation Measures

Table 3.4-2 summarizes the potential water resources impacts resulting from the proposed project.

TABLE 3-4.2
SUMMARY OF WATER RESOURCES IMPACTS
HOCKER FLAT

Impact	No-Action Alternative	Proposed Action	Alternative 1	Proposed Action with Mitigation	Alternative 1 with Mitigation
1. Implementation of the proposed project could result in a temporary or permanent increase in base floodwater surface elevation.	NI	LS	LS	N/A[1]	N/A
2. Implementation of the proposed project could result in permanent decline in groundwater elevations, or permanent change in groundwater quality.	NI	LS	LS	N/A	N/A
3. Implementation of the proposed project may expose people or structures to a significant risk of injury, death or loss involving flooding.	NI	LS	LS	N/A	N/A

Notes:
NI = No Impact LS = Less than Significant N/A = Not Applicable
[1]Because this potential impact is less than significant, no mitigation is required.

Impact 3.4-1: Implementation of the proposed project could result in a permanent increase in base floodwater surface elevation. ***No Impact for the No-Action Alternative; Less Than Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, the Trinity River floodplain within the ESL established for the proposed project ESL would not be altered and existing base floodwater surface elevations would remain the same.

Proposed Action

Under the Proposed Action, the floodplain of the Trinity River will be reduced as a result of activities, including excavation on the floodplain. The hydraulic analysis indicates that by removing all the excavated material from the riverine rehabilitation areas and placing it above the BFE (upland rehabilitation areas) there will be no increase in the FEMA BFE. Therefore, implementation of the Proposed Action will not result in a significant impact to adjacent structures by increased flood risk.

Temporary storage of excavated materials or temporary placement of construction equipment or materials in the channel or floodplain at the site could affect hydraulics to temporarily elevate the base floodwater surface elevation.

Alternative 1

Under Alternative 1, excavation of the riparian berm within the riverine rehabilitation areas would occur, however, no floodplain excavation would occur. The hydraulic analysis indicates that by removing all the excavated material from the riverine rehabilitation areas and placing it above the BFE (upland rehabilitation areas) there will be no increase in the FEMA BFE. Temporary changes in the BFE associated with Alternative 1 would be similar to or less than those associated with the Proposed Action and be less than significant.

Mitigation Measures

No-Action Alternative, Proposed Action and Alternative 1

NA

Significance after Mitigation: Less than Significant.

Impact 3.4-2: Implementation of the proposed project could result in permanent decline in groundwater elevations, or permanent changes in groundwater quality. ***No Impact for the No-Action Alternative; Less than Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, the proposed project would not be implemented, and no effects on local groundwater levels would occur.

Proposed Action

If the Proposed Action is implemented, the displacement of channel and floodplain materials has minimal potential to change groundwater hydraulics within the ESL. Groundwater table elevations and water volumes in nearby off-channel wetlands would not be affected because groundwater elevations in these areas are associated with river stage. The tendency of the surface water-groundwater system to move to equilibrium conditions, and the overall absence of impacts to the regional driving mechanisms of groundwater recharge (seasonal precipitation and Trinity River flow regimes) suggest that no long-term impacts on water table elevations is likely and no significant impacts would occur.

Alternative 1

Under Alternative 1, impacts to local groundwater levels and/or local groundwater quality would be similar or less than those described for the Proposed Action. Specifically, no disturbance of currently existing off-channel wetlands would occur.

Mitigation Measures

No-Action Alternative, Proposed Action; Alternative 1

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A.

Impact 3.4-3: Implementation of the proposed project may expose people or structures to a significant risk of injury, death or loss involving flooding. ***No Impact for the No-Action Alternative; Less than Significant Impact for the Proposed Action, Alternative 1***

No-Action Alternative

Under the No-Action Alternative, the proposed project would not be implemented, and no people or structures would be exposed to a flood risks associated with the proposed project..

Proposed Action

If the Proposed Action is implemented, the placement of excavated material outside of the floodplain will result in no change to the BFE. The lack of structures within the ESL provides limited opportunity for exposing people or property to flood risks.

Alternative 1

Under Alternative 1, the risk of flood related impacts to people and/or property would be similar or less than those described for the Proposed Action.

Mitigation Measures

No-Action Alternative; Proposed Action; Alternative 1

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A.

SECTION 3.5

Water Quality

3.5 Water Quality

This section describes water quality conditions related to the proposed project site from regional and local perspectives. The following evaluation is based on a review of existing literature and data, particularly the *Water Quality Control Plan for the North Coast Region,* as amended June 28, 2001 (Basin Plan) (North Coast Regional Water Quality Control Board 2001). Surface hydrology and groundwater issues are evaluated in **Section 3.4**, Water Resources; fisheries issues are evaluated in **Section 3.6**, Fishery Resources; and jurisdictional waters are evaluated in **Section 3.7**, Vegetation, Wildlife, and Wetlands.

3.5.1 AFFECTED ENVIRONMENT/ENVIRONMENTAL SETTING

Trinity River Water Quality

The beneficial uses associated with coldwater fish habitat are currently impaired in the Trinity River basin (EPA 2001). Disturbance is a natural part of the riverine ecosystem, and salmonid populations naturally fluctuate in response to disturbances, but anthropogenic activities can affect the severity and frequency of these disturbance processes. A dramatic decrease in abundance of Trinity River coldwater fishes has taken place since closure of Trinity Dam in 1963 (B. Gutermuth, pers. comm. 2003).

The State of California has determined that the Trinity River is impaired under the provisions of Section 303(d) of the Clean Water Act due to excessive sediment. The primary adverse impacts associated with excessive sediment in the Trinity River pertain to degradation of anadromous salmonid fish habitat. The State water quality standards consist of designated uses, water quality criteria to protect the uses, and an antidegradation policy.

Another source of potential water quality impairment of the Trinity River is the presence of mercury, although the river is not listed under Section 303(d) of the Clean Water Act for mercury impairment. The general significance of mercury as a biological toxin, and the likely sources of mercury in regional and local contexts, are discussed in **Section 3.3** under the topic of geologic hazards. Elevated concentrations of mercury have been found in water, sediment, and biota (fish, frogs, and predatory aquatic insects) in the upper Trinity River basin (U.S. Geological Survey, unpublished data). Biological samples taken in the lower Trinity River system have not yielded significantly elevated levels of mercury in biota from various trophic levels to date; however, studies that focus on the river downstream of the TRD and specifically on the proposed project site and vicinity are ongoing (Ashley et al. 2003). Of particular concern at the proposed project site is the possibility of mercury release from tailings and/or fluvial fine sediments, which might be disturbed and mobilized by rehabilitation activities. Under favorable conditions, including reducing environments and warm water temperatures, elemental mercury and associated mercury species may become methylated to form methylmercury, the mercury compound of most concern as a biological toxin, to the riverine environment. Methylmercury readily bioaccumulates at successive trophic levels within food webs such that very high concentrations of methylmercury can occur in fish. Mercury can adversely affect the reproductive success and health of fish and other species; it poses a potential health risk to wildlife and humans who consume fish and other contaminated species.

Within the proposed project ESL, environments in which elevated levels of mercury may occur include placer tailings piles, alluvial deposits of fine sediments (bed and bank), and wetland features associated

with dredge tailings and gravel mining pits. Wetlands and ponds create an environment that could promote mercury methylation. Factors that result in reducing conditions include the presence of sulfate-reducing bacteria, high organic carbon, and warm water temperatures. Disruption in the balance of these factors could enhance mercury methylation and the potential for release of methlymercury to the riverine system. There is also a potential risk of release of mercury species to the aquatic environment by redistribution of on-site materials during rehabilitation activities. The activities associated with the proposed project have the potential to convert mercury species to methylmercury and potentially impact the water quality of the Trinity River by raising ambient and biological mercury levels in the riverine system above the relatively low levels in water and biota documented by baseline sampling at the proposed project site (Jim Rytuba, USGS scientist, pers. comm. 2004). Results of site-specific studies of mercury concentrations are ongoing and preliminary results are expected within the timeframe of the publication of the EA/FEIR in late 2004. Unpublished preliminary analyses and results of sediment and placer tailings samples from selected channel rehabilitation sites downstream of Canyon Creek have suggest that some samples, primarily sluice sands, have mercury concentrations above preliminary background levels that determined for the Trinity River watershed (Ashley and Rytuba 2002).

Water Quality Management

The proposed project site is subject to the Basin Plan prepared by the North Coast Regional Water Quality Control Board (NCRWQCB). The Basin Plan for the North Coast Region applies to all of the land area that drains to the Klamath River and North Coast basins. The Trinity River is within the Klamath River basin and is further divided into distinct Hydrologic Areas. The Lower Trinity Hydrologic Area is that portion of the watershed that is downstream of Lewiston Reservoir.

The beneficial uses and water quality objectives for the Trinity River are contained in the Basin Plan. The beneficial uses pertinent to the Trinity River are listed in **Table 3.5-1**.

The beneficial uses impaired by excessive sediment in the Trinity River are primarily those associated with supporting high-quality habitat for fish. Recreation is another important beneficial use potentially affected by sedimentation. Recreation activities in and adjacent to the proposed project ESL include boating, fishing, swimming, kayaking, rafting, inner tubing, wading, camping, gold panning, picnicking, hiking, nature study, and sightseeing. Private ownership of most of Hocker Flat restricts the onsite use to residents and guests, with the exception of public lands at the downstream end of the proposed project.

The Basin Plan identifies both numeric and narrative water quality objectives for the Trinity River. **Table 3.5-2** summarizes the various water quality objectives by categories that have been established by the NCRWQCB to protect designated beneficial uses.

TABLE 3.5-1
TRINITY RIVER BENEFICIAL USES

Beneficial Water Uses	Lower Trinity River Hydrologic Area (Applies to that portion of the Trinity River below Lewiston reservoir)
Municipal and Domestic Supply	Existing
Agricultural Supply	Existing
Industrial Service Supply	Potential
Groundwater Recharge	Existing
Freshwater Replenishment	Existing
Water Contact Recreation	Existing
Non-Contact Recreation	Existing
Commercial and Sport Fishing	Existing
Cold Freshwater Habitat	Existing
Wildlife Habitat	Existing
Migration of Aquatic Organisms	Existing
Rare, Threatened, or Endangered Species	Existing
Spawning, Reproduction, and/or Early Development of Fish	Existing
Aquaculture	Potential

In addition to water quality objectives, the Basin Plan includes two prohibitions specific to logging, construction, and other associated nonpoint source activities:

- The discharge of soil, silt, bark, sawdust or other organic and earthen material from any logging, construction or associated activity of whatever nature into any stream or watercourse in the basin in quantities deleterious to fish, wildlife or other beneficial uses is prohibited.
- The placing or disposal of soil, silt, bark, slash or sawdust or other organic and earthen material from any logging, construction or associated activity of whatever nature at locations where such material could pass into any stream or watercourse in the basin in quantities deleterious to fish, wildlife or other beneficial uses is prohibited.

TABLE 3.5-2
WATER QUALITY OBJECTIVES FOR THE TRINITY RIVER WITHIN THE PROPOSED PROJECT AREA (BASIN PLAN OBJECTIVES)

Category	Objective Threshold	Applicable Portion of Water Body
Bacteria	The bacteriological quality of waters of the North Coast region shall not be degraded beyond natural background levels. In waters designated for contact recreation, the median fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed 50/100 milliliters (ml), nor shall more than 10 percent of the total number of samples taken during any 30-day period exceed 400/100 ml.	Entire Trinity River
Biostimulatory Subtances	Water shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.	Entire Trinity River
Color	Water shall be free of coloration that causes nuisance or adversely affects beneficial uses.	Entire Trinity River
Chemical Constituents	Waters designated for use as domestic or municipal supply shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs) specified in the California Code of Regulations.	Entire Trinity River
Dissolved Oxygen	Shall not be depressed below 8.0 nor raised above 10.	Entire Trinity River
Floating Material	Water shall not contain floating material, including solids, liquids, foams and scum in concentrations that cause nuisance or adversely affect beneficial uses.	Entire Trinity River
Oil and Grease	Waters shall not contain oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.	Entire Trinity River
pH	Shall not be depressed below 7.0 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses.	Entire Trinity River
Pesticides	No individual or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. There shall be no bioaccumulation of pesticide concentrations found in bottom sediments or aquatic life.	Entire Trinity River

TABLE 3.5-2
WATER QUALITY OBJECTIVES FOR THE TRINITY RIVER WITHIN THE PROPOSED PROJECT AREA (BASIN PLAN OBJECTIVES)

Category	Objective Threshold	Applicable Portion of Water Body
Radioactivity	Radionuclides shall not be present in concentrations that are harmful to human, plant, animal or aquatic life that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal or aquatic life. At a minimum, waters designated for use as domestic or municipal supply shall not contain concentrations of radionuclides in excess of the MCLs [maximum contaminant levels] specified in the California Code of Regulations.	Entire Trinity River
Sediment	The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.	Entire Trinity River
Settleable Material	Water shall not contain substances in concentrations that result in the disposition of material that causes nuisance or adversely affects beneficial uses.	Entire Trinity River
Suspended Material	Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.	Entire Trinity River
Tastes and Odors	Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.	Entire Trinity River
Temperature	Temperatures will be consistent with those outlined in Table 3.5-3.	Trinity River subject to Interim Action Plan
Toxicity	Maintain free of toxic substances in concentrations (individual or interactive) that produce detrimental physiological responses in human, plant, animal, or aquatic life.	Entire Trinity River
Turbidity	Turbidity shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution with which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof.	Entire Trinity River

Source: Basin Plan (1993)

Two additional documents address specific elements of water quality in the Trinity River basin. The Interim Action Plan for the Trinity River incorporated into the Basin Plan addresses flow and temperature issues in that portion of the river affected by the TRD. The Trinity River Total Maximum Daily Load (TMDL) for Sediment (2001) identifies the total load of sediment that can be delivered to the Trinity River and its tributaries without exceeding water quality standards, based on current flow conditions and estimated flows under the ROD.

Principal components of the TRD include Lewiston Dam, Trinity Dam, and the facilities that divert runoff from the Trinity River watershed to the Sacramento River basin. Construction of the dams and diversion facilities has diverted up to 90 percent of the natural flows since 1964 and has substantially altered the river's temperature regime. This change has disrupted the physical cues for migration and spawning of anadromous salmonids.

Trinity River water temperatures are influenced by TRD release temperatures, flow volumes and velocities, channel geometry, regional meteorology, and tributary flows and temperatures. The influence of Trinity and Lewiston Reservoirs on stream conditions diminishes with distance downstream from the TRD. In general, the greater the release volumes from the dams, the less susceptible the river's temperature is to other factors. Trinity Reservoir releases are generally cold (42 to 47 °F), while releases from much shallower Lewiston Reservoir are more affected by ambient temperatures. There is minimal overall influence of cold Trinity Reservoir water on Trinity River temperatures, since all TRD releases to the Trinity River issue directly from Lewiston Reservoir.

The Interim Action Plan has defined temperature objectives that apply to activities in the Trinity River. Temperature standards are effective from July 1 through December 31 for the upper reach between Lewiston Dam and the North Fork Trinity River. Standards for the Trinity River are presented in **Table 3.5-3**. The objectives also stipulate that water released into the Trinity River may be no more than 5°F warmer than receiving water temperatures.

TABLE 3.5-3
INTERIM ACTION PLAN TEMPERATURE OBJECTIVES FOR THE TRINITY RIVER

Temperature	Dates	Trinity River Reach
60 F (15.6 C)	July 1 – September 14	Lewiston Dam to Douglas City Bridge
56 F (13.3 C)	September 15 – October 1	Lewiston Dam to Douglas City Bridge
56 F (13.3 C)	October 1 – December 31	Lewiston Dam to confluence with North Fork

The TMDL for sediment describes how seasonal variation is considered. Sediment delivery in the Trinity River watershed has considerable inherent inter-annual and seasonal variability. Due to this variability in magnitude, timing, duration, and frequency of sediment input, the TMDL and load allocation apply to the sources of sediment and estimate average sediment input using a 10-year rolling average.

The TMDL does not allocate flow; however, it does take into account critical conditions for flow, sediment loading, and water quality parameters. Restriction of streamflow downstream of the TRD has greatly contributed to the impairment of the Trinity River below Lewiston Dam (U.S. Environmental Protection Agency 2001). Reduction in available coarse sediment upstream of Rush Creek and the significant contribution of fine sediment from Grass Valley Creek have combined to severely affect the sediment flux and particle size distribution in the river. These effects are observable as far downstream as the North Fork.

The Trinity River basin is not listed as impaired for mercury under Section 303(d) of the Clean Water Act. Consequently, regulatory guidelines default to numeric criteria promulgated by the US EPA for

priority toxic pollutants (see **Section 3.5.2**) or the narrative threshold that toxic substances should not be in such concentrations that produce detrimental physiological responses in humans or aquatic life.

Although most mercury occurs in the inorganic form, methylmercury, an organic form, is the most toxic and readily bioaccumulated form of mercury. Methylmercury normally occurs in the environment at extremely low concentrations; however, it is taken up easily by aquatic organisms and bioaccumulated. Consequently, methylmercury may comprise more than 95 percent of the mercury in fish tissue while only 5 to 15 percent of the total mercury burden in sediments and water of contaminated lakes is methylmercury (Saroff 1990)

A primary goal of many remedial investigations is to establish cleanup concentrations for mercury in various environmental media that will be protective of both human health and the environment. Establishing target cleanup concentrations for mercury is extremely difficult due to the many environmental factors that influence the transformation of inorganic mercury to methylmercury. Target cleanup concentrations should be determined on a site-by-site basis due to the variability in the bioavailability of mercury and conditions between sites. Determining a cleanup concentration requires knowing the effect threshold and translating that to a sediment concentration that is protective. Cleanup concentrations should be chosen that both reduce the source of total mercury to the system and its bioavailability to organisms. Confirmation of the effectiveness of the target cleanup concentration requires long-term monitoring of both sediment and biota.

NOAA recommends a site-specific approach that focuses on determining the availability of mercury and the potential for toxic effects. The accumulation of mercury in aquatic biota is often the primary concern at mercury sites and is useful for assessing availability. Bioaccumulation studies should measure tissue concentrations in more than one resident and/or transplanted caged species, preferably with species representing different trophic levels or different food web pathways. It may not be possible to correlate sediment mercury concentrations with concentrations in biota.

Reclamation has retained the USGS to specifically identify potential risks posed by river restoration actives to re-mobilization of mercury in the sediments and increase mercury methylation in the river and restoration areas. The results of initial studies will provide the basis for formulating and establishing a monitoring program to assess mercury loading in the Trinity River basin to assess and effectively manage mercury methylation during restoration activities.

To date, the USGS has collected baseline samples to determine mercury and methylmercury concentrations in water, sediment, and aquatic macroinvertebrates on and near the Hocker Flat rehabilitation site. They have classified their sediment and tailings sample mercury concentrations into three categories: The lowest, ≤30 ppb (parts per billion, ng/g) is considered background, based on stream sediment sites in the Trinity River watershed's Grass Valley Creek drainage basin. The second category includes values above background but below the NOAA ERL of 150 ppb ("medium" values). This number has been applied to restoration activities in the Lower Clear Creek Restoration Area, as a level of concern criterion for sediments. The third category includes values exceeding the 150 ppb guideline

("high" values). Hazardous waste levels of mercury contamination, where materials should be removed to protected sites, are on the order of 260-300 ppm (Jim Rytuba, USGS, pers. communication 2004).

Preliminary data indicate that mercury concentration in sediments and placer tailings in the Hocker Flat project area is a function of grain size with highest concentrations occurring in the less than 63 μm size fraction. Sluice tailings have the highest mercury concentrations, up to 1019 ng/g. Dredge stacker cobble tailings have relatively low mercury and methylmercury concentrations in the less than 2 mm size range, but higher concentrations in the less than 63 μm size range. Trinity River bulk sediment samples typically have relatively low mercury, 2.5-19 ng/g, and methylmercury concentrations. The fine sediment fraction is highly variable, with mercury values ranging from 10 to 573 ng/g. (Ashley et al., preliminary Hocker Flat data, 2004)

Flood plain sediments at Hocker Flat deposited in the 1997 flood event are relatively thin and have mercury and methylmercury concentrations comparable to values in Trinity River bulk sediment samples. Gravels present below this sand unit consist of stacker cobble tailings, most of which have been reworked in post-mining flood events. Locally sluice sands with elevated mercury concentrations are present within the stacker cobble tailings. Riparian berm sediment mercury concentrations are generally low but can have moderately elevated methylmercury concentrations.

Under low flow conditions, mercury and methylmercury concentrations are relatively low in Trinity River and tributary waters but generally higher than water from Lewiston Reservoir as measured at the Lewiston gage. Mercury concentration in Trinity River water increases as flows increase, but even at highest flows, the concentration of mercury is relatively low. Mercury concentration in Trinity River water increases downstream from the Lewiston gage at a given flow regime, and is the highest just below the Hocker Flat project area.

Methylmercury concentrations in biological samples collected from the Hocker Flat area in April 2003 and 2004 were similar to background concentrations previously observed within the Trinity watershed. Dragonfly samples collected from seven Hocker Flat sites have methyl mercury concentrations that range from 0.011 to 0.063 ppm (parts per million; μg/g). Dragonflies collected from ponds had similar methylmercury concentration and are similar to those from river sites. Other biota sampled, including amphibians and fish, show similar relationships. Though there are variable and sometimes relatively higher mercury concentrations in sediment and tailings at Hocker Flat, NOAA's recommendation for site specific methylation data appears to indicate that the bio-availability of mercury is not presently high at the Hocker Flat site.

The TRRP expects to continue to fund the USGS through the implementation of the project to evaluate the fate and transport of mercury related to river rehabilitation projects. Collected information will allow the TRRP to minimize releases of mercury to the environment during future Trinity River restoration projects.

3.5.2 REGULATORY FRAMEWORK

U.S. Environmental Protection Agency

California Toxics Rule

The U.S. Environmental Protection Agency (EPA) has promulgated numeric water quality criteria for priority toxic pollutants and other water quality standards provisions to be applied to waters in the State of California, known as the California Toxics Rule (CTR). EPA promulgated this rule based on the Administrator's determination that the numeric criteria are necessary in the State of California to protect human health and the environment. EPA promulgated this rule to fill a gap in California water quality standards that was created in 1994 when a State court overturned the State's water quality control plans containing water quality criteria for priority toxic pollutants. Under section 303(c)(2)(B) of the Clean Water Act (CWA), states must adopt numeric criteria for the priority toxic pollutants listed under section 307(a) if those pollutants could be reasonably expected to interfere with the designated uses of States' waters. In April 1991, California adopted numeric criteria for priority toxic pollutants in the Inland Surface Water Plans and Enclosed Bays and Estuaries Plans. In 1994, a California State court ordered California to rescind these water quality control plans. Thus, the State of California was without numeric water quality criteria for many priority toxic pollutants as required by the CWA, necessitating this action by EPA. These Federal criteria are legally applicable in the State of California for inland surface waters, enclosed bays, and estuaries for all purposes and programs under the CWA. The final rule promulgated numeric water quality criteria to replace the criteria that were rescinded by the State court. California also remains under the National Toxics Rule promulgated in 1992 for certain waters and pollutants. (U.S. Environmental Protection Agency 2004, http://www.epa.gov/ost/standards/ctr/factsheet.html).

The CTR is set forth in the Federal Register (40 CFR 131, 2000; http://www.epa.gov/ost/standards/ctr/toxic.pdf). It establishes human health criteria for mercury in the water column of 0.050 parts per billion (ppb) of total recoverable mercury for drinking water supplies and aquatic organisms, and 0.051 ppb for waters that are not drinking water supplies. These criteria are derived from a calculated reference dose, based on concentrations of mercury below which extra risk for neurological damage should not occur.

National Recommended Water Quality Criteria

EPA has issued national recommended water quality criteria for the protection of aquatic life and human health for approximately 150 pollutants (U.S. Environmental Protection Agency 2004, http://www.epa.gov/waterscience/pc/revcom.pdf). These criteria are published pursuant to Section 304(a) of the CWA and provide guidance for states and tribes to use in adopting water quality standards under Section 303(c) of the CWA. In 2001, EPA announced the availability of a recommended water quality criterion for methylmercury (66 FR 1344). At that time, EPA withdrew its previous ambient human health water quality criteria for mercury as the recommended section 304(a) water quality criteria. (These criteria were the same as those set forth in the CTR as described above.) The new water quality criterion describes the concentration of methylmercury in freshwater and estuarine fish and shellfish tissue that should not be exceeded to protect consumers of fish and shellfish among the general population. This concentration is set at 0.3 parts per million (ppm). EPA expects the criterion recommendation to be used

as guidance by states, tribes, and EPA in establishing or updating water quality standards for waters of the United States and in issuing fish and shellfish consumption advisories. This is the first time EPA has issued a water quality criterion expressed as a fish and shellfish tissue value rather than as a water column value. This approach is a direct consequence of the scientific consensus that consumption of contaminated fish and shellfish is the primary human route of exposure to methylmercury.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act governs the Basin Plan's water quality objectives. The Act requires the Basin Plan to consider the following factors:

- past, present, and probable future beneficial uses
- environmental characteristics of the hydrographic unit under consideration, including the quality of the water available
- water quality conditions that could reasonably be achieved through the coordinated control of all factors that affect water quality in the area
- economic considerations
- the need to develop housing within an area
- the need to develop and use recycled water

California Regional Water Quality Control Board

The NCRWQCB requires that a project proponent obtain a Section 401 (CWA) water quality certification or waiver for a Section 404 permit from the U. S. Army Corps of Engineers (Corps). Since the proposed project would have the potential to affect water quality the Trinity River, the NCRWQCB is likely to impose water quality limitations on the proposed project either through a waste discharge requirement or a conditional waiver. Reclamation will prepare and submit to the NCRWQCB a request for water quality certification or waste discharge requirements. The request will be submitted to the NCRWQCB when the pre-construction notification is sent to the Corps. A likely condition of the NCRWQCB is the preparation of an erosion and sedimentation control plan, and a spill prevention and containment plan.

The NCRWQCB controls the discharge of wastes to surface waters from industrial processes or construction activities through the National Pollutant Discharge Elimination System (NPDES). Waste discharge requirements are established in the permit to protect beneficial uses. The NCRWQCB will require an application for a waste discharge permit for the proposed project.

California Office of Environmental Health Hazard Assessment

If elevated levels of mercury are found to occur in fish species that are commonly considered sport fish, the California Office of Environmental Health Hazard Assessment (OEHHA) will issue a health advisory recommending keeping consumption of possibly contaminated fish below certain levels. Safe consumption limits for fish of various species from various localities with known toxic contamination hazards are listed by the OEHHA (http://www.oehha.ca.gov/fish/general/99fish.html). If risks from

consumption of contaminated fish are judged to be high, people are advised to consume no fish from those areas. Mercury toxicity poses higher risks to pregnant or nursing women or children under age six, so warnings may be specifically addressed to these population groups.

The EPA water-quality criterion for the protection of human health is 0.3 parts per million (ppm) wet weight; this is a human health criterion based on fish tissue concentrations of methylmercury. The Food and Drug Administration (FDA) action level for commercial fish is 1.0 ppm. In 2003, the FDA revised its fish consumption advisory to equal the EPA standard. Black bass were collected in the Trinity River watershed of the Trinity River (Trinity Lake) that exceeded these thresholds (May et al. 2002). It is expected that the inactive Altoona Mercury mine, which drains into the East Fork Trinity River (above Trinity Lake) is a significant contributor of mercury to the lake. An Interim Fish Consumption Notification for the Trinity River watershed has been issued by OEHHA (California Office of Environmental Health Hazard Assessment 2002, (http://www.oehha.ca.gov/fish/pdf/TrinityRELEASE.pdf) for portions of the upper watershed. Invertebrate and animal samples taken at various sites downstream of the TRD have not shown these high concentrations to date (Jim Rytuba, USGS, pers. comm. 2004).

Trinity County General Plan Goals and Objectives

The Trinity County General Plan contains goals and policies designed to guide the future physical development of the county, based on current conditions. The General Plan contains all the state-required elements including land use, open space, transportation/circulation, housing, safety, noise, and conservation. No goals and policies relative to water quality issues associated with the proposed project study area were identified in the General Plan (Trinity County 2001). The General Plan includes the Junction City Plan (1987).

Trinity County Water Quality Control Ordinance

The Trinity County Water Quality Control Ordinance establishes the necessity of ensuring the water quality of watersheds and water supply areas in Trinity County and dictates that “no use, application, discharge, disposal of any polluting substance or any other controllable water quality activities may be initiated, undertaken, or maintained by any person if said use or activity results in a detectable discharge of polluting substances into waters of the state located in or flowing through the county” (Ordinance #1072, County Code Section 8.60.010-8.6-020).

3.5.3 Environmental Consequences/Impacts and Mitigation Measures

Methodology

Water quality impacts are identified by analyzing the information available on the modification of the physical features and biological resource conditions within the ESL. Basic principles of water quality are applied to qualitatively determine impacts by comparing them against the Basin Plan objectives for the Trinity River.

Significance Criteria

The proposed project would result in significant adverse impacts if it would result in any of the following:

- Violations of state or federal numerical water quality standards or state or federal narrative water quality objectives for construction activities
- Substantial degradation of water quality, such that existing beneficial uses are precluded specifically because of adverse water quality
- Violation of any waste discharge requirements
- Substantial alterations of the course of a stream or river in a manner that would result in substantial erosion or siltation on or off site
- Short- or long-term increases in turbidity of 20 percent or more over naturally occurring background levels
- Violation of site specific temperature objectives for the Trinity River contained in the *Water Quality Control Plan for the North Coast Region* (NCRWQCB 1993, as amended) and included as **Table 3.5-3** of this section
- Conditions would be created where mercury might cause more detrimental physiological effects to humans, animals or aquatic life. (i.e. increase the potential for formation of mercury methylation beyond naturally occurring rates)

Project Consistency with the Trinity County General Plan and Community Plans

This section compares the goals and objectives of the proposed project to the relevant local planning polices (i.e., Trinity County General Plan, Junction City Community Plan) to determine if there are any inconsistencies.

As described in **Chapter 1,** Introduction, the proposed project would provide the opportunity to:

- increase the diversity and area of habitat for salmonids, particularly habitat suitable for rearing;
- increase rearing habitat for juvenile salmonid, including coho, Chinook and steelhead;
- increase structural and biological complexity of habitat for various species of wildlife associated with riparian habitats;
- increase hydraulic and fluvial geomorphic diversity and complexity;
- provide a demonstration project to evaluate the fate and transport of mercury related to rehabilitation/restoration projects;
- measure/demonstrate the ecological response to changes in flow regimes, morphological features, and aquatic, riparian, and upland habitats; and
- provide a self-maintaining project independent of any future TRD flows.

The following project objectives apply to the proposed project's lead/responsible agencies for CEQA purposes:

- Evaluate changes in channel geometry in response to constructing channel and floodplain features designed for the river's current hydrologic regime.
- Evaluate the evolution of channel planform features in response to designing and implementing the project at a river segment (1-mile) scale.
- Evaluate the biological response (aquatic, riparian, upland) to changes in the physical environment, and incorporate this information into the AEAM Program.
- Conduct a preliminary assessment of the fate and transport of mercury in response to restoration activities in a historic mining district.
- Locate the project downstream of Canyon Creek to ensure that natural tributary accretion to mainstem flows maximizes the likelihood of maintaining the site prior to implementation of the ROD-recommended flow regime.
- Provide safe and reasonable access to the site for project planning, implementation, and monitoring.
- Develop partnerships with willing participants, and encourage positive landowner interest and involvement.
- Design the project to function with the river's current hydrology estimated at the site.
- Integrate known fluvial and ecological theories and relationships with the site's measured physical and biological attributes and evaluate response over a definitive time frame.
- Minimize in-stream work to reduce construction-related impacts, maximize the river's ability to rehabilitate itself during high flows, and reduce implementation cost and complexity.
- Attempt to preserve unique and valuable geomorphic and biological features wherever practicable (i.e., hydraulic controls, high-quality spawning or adult holding habitat).

The following objectives apply to the proposed project's responsible and trustee agencies, including the State Water Resources Control Board (SWRCB), the North Coast Regional Water Quality Control Board (NCRWQCB), the State Lands Commission (SLC), California Department of Fish and Game (CDFG), and the HVT:

- compliance with the Water Code to ensure the highest reasonable quality of waters of the state and allocate those waters to achieve the optimum balance of beneficial uses;
- protection of the public trust assets of the Trinity River watershed;
- conservation, restoration, and management of fish, wildlife, and native plant resources; and
- compliance with the Water Quality Control Plan for the Hoopa Valley Indian Reservation to preserve and enhance water quality on the Reservation, and to protect the beneficial uses of water.
- The goals and objectives associated with the proposed project are generally compatible with the applicable general plan goals and policies for land use summarized above. The overall goal of the proposed project is restore a segment of the Trinity River so that it functions in a manner that is closer to historic (i.e., pre-Lewiston Dam) conditions. Although there will be some

mechanical vegetation removal along the Trinity River floodplain, which is a Scenic Conservation Overlay Zone, the proposed project will include both riparian and upland revegetation efforts intended to provide a more diverse plant assemblage than what is currently present, therefore enhancing the long-term aesthetic values of the river corridor.

Impacts and Mitigation Measures

Table 3.5-4 summarizes the potential water quality impacts resulting from construction and operation of the proposed project.

TABLE 3.5-4
SUMMARY OF WATER QUALITY IMPACTS

Impact	No-Action Alternative	Proposed Action	Alternative 1	Proposed Action with Mitigation	Alternative 1 with Mitigation
1. Construction of the proposed project could result in short-term temporary increases in turbidity and total suspended solids levels during construction.	NI	S	S	LS	LS
2. Construction of the proposed project could result in short-term temporary increases in turbidity and total suspended solids levels following construction.	NI	S	S	LS	LS
3. Construction of the proposed project could potentially cause contamination of the Trinity River from hazardous materials spills.	NI	S	S	LS	LS
4. Construction and maintenance of the proposed project could result in increased stormwater runoff and subsequent potential for erosion.	NI	LS	LS	N/A[1]	N/A
5. Construction and maintenance of the proposed project could result in the degradation of Trinity River beneficial uses identified in the Basin Plan.	NI	S	S	LS	LS
6. Construction of the proposed project could result in increased mobilization of mercury, and/or conditions that would increase the potential for mercury methylation.	NI	S	S	LS	LS

Notes:
LS = Less than Significant S = Significant NI = No Impact N/A = Not Applicable
[1]Because this potential impact is less than significant, no mitigation is required.

Impact 3.5-1: Construction of the proposed project could result in short-term temporary increases in turbidity and total suspended solids levels during construction. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, the proposed project would not be constructed; therefore, no construction-related short-term increases in turbidity or total suspended solids levels would occur.

Proposed Action

Implementing the Proposed Action would increase turbidity and total suspended solids during construction in the river. During river's edge construction activities, potential increases in turbidity levels could occur during excavation of riparian sediments and elevated floodplain materials, removal of riparian plant root systems, and re-shaping of the contours of the river banks. Fine sediments may be suspended in the river for several hours following construction activities. The extent of downstream sedimentation would be a function of the instream flow velocity and particle size. For example, fine-grained sediments like silts and clays can be carried several thousand feet downstream of construction zones, while larger-sized sediments like sands and gravels would tend to drop out of the water column within several feet of the construction zone.

River's edge construction activities will be staged to minimize potential turbidity effects. These shoreline construction activities could result in short-term increases in turbidity and suspended solids concentrations in the water column that could potentially violate the NCRWQCB's Basin Plan objectives for turbidity in the Trinity River. However, short-term increases in turbidity and suspended solids levels should not adversely affect anadromous fish species that are known to occur in the Trinity River (refer to **Section 3.6,** Fishery Resources).

Alternative 1

Temporary increases in turbidity or total suspended solids levels associated with construction of Alternative 1 would likely be less than under the Proposed Action, since less excavation and redistribution of channelbed, streambank, and floodplain materials would occur.

Implementing Alternative 1 would increase turbidity and total suspended solids during construction in the river. During river's edge construction activities, increases in turbidity levels could occur during excavation of riparian sediments, removal of riparian plant root systems, and construction of feathered edges along the banks of the river. Fine sediments may be suspended in the river for several hours following construction activities. The extent of downstream sedimentation would be a function of the instream flow velocity and particle size. For example, fine-grained sediments like silts and clays can be carried several thousand feet downstream of the construction zones, while larger-sized sediments like sands and gravels would tend to drop out of the water column within several feet of the construction zone.

River's edge construction activities will be staged to minimize potential turbidity effects. These shoreline construction activities could result in short-term increases in turbidity and suspended solids concentrations in the water column that could potentially be in violation of the NCRWQCB's Basin Plan objectives for turbidity in the Trinity River. However, short-term increases in turbidity and suspended

solids levels should not also adversely affect anadromous fish species that are known to occur in the Trinity River (**Section 3.6**, Fishery Resources).

Mitigation Measures:

No-Action Alternative

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A

Proposed Action; Alternative 1

1a: Turbidity increases associated with proposed project construction activities shall not exceed the NCRWQCB water quality objectives for turbidity in the Trinity River basin. Turbidity levels are defined in nephelometric turbidity units (NTUs). The current threshold for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (2001), is summarized below.

- Turbidity shall not be increased by more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof.

1b: To ensure that turbidity levels do not exceed the threshold listed above during river's edge project construction activities, Reclamation or their contractor shall monitor turbidity levels 50 feet upstream and 500 feet downstream of the point of river's edge construction activities. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during periods of increased turbidity.

1c: Reclamation or their contractor shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that includes silt fences, sediment filters, dewatering activities, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls and dewatering activities shall be adequate to minimize sediment inputs into the Trinity River until vegetation re-growth occurs. All sediment containment devices and erosion control devices will be inspected daily during the construction period to ensure that the devices are properly functioning. Excavated and stored materials will be kept in upland sites with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland sites. All applicable erosion control standards will be required during stockpiling of materials.

Significance after Mitigation: Less than Significant.

Impact 3.5-2: Construction of the proposed project could result in short-term temporary increases in turbidity and total suspended solids levels following construction. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, the proposed project would not be constructed; therefore, no post-construction short-term increases in turbidity or total suspended solids levels would occur.

Proposed Action

Implementing the Proposed Action would increase turbidity and total suspended solids following construction in the river and on the floodplain. Following construction activities, potential increases in turbidity levels could occur when newly excavated devegetated areas are exposed to rainsplash erosion and runoff, or erosion by elevated river stages if in-channel flows increase. Fine sediments may be suspended in the river for several hours following such exposure and erosion. The extent of downstream sedimentation would be a function of the rainfall intensity and/or instream flow velocity, as well as the particle size of exposed sediments. For example, fine-grained sediments like silts and clays could be readily mobilized by energetic rainsplash, and, if transported to the channel, could be carried several thousand feet downstream of the construction zones. Lower intensity rainfalls would be less likely to mobilize fine sediments. Similarly, if fine sediments are mobilized by streamflow over newly exposed streambank areas, they could be carried several thousand feet downstream of the construction zones, while larger-sized sediments like sands and gravels would tend to drop out of the water column within several feet of the construction zone.

Post-construction exposure of sediments to rainfall and/or flows could result in short-term increases in turbidity and suspended solids concentrations in the water column that could potentially be in violation of the NCRWQCB's Basin Plan objectives for turbidity in the Trinity River. Increased turbidity and suspended solids levels could also adversely affect anadromous fish species that are known to occur in the Trinity River (refer to **Section 3.6**, Fishery Resources).

Alternative 1

Temporary increases in turbidity or total suspended solids levels associated with construction of Alternative 1 would likely be less than under the Proposed Action, since less excavation and redistribution of channelbed, streambank, and floodplain materials would occur.

Implementing Alternative 1 would increase turbidity and total suspended solids following construction in the river and on the floodplain. Following construction activities, potential increases in turbidity levels could occur when newly excavated devegetated areas are exposed to rainsplash erosion and runoff, or erosion by elevated river stages if in-channel flows increase. Fine sediments may be suspended in the river for several hours following such exposure and erosion. The extent of downstream sedimentation would be a function of the rainfall intensity and/or instream flow velocity, as well as the particle size of exposed sediments. For example, fine-grained sediments like silts and clays could be readily mobilized by energetic rainsplash, and, if transported to the channel, could be carried several thousand feet downstream of the construction zones. Lower intensity rainfalls would be less likely to mobilize fine sediments. Similarly, if fine sediments are mobilized by streamflow over newly exposed streambank areas, they could be carried several thousand feet downstream of the construction zones, while larger-sized sediments like sands and gravels would tend to drop out of the water column within several feet of the construction zone.

Post-construction exposure of sediments to rainfall and/or flows could result in short-term increases in turbidity and suspended solids concentrations in the water column that could potentially be in violation of

the NCRWQCB's Basin Plan objectives for turbidity in the Trinity River. Increased turbidity and suspended solids levels could also adversely affect anadromous fish species that are known to occur in the Trinity River (refer to **Section 3.6**, Fishery Resources).

Mitigation Measures:

No-Action Alternative

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A

Proposed Action; Alternative 1

2a: Turbidity increases following proposed project construction activities shall not exceed the NCRWQCB water quality objectives for turbidity in the Trinity River basin. Turbidity levels are defined in nephelometric turbidity units (NTUs). The current threshold for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (2001), is summarized below.

- Turbidity shall not be increased by more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof.

2b: To ensure that turbidity levels do not exceed the threshold listed above during river's edge project construction activities, Reclamation or their contractor shall monitor turbidity levels 50 feet upstream and 500 feet downstream of the point of river's edge construction activities. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during periods of increased turbidity.

2c: Reclamation or their contractor shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that includes silt fences, sediment filters, dewatering activities, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls and dewatering activities shall be adequate to minimize sediment inputs into the Trinity River until vegetation re-growth occurs. All sediment containment devices and erosion control devices will be inspected daily during the construction period to ensure that the devices are properly functioning. Any erosional control devices found to be nonfunctional must be repaired or replaced within 10 days following their discovery or by the end of the work day if rain is imminent or if a greater than 50 percent possibility of rain has been forecasted within the next 24 hours by the National Weather Service. In those cases where, for safety reasons, repairs cannot be made immediately, they should be completed as soon as the work can safely be performed. Excavated and stored materials will be kept in upland sites with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland sites. All applicable erosion control standards will be required during stockpiling of materials.

Significance after Mitigation: Less than Significant

Impact 3.5-3: Construction of the proposed project could potentially cause contamination of the Trinity River from hazardous materials spills. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative the proposed project would not be constructed at Hocker Flat; therefore, no construction-related contamination of the Trinity River from hazardous materials spills would occur.

Proposed Action

Construction staging activities could potentially result in a spill of hazardous materials (e.g., oil, grease, gasoline, solvent) into the Trinity River. In addition, operation of construction equipment within or adjacent to the river would increase the risk of a spill of hazardous materials into the river (e.g., construction equipment leaking fluids). Potential spills of hazardous materials into or adjacent to the Trinity River could degrade water quality within the Trinity River and have deleterious effects on salmonids of any life stage in close proximity to construction activities. **Section 3.15,** Hazardous Materials, evaluates potential effects associated with exposing the general public to hazards associated with the transportation and use of hazardous materials at the site.

Alternative 1

The potential for contaminating the Trinity River with hazardous materials associated with construction of Alternative 1 would be similar to or less than the Proposed Action.

Mitigation Measures:

No-Action Alternative

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A

Proposed Action; Alternative 1

3a: Reclamation shall require that the contractor prepare and implement a spill prevention and containment plan in accordance with applicable federal and state requirements.

3b: Reclamation shall include in the construction contract documents a requirement that any construction equipment that would come in contact with the Trinity River will need to be inspected daily for leaks prior to entering the flowing channel. External oil, grease, and mud will be removed from equipment using steam cleaning. Untreated wash and rinse water must be adequately treated prior to discharge if that is the desired disposal option.

3c: Reclamation shall include in the construction contract documents a requirement that hazardous materials, including fuels, oils, and solvents, not be stored or transferred within 150 feet of the active Trinity River channel. Areas for fuel storage, refueling, and servicing will be located at least 150 feet from the active river channel. In addition, the construction contractor shall be responsible for maintaining spill containment booms onsite at all times during construction operations and/or staging of equipment or fueling supplies. Fueling trucks will maintain a spill containment boom at all times.

Significance after Mitigation: Less than Significant

Impact 3.5-4: Construction of the proposed project could result in increased stormwater runoff and subsequent potential for erosion. ***No Impact for the No-Action Alternative; Less than Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, the proposed project would not be constructed at Hocker Flat; therefore, stormwater runoff and the subsequent potential for erosion would not increase.

Proposed Action

Implementation of the Proposed Action would not result in an increase in impervious surface areas (e.g., structure and roadway approaches) that could subsequently generate additional stormwater runoff and potential for erosion.

Alternative 1

Increased stormwater runoff and subsequent potential for erosion associated with construction and implementation of Alternative 1 would be similar to the Proposed Action.

Mitigation Measures:

No-Action Alternative; Proposed Action; Alternative 1

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A

Impact 3.5-5: Construction and maintenance of the proposed project could result in the degradation of Trinity River beneficial uses identified in the Basin Plan. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, the proposed project would not be constructed at Hocker Flat; therefore, no degradation of Trinity River beneficial uses identified in the Basin Plan would occur. However, none of the potential benefits of the proposed project to Trinity River beneficial uses would be realized.

Significance after Mitigation: N/A

Proposed Action

Under the Proposed Action, significant impacts to beneficial uses of the Trinity River could potentially occur in the following categories of water quality objectives listed in the Basin Plan:

- sediment
- toxicity
- turbidity
- settleable material
- suspended material
- chemical constituents

The significance of sediment, settleable materials, suspended materials, and turbidity, as well as recommended mitigation measures are addressed in the section on the impacts of turbidity and suspended solids (**Impacts 3.5.1** and **3.5.2**). The significance and mitigation of chemical constituents and toxicity are addressed in the following section on the impacts of mercury (**Impact 3.5.6**).

Alternative 1

Under Alternative 1, significant impacts to beneficial uses of the Trinity River would be similar to those listed for the Proposed Action. The magnitude of these impacts might be lower than under the Proposed Action, due to the lower magnitude of disturbance to the channel and floodplain areas of the Trinity River planned for Alternative 1.

The significance of sediment, settleable materials, suspended materials, and turbidity, as well as recommended mitigation measures are addressed in the section on the impacts of turbidity and suspended solids (**Impacts 3.5.1** and **3.5.2**). The significance and mitigation of chemical constituents and toxicity are addressed in the following section on the impacts of mercury (**Impact 3.5.6**).

Significance after Mitigation: Sediment, turbidity, settleable material, and suspended material - ***No Impact for the No-Action Alternative; Less-than-Significant Impact for the Proposed Action and Alternative 1***

Significance after Mitigation: Toxicity and chemical constituents - ***No Impact for the No-Action Alternative; Less-than-Significant Impact for the Proposed Action and Alternative 1***

Impact 3.5-6: Construction of the proposed project could result in increased mobilization of mercury, and/or conditions that would increase the potential for mercury methylation. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative the proposed project would not be constructed at Hocker Flat; therefore, no increased mobilization of mercury or creation of conditions that would increase the potential for mercury methylation would occur.

Significance after Mitigation: N/A

Proposed Action

Under the Proposed Action, channel, streambank, and floodplain deposits and tailings piles would be disturbed and redistributed. Since there is potential for these deposits to contain elevated levels of mercury species, it is possible that rehabilitation activities could expose the riverine and riparian environment to quantities of mercury that could cause mercury concentrations in those environments to exceed background levels and/or to rise above recommended water quality criteria. Redistribution of mercury-contaminated sediments or dredge tailings could increase the potential for conversion of elemental and ionic mercury species to methylmercury. Release of mercury species, especially methylmercury, to the Trinity River channel, riparian areas, and off-channel wetlands could result in increased bioaccumulation of mercury and methylmercury in biota, potentially reducing the reproductive success of fish and other organisms and creating health hazards to humans that consume those organisms.

If mercury-contaminated sediments and/or tailings are discovered at the site and are removed from the site or otherwise remediated during the course of the proposed project, there would be a beneficial effect on water quality.

Alternative 1

The potential for rehabilitation activities to increase mobilization of mercury and/or create conditions that would be likely to increase the rate of mercury methylation would be similar to that under the Proposed Action. Since the volume of potentially contaminated material that would be redistributed would be less than under the Proposed Action, the quantity of mercury released or methylated might be less than would occur were the Proposed Action implemented.

Mitigation Measures:

No-Action Alternative

Since no significant impact was identified, no mitigation is required.

Proposed Action; Alternative 1

6a: Reclamation will utilize new data from ongoing assessments of mercury in water, sediment, and biological indicators in the Hocker Flat area. Sampling results will be adaptively employed to enhance the basic action plan for mercury rehabilitation. As envisioned, this plan will be developed to minimize risk of mercury mobilization from sediments and tailings at the site and/or the risk of increased methylation of mercury related to redistribution of sediments and tailings. Aquatic and human health will be protected using the best available site-specific information.

6b: The basic action plan for mercury rehabilitation requires that Reclamation dispose of any potentially mercury-contaminated sediments and tailings in such a manner as to prevent environmental release of mercury. The great majority of materials that are excavated from the floodplain will be sequestered above the 100-year floodplain elevation so that they will not come in contact with Trinity River floodwaters, or any other surface or groundwater, and will not be leached by concentration of precipitation so as to release any mercury species contained therein to the Trinity River channel, riparian area, or floodplain. Known mercury-contaminated materials may be either:

- In the case of mixed larger (> 2 mm in diameter) and smaller materials (<0.062 mm), the mercury-contaminated fine sediment fraction may be removed and the large fraction remainder (gravels and larger) returned to the site; or

- In the case of visually identifiable fine sluice sand sediments (e.g., expected to contain the highest mercury concentrations; 150 to approximately 1000 ppb), these materials will be removed from the floodplain whenever they are exposed. During construction of the floodplain, the contractor will be trained to identify these lenses of sluice sand[1] and will either ensure that these materials (Lenses of sluice sand are typically made up of 2-3 cubic yards of material) are removed from future leaching into the Trinity River,

[1] The USGS may confirm sluice sand identification either via chemical testing or via field identification.

6c: Reclamation will ensure that during redistribution of sediments potentially contaminated with mercury, the sediments will not be placed in contact with off-channel wetlands or other environments that would be likely to favor increased rates of mercury methylation, and that there are no hydrologic pathways available for the transport of mercury species from redistributed sediments to these wetlands or other environments.

Significance after Mitigation: ***No Impact for the No-Action Alternative; Less Than Significant Impact for the Proposed Action and Alternative 1***

SECTION 3.6

Fisheries

3.6 Fishery Resources

Fishery resources include fish populations, their habitats, and the harvest of those populations. This section discusses the existing environment within the Trinity River basin in both a regional and site-specific context with regard to native anadromous and resident fish and non-native fish. Information on other biological resources is provided in **Section 3.7**, Vegetation, Wildlife, and Wetlands. This project is specifically designed to increase abundance of rearing habitat for Trinity River juvenile salmonids. The USFWS (U.S. Fish and Wildlife et al. 1999) determined that juvenile rearing habitat, which can be enhanced by reconnecting the river with its floodplain, was likely a primary factor in limiting recovery of local salmonid populations.

3.6.1 AFFECTED ENVIRONMENT/ENVIRONMENTAL SETTING

Regional Setting

River Hydrology

The TRD of the CVP has a large influence on the regional hydrology. The TRD was authorized in 1955 and began operating in 1964. The TRD consists of a series of dams, tunnels, and powerplants that export water from the Trinity River basin into the Sacramento River basin. The local hydrology at Hocker Flat is influenced by the combination of releases and spills from the TRD and by the accretion of flow from numerous tributaries to the river. Canyon Creek is a major tributary that confluences and accretes flow immediately upstream of the proposed project.

The Trinity River drains a watershed of approximately 2,965 square miles, about one-quarter of which is above Lewiston Dam. Elevations range from 9,025 feet msl at Mount Eddy at the northeastern extremity of the watershed to 300 feet msl at the confluence of the Trinity and Klamath rivers. The climate is Mediterranean with an average precipitation of 62 inches per year; throughout the basin, it varies from 30 to 70 inches, typically occurring as rain in the lower elevations and snow at the higher elevations.

The Trinity River is the largest tributary to the Klamath River. The mainstem Trinity River flows a total of 170 miles from its headwaters to its confluence with Klamath River at Weitchpec, 43.5 miles upstream from the Pacific Ocean. Trinity and Lewiston dams currently regulate Trinity River flows below RM 112 (112 miles upstream of the Trinity River-Klamath River confluence). Lewiston Dam is the upstream limit of anadromous fish access to the river's habitat.

Water is stored in Trinity Reservoir, which is created by the Trinity Dam. Immediately downstream of Trinity Dam is Lewiston Reservoir, a relatively small re-regulation reservoir and the point of the trans-basin water diversion to the Sacramento Valley. From 1964 to 1979, the CVP diverted up to 90 percent of the Trinity River's annual water yield (above Lewiston) into the Sacramento River for power generation, agricultural and urban use. Between 1981 and 2000, river releases were increased to facilitate fishery habitat evaluation objectives, from about 120,500 acre-feet per year (af/yr) to a maximum of 340,000 af/yr, which reduced the diversion to roughly 70 percent of the annual water yield above Lewiston. Since 2001, and pending the resolution of litigation and disputes over the ROD-recommended flow levels, federal court orders have capped minimum river releases at 368,000 af/yr in critically dry years and 452,600 in all other years (Judge Oliver T. Wanger, U.S. District Court, December 2002).

Prior to the completion of the TRD, flows in the Trinity River were highly variable, ranging from summer flows as low as 25 cfs to extreme winter floods with instantaneous peak flows greater than 100,000 cfs. Annual hydrographs typically followed a seasonal pattern of high winter and spring flows followed by low summer and fall flows. Total annual flow volumes at Lewiston ranged from 0.27 to 2.7 maf, with an average of 1.25 maf.

Since full TRD operations began in 1964, annual exports have averaged about 988,000 af (approximately 74 percent of the river's annual yield at Lewiston). Exports of water from the Trinity River basin have been decreasing since 1985 to a current average of about 732,400 af. Total annual river flow volumes at Lewiston have ranged from approximately 369 TAF to 647 TAF since the 2000 ROD was issued.

Native Anadromous Fish Species

The native anadromous salmonid species of interest in the mainstem Trinity River and its tributaries include Chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*Oncorhynchus kisutch*), and steelhead (*Oncorhynchus mykiss irideus)*. Of the three species, there are two spawning races of Chinook salmon (spring- and fall-run) and two spawning races of steelhead (winter- and summer-run). The life histories and fresh water habitat requirements of these species and their distinct spawning populations are presented in **Table 3.6-1**.

All anadromous species begin their life in fresh water, migrate to the ocean to rear and mature, and return to spawn in fresh water. Although the three species have generally similar life histories, they differ in the time of year they migrate and spawn, as well as when egg incubation typically occurs (**Figure 3.6-1**).

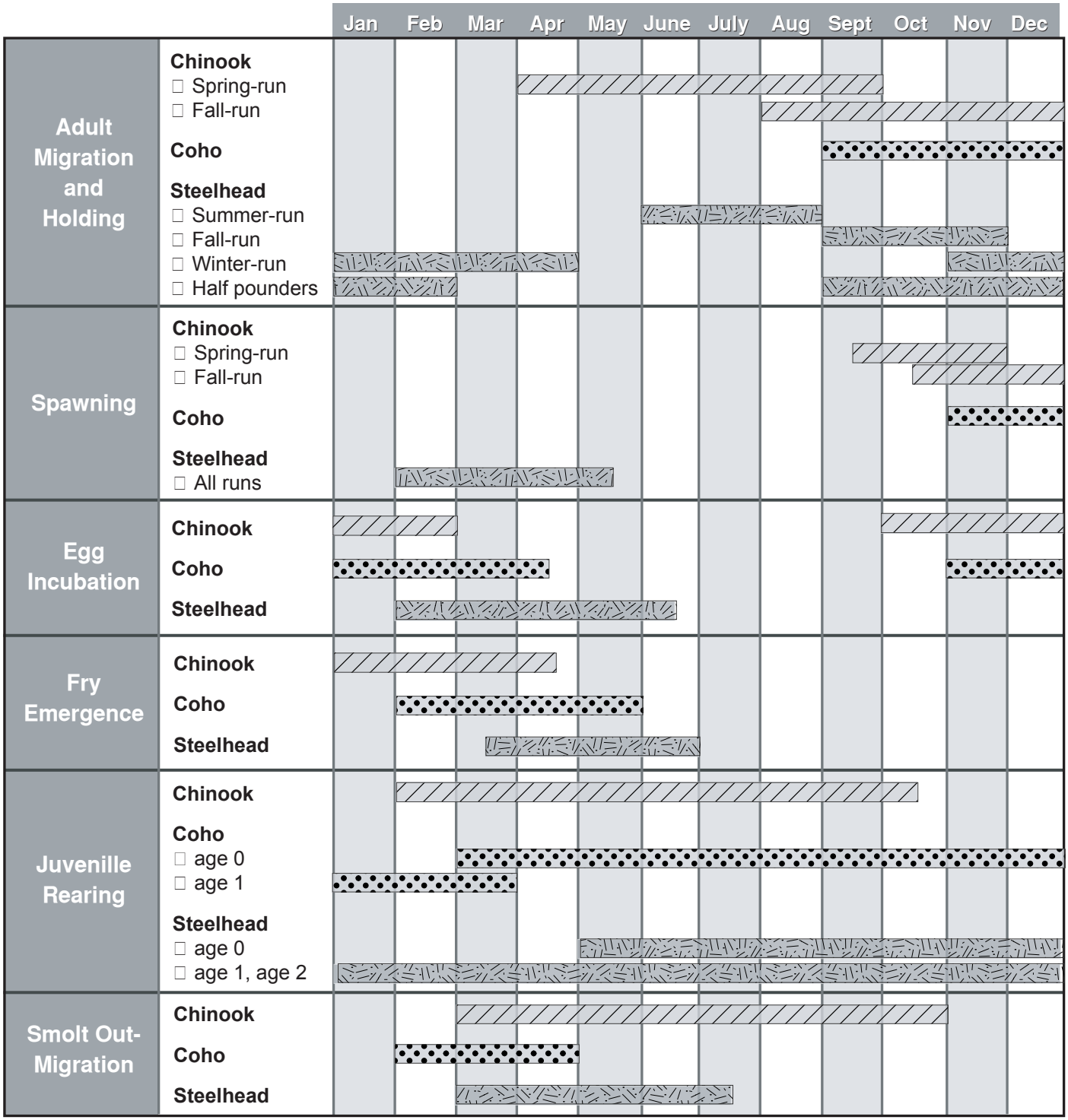
Adequate flows, temperatures, water depths, and velocities; appropriate spawning and rearing substrates (e.g., riverbed gravels); and availability of instream cover and food are critical for the production of all anadromous salmonids. Spring-run Chinook salmon and summer-run steelhead also need long-term adult holding habitat in which pool size and depth, temperature, cover, and proximity to spawning gravel are important requirements. Newly emerged fry and juveniles of all species require rearing habitat with low velocities, open cobble substrate, and cool water temperatures. Emigration of smolts to the ocean and the immigration of spawning adults require adequately timed flows with the appropriate temperature, depth, and velocity.

Native non-salmonid anadromous species that inhabit the Trinity River basin include green sturgeon (*Acipenser medirostris*), white sturgeon (*Acipenser transmontanus*), and Pacific lamprey (*Lampetra tridentata*). These fish spend their early life stages in fresh water, migrate to the ocean for maturation, and return to natal streams to spawn (**Table 3.6-2**). Information on native non-salmonid anadromous species residing in the Trinity River basin is very limited. However, the Klamath/Trinity River basin is known to contain the largest spawning population of green sturgeon in California (Moyle 2002). In contrast, only a small run of white sturgeon is thought to occur.

TABLE 3.6-1
LIFE HISTORY AND HABITAT NEEDS FOR ANADROMOUS SALMONID FISH IN THE TRINITY RIVER BASIN

Species	Migration	Spawning	Rearing	Habitat Requirements
Spring-run Chinook	Spring - Summer	Early Fall	Winter-Spring-Summer	Adults oversummer in deep, cool river pools. Spawns and rears in mainstem river and tributaries. Requires cool, swift water; clean, loose gravel for spawning; and shallow, slow-moving waters adjacent to higher water velocities for rearing and feeding.
Fall-run Chinook	Fall	Fall	Spring	Spawns and rears in mainstem river and tributaries. Requires cool, swift water; clean, loose gravel for spawning; and shallow, slow-moving waters adjacent to higher water velocities for rearing and feeding.
Winter-run Steelhead	Fall-Winter	February-April	Year-round	Spawns and rears in mainstem river and its tributaries. Requires cool, swift water; clean, loose gravel for spawning; runs and suitable pools in which to rear and over-summer; and clean cobble for refuge from high velocities. Juveniles overwinter for 1-2 or more years.
Summer-run Steelhead	Spring-Summer	February-April	Year-round	Adults ascend river and hold over in deep pools/runs through fall months. Spawns and rears in mainstem river and its tributaries. Requires cool, swift water; clean, loose gravel for spawning; suitable pools/riffles in which to rear and over-summer; and clean cobble for refuge from high velocities. Juveniles overwinter for 1-2 or more years.
Coho	October-December	November-December	Year-round	Spawns and rears in mainstem river and tributaries. Requires cool, swift water; clean, loose gravel for spawning; and suitable pools/runs in which to rear and over-summer. Juveniles prefer backwater/ slackwater areas and pool margins; juveniles overwinter 1 year.

Source: Leidy and Leidy 1984, Hassler 1987, U.S. Fish and Wildlife Service et al. 2000, Moyle 2002



F:Projects\10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River\Hocker Flat Project\Graphics\Chapter 3\Fig_3.6-1_Salmonid_Patterns.pdf Source: Trinity River Flow Evaluation Final Report, 1999 07-02-04 TLA

Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

North State Resources, Inc.

Figure 3.6-1
Salmonid Growth and Migration Patterns

TABLE 3.6-2
LIFE HISTORY AND HABITAT NEEDS FOR NON-SALMONID NATIVE ANADROMOUS FISH IN THE TRINITY RIVER BASIN

Species	Migration	Spawning	Rearing	Habitat Requirements
Pacific Lamprey	April-July	Spring-Early Summer	Year-round	Spawns and rears in the mainstem and tributaries. Requires cool streams with clean, gravelly bottom for spawning. Developing larvae burrow into silty river-bottom, where they remain for 4-5 years before metamorphosing/emigrating to the ocean.
Green Sturgeon White Sturgeon	February-July	March-July	Year-round	Adults spawn in large, mainstem river channels with cool water. Juveniles inhabit estuarine environments for 4-6 years before emigrating to the open ocean.
Eulachon	March-April	March-April	--	Adults run up into the lower reaches of coastal streams to spawn. Adhesive eggs stick to small gravel/sand/detrital bottom until hatched; larvae are quickly transported downstream to ocean.

Source: U.S. Fish and Wildlife Service et al. 2000, Moyle 2002

Trinity River Restoration Program Goals

The 1983 EIS on the Trinity River Basin Fish and Wildlife Management Program (U.S. Fish and Wildlife Service 1983) documented the in-river spawner escapement goals and the Trinity River Salmon and Steelhead Hatchery (TRSSH) production goals developed by the CDFG. These spawner escapement goals were subsequently adopted by the TRRP. The in-river goals represent the total number of naturally produced adult spawners (excluding jacks) for the Trinity River basin below Lewiston Dam and exclude fish caught by the fisheries (**Table 3.6-3**). The hatchery goals represent numbers of adult fish needed by the hatchery, exclusive of fisheries for Chinook and coho salmon. An undefined in-river harvest is included in the restoration program goals for steelhead.

TABLE 3.6-3
TRINITY RIVER RESTORATION PROGRAM SPAWNER ESCAPEMENT GOALS

Species	In-river Spawner Goals	Hatchery Goals	Total
Fall-run Chinook	62,000	9,000	71,000
Spring-run Chinook	6,000	3,000	9,000
Coho	1,400	2,100	3,500
Steelhead	40,000	10,000	50,000

Source: U.S. Fish and Wildlife Service et al. 2000

In-river spawner escapement is the number of fish returning to spawning grounds, which consists of two subgroups: naturally produced fish and hatchery-produced fish. However, hatchery-produced fish are not considered to contribute toward the in-river spawner escapement goals of the TRRP, although their offspring do (i.e., if hatchery-produced fish spawn in-river and their offspring survive to return to spawn, these offspring are naturally produced by definition). The best available data indicate that large numbers of hatchery-produced fish spawn in-river. Typically, more fish spawn in-river than are spawned at the hatchery, and relatively fewer in-river eggs survive to return as adults. Assuming that hatchery- and naturally produced fish are subject to the same environmental conditions after the hatchery releases its fish (typically as smolts), the relatively low returns of naturally produced fish are indicative of lower survival rates of early fresh water life stages (i.e., eggs, fry, and/or juvenile fish), compared to hatchery-reared fish. This indicates that the quality or availability of rearing habitat is limiting the population.

Fall-Run Chinook Salmon Population

Although annual pre-dam escapement data are sporadic, estimates of fall-run Chinook salmon adults in the Trinity River prior to 1964 above the North Fork have ranged from 19,000 to 75,600, and averaged 45,600 for the 5 years of available data. Comparisons between pre- and post-dam averages are difficult because (1) few pre-dam estimates exist; (2) pre-dam estimates typically represent fish spawning in the river above the North Fork, while post-dam estimates are above Willow Creek; and (3) post-dam estimates are only for the river below Lewiston and are confounded by large numbers of hatchery-produced fish that spawn in natural areas. (Recent changes have been enacted to reduce competition of hatchery-produced fish with naturally produced spawners.) Comparisons between pre-dam escapements and the TRRP in-river spawner escapement goals are not equitable because the in-river goals represent the numbers of fish that could be produced in the entire Trinity River basin below Lewiston Dam once successful restoration is completed, whereas the pre-dam numbers are sporadic and limited to the Trinity River above the North Fork. Because of these problems, the following discussions focus on the current post-dam estimates relative to the TRRP in-river spawner escapement goals as an indicator. This is a conservative indicator because the TRRP goals represent adult returns, and the numbers for naturally produced fish include jacks and adults (information relative to adults only was not available).

According to the TRRP goals, the hatchery objective is to produce 9,000 returning fall Chinook spawners for the hatchery, and the objective for the river below Lewiston is to produce 62,000 naturally produced fall Chinook spawners. Both of these goals are exclusive of harvest. Yearly estimates of fall Chinook salmon runs in the Trinity River basin have been made by the CDFG since 1978, as a part of the Klamath Basin Fall Chinook Salmon Spawning Escapement Estimate. CDFG's post-dam in-river spawner escapement estimates for the Trinity River basin upstream of the Willow Creek weir from 1982 through 2002 averaged 35,490 fall Chinook salmon, of which an average of 21,770 fish are hatchery-produced fish (**Figure 3.6-2**). Naturally produced fish have ranged from 10 to 94 percent of in-river spawner escapements, with an annual average of 48 percent. The river below Lewiston produced an average of 13,710 naturally produced fall Chinook spawners, which is approximately 22 percent of the TRRP goal of 62,000 naturally produced fall Chinook salmon (**Table 3.6-4**). It is anticipated that updated CDFG will be available for the EA/FEIR.

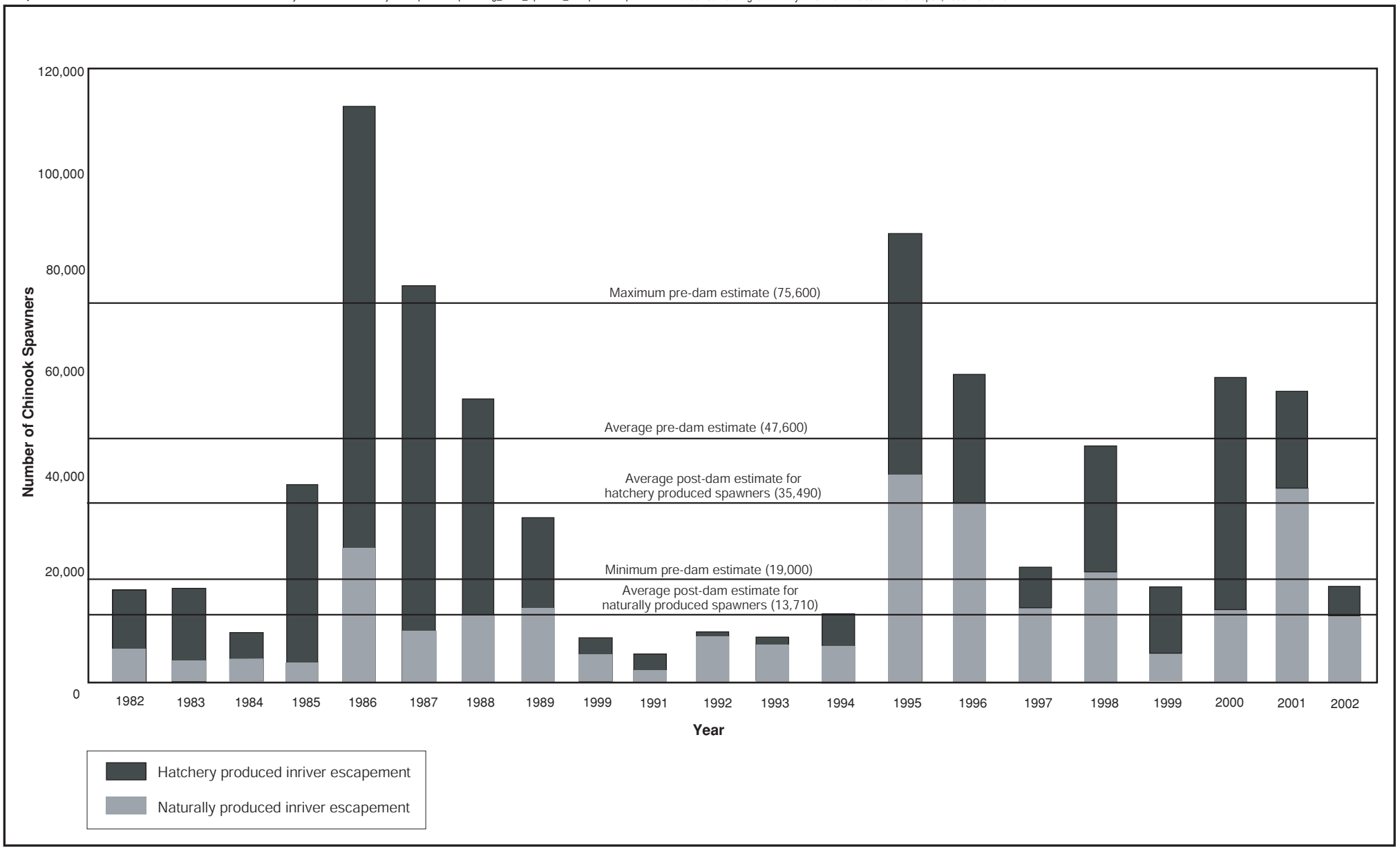


Figure 3.6-2
Post-TRD Fall-run Chinook Spawner Escapements
(Source: USFWS et al. 2001; CDFG unpublished data)

TABLE 3.6-4
COMPARISON OF TRRP IN-RIVER SPAWNER ESCAPEMENT GOALS TO AVERAGE NUMBERS OF NATURALLY PRODUCED FISH

Species	TRRP In-river Spawner Escapement Goals	Average In-river Escapement of Naturally Produced Fish*	Years of Available Data*	Percent of TRRP Goal Met
Fall-run Chinook	62,000	12,490	1982-2002	20
Spring-run Chinook	6,000	2,910	1982-2000	49
Coho	1,400	200	1991-1995	14
Steelhead	40,000	1,870	1992-1996	5

Source: U.S. Fish and Wildlife Service et al. 2001, California Department of Fish and Game preliminary data (N. Manji, California Department of Fish and Game-Redding, Wade Sinnen, California Department of Fish and Game-Arcata, pers. comms).

Note: Average values derived from annual run-size estimates of hatchery fish contributions to total spawning escapements.

Spring Chinook Salmon Populations

Fisheries investigations conducted from 1942 through 1946, prior to the construction of the Trinity and Lewiston dams, identified spring Chinook salmon populations in the Trinity River above the North Fork Trinity River confluence (Moffett and Smith 1950). In 1955, an in-river spawner escapement estimate of 3,000 spring Chinook salmon upstream of Lewiston was reported by CDFG (U.S. Fish and Wildlife Service et al. 2001). Escapement surveys for the years 1982 through 2000 (excluding 1983 and 1995 because surveys were not conducted in those years) indicate that an average of 65 percent of the in-river spawner escapement of Trinity River spring Chinook salmon is hatchery produced. Conversely, only 35 percent (2,910 annually) were naturally produced, which represents approximately 49 percent of the TRRP goal of 6,000 spring Chinook in the Trinity River (**Table 3.6-4**). It is anticipated that updated CDFG data will be available for the EA/FEIR.

Coho Salmon Populations

Trinity River coho salmon populations were historically smaller than Chinook salmon populations. Pre-dam estimates for coho salmon spawning above Lewiston were 5,000 fish (U.S. Fish and Wildlife Service et al. 2000a). Access to high quality habitat with year-round cold, clear flows for coho salmon was blocked by construction of the TRD (USFWS and Hoopa Tribe 1999). Seasonally warm water temperatures occurring in much of the mainstem Trinity River during summer prior to TRD construction limited mainstem coho salmon production in downstream reaches, because coho salmon generally rear for at least 1 full year in freshwater (Moffett and Smith 1950). Total run size for Trinity River coho salmon below Lewiston Dam for 1973 through 1980 averaged 3,300 adults (U.S. Fish and Wildlife Service et al. 2000a). This estimate includes hatchery production. The most current estimates for coho salmon spawning in the Trinity River upstream of the Willow Creek weir (1991-1995) indicate that naturally produced coho salmon average about 200 fish, ranging from 0 to 14 percent of the total annual escapement (an annual average of 3 percent) (W. Sinnen, California Department of Fish and Game-Arcata, pers. comm.). It is anticipated that updated CDFG data will be available for the EA/FEIR. The

majority of coho salmon spawning in the Trinity River are produced by the hatchery. The average of 200 naturally produced coho salmon represents approximately 14 percent of the TRRP goal (**Table 3.6-4**). NOAA Fisheries has concluded that (1) current coho salmon runs are largely composed of hatchery-produced adults; (2) remaining naturally-produced stocks are, and have been, heavily influenced by hatcheries (such as from occasional inter-basin stock transfers), and virtually all of the naturally spawning coho salmon in the Trinity River, particularly, are first generation hatchery fish; and (3) the remaining natural coho salmon populations within the Klamath/Trinity River system are likely incapable of sustaining themselves (National Marine Fisheries Service 1997).

Steelhead

Pre-dam winter steelhead spawner escapements in the Trinity River and its tributaries upstream of Lewiston have been estimated to range from 6,900 to 24,000 adults. From 1992 through 2000, the estimated total escapement of the fall/early winter portion of the winter steelhead escapement upstream of the Willow Creek weir averaged 4,270 fish. It is anticipated that updated CDFG data will be available for the EA/FEIR. Estimates of naturally produced spawning steelhead, available only for the years 1992 through 1996, averaged 1,870 fish upstream of the Willow Creek weir (surveys from fall and early winter period only). This average represents approximately 5 percent of the TRRP in-river spawner escapement goal of 40,000 adult steelhead (Table 3.6-4). Estimates for the remaining winter portion of the escapement are unavailable because winter river flows render fish-counting weirs inoperable.

Pre-dam summer steelhead spawner escapements for the Trinity River upstream of Lewiston were estimated to average 8,000 adults annually. Recent (1985-2002) post-dam CDFG/USFS estimates have ranged from 20 to 2,575 adult summer steelhead returning to the tributaries and mainstem Trinity River (California Department of Fish and Game 1997, unpublished data; U.S. Forest Service 2002, unpublished data). The TRRP escapement goals do not establish specific targets for summer steelhead in the Trinity River, nor does the TRSSH mitigate specifically for summer steelhead.

Adult summer steelhead primarily hold in the headwaters of mainstem Trinity tributaries during the summer months, and subsequently spawn in the following late winter/early spring. Some Trinity River steelhead return to the river 4 to 6 months after first emigrating to the ocean. Upon their return, these fish are known as “half-pounders.” They feed in the river but do not spawn. They subsequently return to the ocean before returning to spawn. When in the “half-pounder” phase, these fish are not counted as part of the escapement, but they are important to the sport fishery.

Trinity River Salmon and Steelhead Hatchery

The TRSSH is operated by CDFG and funded by Reclamation to mitigate for the loss of salmonid production above Lewiston Dam. TRSSH’s current goals are to release sufficient juveniles to provide for returns to the hatchery of 12,000 Chinook (3,000 spring and 9,000 fall), 2,100 coho, and 10,000 steelhead through artificial propagation. Concerns regarding the potential impacts of hatchery operations on naturally produced populations of the Klamath River basin (including the Trinity River) prompted the CDFG to institute new hatchery operations in 1996 to minimize future impacts. Additionally, further review of hatchery operations was conducted during 1999-2000, with recommendations for: (1) periodic

evaluation of coho salmon production levels required to support recovery of SONCC ESU coho, and (2) evaluation of spawning and broodstock selection practices for maintaining genetic separation of spring- and fall-run Chinook salmon (California Department of Fish and Game and National Marine Fisheries Service 2001).

Fish Harvest

The harvest of Klamath River basin fall Chinook salmon (including Trinity River basin) is managed jointly by the CDFG, Oregon Department of Fish and Wildlife, the California Fish and Game Commission, Yurok Tribe, HVT, NOAA Fisheries, and the U.S. Bureau of Indian Affairs (BIA). The Pacific Fishery Management Council (PFMC) and the Klamath Fishery Management Council (KFMC) are allocation forums for the ocean and ocean/in-river fisheries, respectively. The mixed-stock ocean population is harvested by commercial and sport fisheries; and the in-river population is harvested by tribal (ceremonial, subsistence, and commercial) and sport fisheries. Chinook salmon harvest (both fall and spring) includes both naturally produced and hatchery-produced fish. Commercial and sport harvest of coho salmon has been incrementally restricted in California ocean and inland waters since 1994, resulting in statewide harvest prohibitions within the last 5 years, including barbless hooks and "catch and release only." Steelhead are rarely caught in the ocean commercial and sport fisheries, but are harvested by the in-river tribal and sport fisheries. Historically, Klamath/Trinity River Chinook and coho populations have been harvested in the ocean from Santa Barbara County, California, to the Oregon/Washington border. Ocean harvest of naturally produced salmon may have been sufficient in the late 1970s to cause declines in Klamath River basin (including Trinity River) populations, but, based on the best available data, fall Chinook harvest management restrictions implemented since 1986 have decreased harvest impacts to levels believed to be sustainable.

Habitat Conditions

Construction and operation of the TRD, combined with watershed erosion, large-scale gold dredging, and other human caused disturbances, have resulted in major changes in habitat conditions in the Trinity River (see **Figure 3.3-5**). Factors that have resulted in adverse effects on fish habitat include

- obstruction to river reaches upstream of Lewiston Dam;
- changes to quantity and timing of flows;
- changes in channel geomorphology;
- changes in substrate composition caused by addition of fine sediments and restriction of gravel recruitment; and
- changes in water temperature.

The TRD dams blocked access to 59 miles of Chinook salmon habitat, 109 miles of steelhead habitat, and an undetermined amount of coho salmon habitat (U.S. Fish and Wildlife Service 1994). Much of this habitat is thought to have been prime spawning and rearing habitat. In the case of the Chinook salmon, it represented about 50 percent of the suitable spawning habitat in the upper Trinity River basin. As early as 1980, the overall decline in spawning habitat was estimated at 80 to 90 percent (U.S. Fish and Wildlife

Service 1980). Furthermore, the blocking of salmon access to upstream reaches greatly reduced the diversity of habitats available to them throughout the entire river system.

For the first 21 years of TRD operations (1964 to 1985), Lewiston Dam releases to the Trinity River averaged only 21 percent of the natural river inflow. The volume of water initially set aside for Trinity River fishery resources during this time was 120,000 af, which was only exceeded during very wet years or for fishery studies. Perhaps more significantly, the peak winter and spring flows were eliminated or greatly reduced. The adverse effects of the reduced flows were manifested in several ways, including changes to channel morphology, substrate/sediment composition, and water temperatures.

Flow alteration and reduction (coupled with fine sediment from mining, road construction, and natural causes) are partially to blame for declines of Trinity River steelhead runs downstream from Lewiston Dam and adverse changes in channel morphology and stream vegetation (North Coast Regional Water Quality Control Board 1989). Ultimately, the reduction in flows has lead to a reduction in habitat and declining quality of remaining habitat. For example, spawning habitat losses in the mainstem Trinity River below the Grass Valley Creek confluence have been estimated to be 80 percent in the first 2 miles, and up to 50 percent overall in the 6 miles downstream of that confluence (U.S. Fish and Wildlife Service 1994). Reduced river flows, increased fine sediment input, and reduced coarse sediment recruitment are the primary factors contributing to changes in channel geomorphology that have reduced the quantity and suitability of fish habitat. This reduction of riverine fish habitat quantity and quality are thought to have contributed to the overall declines in productivity of the Trinity River's anadromous fish stocks.

The altered patterns of fluvial geomorphic processes in the upper Trinity River resulted in a reduction in the number and sediment quality of alternate bar sequences. ("Alternate bar sequences" are the repeating pattern of gravel/cobble deposits, "bars," on the inside of river channel curves, or bends, as it meanders through its valley.) Important salmonid habitats associated with alternate bars include pools that provide cover from predators and cool resting places for juveniles and adults; gravelly riffles where adults typically spawn; open gravel/cobble bars that create shallow, low-velocity zones important for emerging fry; and slack-water habitats for rearing juveniles. Additional discussion concerning the fluvial geomorphology of the Trinity River is provided in **Section 3.3**.

Since TRD operation, the Trinity River has become channelized (i.e., the river banks have become steeper, and there is little lateral movement of the channel within the floodplain). Consistently low river flows allowed the encroachment and establishment of riparian vegetation immediately adjacent to the summer flow channel. The roots of the vegetation, which tightly bind the river bar and bank deposits, and the stems of the vegetation, which encourage deposition of fine sediment, led to the formation of sand and silt berms along the river banks (riparian berms). The long-term establishment of riparian vegetation and subsequent berm formation further encroached upon and narrowed the channel and steepened the banks, which led to a reduction in shallow, low-velocity salmonid rearing habitat.

Changes in substrate composition have occurred because of increases in fine sediment (from increased watershed erosion and attenuation of sediment-transporting flows) and the reduction of coarse sediment (e.g., gravel) recruitment (due to the dams and reduction of channel migration across the floodplain).

Fine sediment fills in spaces between gravels and cobbles, which impedes water percolation through the river substrates, degrading and reducing available spawning habitats. Sedimentation of spawning areas can impede intragravel flow (which is important for delivering oxygen and carrying away metabolic waste products) to incubating eggs, as well as create an impenetrable barrier that prevents the emergence of salmon sac-fry from their gravel nest. Accumulation of fine sediments can also decrease the amount of space between gravel and cobble, thereby decreasing the amount of available habitat for overwintering juvenile coho salmon and steelhead that "burrow" into the substrate. Sedimentation may also decrease aquatic invertebrate production and diversity, thereby limiting a primary food source for juvenile salmonids.

The thermal environment of the Trinity River has also changed as a combined result of the construction and operation of the TRD and the subsequently altered geomorphic patterns of the river downstream. The dams blocked access to the upstream river reaches that are dominated by snowmelt runoff and remain cool throughout the year. Prior to the dam, these areas provided important juvenile rearing and adult holding habitats for salmonids when the majority of the lower mainstem habitats (i.e., below Lewiston) had likely become too warm. The upstream tributaries contributed snowmelt runoff and cool temperatures throughout the spring and early summer that aided smolt emigration through much of the mainstem. Because the upper river's high-elevation habitats are now blocked by the TRD, and much of the snowmelt is retained in the TRD reservoirs, it is necessary to maintain artificially cooler temperatures below the dam than existed prior to the dam. In other words, the mainstem below the dam must now function thermally like the upstream reaches and tributaries for anadromous salmonids.

Prior to the TRD, water temperatures in the deep mainstem pools stratified during the summer; bottom layers were documented to be as much as 7 °F cooler than upper layers (Moffett and Smith 1950). The cool temperatures at the bottom of the pools provided important thermal refugia for migrating adult and rearing juvenile salmonids. The altered flow regime and channel geomorphology have decreased or eliminated the temperature stratification in pools in the summer/early fall months. Although average post-dam monthly water temperatures at Lewiston are cooler than pre-dam temperatures during June to November, this benefit has not fully compensated for the lost thermal diversity in the system (i.e., above the dams) or for the reduction in stratified pools.

Habitat Restoration Projects

Since the early 1980s, the Trinity River Basin Fish and Wildlife Restoration Program has conducted a variety of restoration activities in the mainstem Trinity River and its tributaries. These activities include watershed rehabilitation and habitat enhancement work within the tributaries, and dam construction and channel dredging in Grass Valley Creek to decrease the amount of fine sediment entering the mainstem Trinity River. Restoration activities in the mainstem Trinity River have included spawning gravel supplementation, pool dredging (to deepen these habitats and remove fine sediment from the river channel), and construction of several channel rehabilitation projects (side channels and bank rehabilitation of point bars).

From 1990 through 1993, the Trinity River Basin Fish and Wildlife Restoration Program constructed 27 channel rehabilitation projects on the mainstem Trinity River between Lewiston Dam and the North

Fork: 18 side-channel projects and nine bank rehabilitation projects (also known as feathered-edge projects). One of the feathered-edge project sites, known as the Jim Smith Site, occurs within the ESL of the proposed project. Monitoring of the previous channel rehabilitation projects has documented Chinook salmon spawning within the constructed side-channels and along some "feathered-edge" sites (U.S. Fish and Wildlife Service unpublished data; C. Chamberlain, U.S. Fish and Wildlife Service – Arcata, CA, pers. comm.). The nine proposed bank rehabilitation projects between Lewiston Dam and the North Fork were constructed by physically removing vegetated sand berms along the bank to restore the channel to a "pre-dam configuration." Channel rehabilitation sites are significantly wider and shallower than corresponding control sites at intermediate and high flows. An evaluation of the monitoring results associated with early restoration effort concluded that "*when properly constructed, bank rehabilitation can effectively increase the amount of salmonid fry rearing habitat in the Trinity River*" (U.S. Fish and Wildlife Service, Hoopa Valley Tribe 1999).

Resident Native and Non-Native Fish Species

Resident native fish species found in the Trinity River basin include gamefish such as rainbow trout (*Oncorhynchus mykiss*), and non-gamefish such as speckled dace (*Rhinichthys osculus*), Klamath smallscale sucker (*Catostomus rimiculus*), three-spined stickleback (*Gasterosteus aculeatus*), coast range sculpin (*Cottus aleuticus*), and marbled sculpin (*Cottus klamathensis*). The abundance of resident native species, and the factors affecting their abundance within the basin, are not well understood; however, all these species evolved and existed in the pre-dam Trinity River and are presumably adapted to those conditions.

Non-native fish species found in the Trinity and Klamath river basins include striped bass (*Morone saxatilus*), American shad (*Alosa sapidissima*), brown bullhead (*Ameiurus nebulosus*), green sunfish (*Lepomis cyanellus*), brown trout (*Salmo trutta*), and brook trout (*Salvelinus fontinalis*) (USFWS unpublished data). Striped bass have only recently been reported to occur in the Trinity and Klamath River basins; reports are rare. American shad are known to occur in the lowermost portions of the Trinity River basin, but are primarily found in the lower Klamath River basin. Anadromous brown trout were propagated in the TRSSH until 1977, when this practice was discontinued because of the small numbers and the lack of anadromous characteristics of fish entering the hatchery. Currently, brown trout are largely limited to the upper portions of the river, although some brown trout exhibit anadromous characteristics. Brook trout provide a significant sport fishery in the tributary streams and high elevation lakes of the Trinity River basin. Its life cycle and habitat requirements are similar to that of brown trout.

The structure and abundance of populations for these species in the Trinity and lower Klamath River basins are unknown. Factors that affect their abundance in the Trinity and lower Klamath River basins have not been studied and remain unknown.

Special-Status Fish Species

For the purposes of this evaluation, listed fish species include taxa that are (1) listed as threatened or endangered by the state or federal governments under the ESA or the CESA; or (2) are proposed or petitioned for federal listing as threatened or endangered; and/or (3) are state or federal candidates for

listing as threatened or endangered. "Other" special-status fish species are identified by the USFWS as Species of Concern and/or are identified by CDFG as Species of Special Concern and/or California Fully Protected Species. **Table 3.6-5** provides a list of special-status fish species that were considered during the environmental analysis for the proposed project. This list was compiled by performing a CNDDB database search (*Hayfork*, *Helena*, *Junction City*, and *Weaverville* quadrangles); informal consultations with the CDFG, USFWS, and NOAA Fisheries; and a review of applicable biological literature.

The SONCC ESU of coho salmon was listed as threatened pursuant to the federal ESA on April 25, 1997. This listing includes coho from the Trinity River and Klamath River basins. A review of the listing status of the SONCC ESU coho salmon was initiated during 2002 in response to a petition to delist the species in the Klamath River basin (67 Federal Register 40679-40680, June 13, 2002). This status review included evaluation of both natural and hatchery components of the ESU according to the recently proposed policy on the consideration of hatchery-origin fish in federal ESA listing determinations for Pacific salmon and steelhead (69 Federal Register 31354-31359, June 3, 2004). NOAA Fisheries recently concluded and proposed that the SONCC ESU coho salmon should remain listed under the ESA as a threatened species (69 Federal Register 33102-33179, June 14, 2004).

Critical habitat for the SONCC ESU coho salmon was designated on May 5, 1999. Critical habitat is designated to include all river reaches accessible to the listed coho salmon between Cape Blanco and Punta Gorda. Excluded are areas above specific dams or above longstanding, naturally impassable barriers (i.e., natural waterfalls in existence for at least several hundred years). In the Trinity River basin, designated critical habitat for the SONCC ESU coho salmon consists of the water, substrate, and adjacent riparian zone of those estuarine and riverine reaches (including off-channel habitats and accessible tributaries) downstream of Lewiston Dam (CFR Vol. 64, No. 86, May 5, 1999).

The 2000 Biological Opinion on the Trinity River Mainstem Fishery Restoration Program EIS/EIR found that the program "*is not likely to jeopardize the continued existence of the [SONCC ESU] coho salmon*", and "*is not likely to destroy or adversely modify critical habitat for the [SONCC ESU] coho salmon*."

This biological opinion included an incidental take statement authorizing the alternative actions described in this EA/DEIR, which envisioned some potential "take" of the listed coho salmon related to the channel rehabilitation component of the TRRP. The biological opinion states:

> "*The NMFS does anticipate that SONCC coho salmon habitat adjacent to and downstream of the 47 channel rehabilitation projects may be temporarily degraded due to localized turbidity and potential fine sedimentation of channel substrate during construction activities. However, the amount of habitat temporarily degraded due to these localized effects is negligible compared to the long-term creation of additional suitable habitat along approximately 40 miles of the Trinity River.*"

The 2000 biological opinion includes several terms and conditions discussed in **Section 1.11.1** of this EA/DEIR that serve to avoid and minimize "take" of the listed species during implementation of channel rehabilitation projects.

TABLE 3.6-5
SPECIAL-STATUS FISH SPECIES CONSIDERED FOR ANALYSIS
HOCKER FLAT

Common Name (Scientific Name)	Status FED/ST	General Habitat	Comments
Green sturgeon (*Acipenser medirostris*)	C/SSC	Known to spawn in Sacramento, Feather, and Klamath rivers, and juveniles may occur in estuaries. Occur in San Francisco, San Pablo, and Suisun bays and in the Delta. Prefers to spawn in large cobble; eggs fertilized in relatively high water.	The species may be found in the lower Trinity River, but is not known to inhabit the upper Trinity River. **Proposed project study area is outside the known range for the species.**
Pacific lamprey (*Lampetra tridentata*)	SC/--	Spawn in freshwater rivers and streams with juveniles found in slow-moving current, silty bottom habitats; metamorphosed juveniles migrate through estuaries to the ocean.	Observed to spawn in tributaries of the upper river (Deibel 1988); Ammoecetes abundant during spring near the proposed project reach. **The species may occur at the proposed project location.**
Southern Oregon/Northern California Coasts ESU coho salmon (*Oncorhynchus kisutch*) Designated Critical Habitat	T/T	Juveniles prefer deep (≥ 1 m) pools with dense overhead cover, and clear water. Found over a range of substrates from silt to bedrock (Moyle et al. 1995). Trinity River is designated critical habitat and essential fish habitat.	Suitable spawning, rearing, and/or migration corridor habitat exists at the proposed project site. **The Hocker Flat site is within designated critical habitat. The species is known to occur at the proposed project location.**
Klamath Mts. Province ESU steelhead (*Oncorhynchus mykiss irideus*) (summer/fall- and winter-run races)	NW/SSC	Freshwater rivers and streams (Trinity and Klamath Rivers and their tributaries). Steelhead require cool, swift, shallow water; clean, loose gravel for spawning; and suitable large pools in which to spend the summers (CNDDB, 2002).	Summer-run race is a state species of special concern. Suitable spawning, rearing, and/or migration corridor habitat exists at or near the Hocker Flat site. **The species is known to occur at the proposed project location.**
Upper Klamath-Trinity Rivers ESU Chinook salmon (*Oncorhynchus tshawytscha*) (spring- and fall-run races)	NW/SSC	Freshwater rivers and streams. (Trinity and Klamath Rivers and their tributaries). Chinook salmon require cool streams with deep pools and riffles, and gravel or cobble substrate. Trinity River is designated essential fish habitat for the species.	Spring-run race is a state species of special concern. Suitable over-summering, spawning, rearing, and migration corridor habitat exists at or near the Hocker Flat site. **The species is known to occur at the proposed project location.**

Notes:
Federal (FED) & State (ST) Status Codes:
E = Endangered; T = Threatened; C = Candidate Species; NW = Not Warranted for Listing; SC = Species of Concern; SSC = Species of Special Concern

In 2000, the California Fish and Game Commission (Commission) received a petition to list coho salmon north of San Francisco as an endangered species under provisions of the CESA. The Commission required that a comprehensive, state-wide coho salmon recovery strategy and plan be developed while they considered the petition. The coho recovery plan was adopted by the Commission in February 2004 (California Department of Fish and Game 2004). The Commission declined to list the coho under CESA in June 2004 on a split vote. On August 5, 2004, the Commission made the decision to list the California portion of the SONCC ESU coho as threatened north of Punta Gorda. A mandatory review will occur,

and additional information may be provided in the EA/FEIR for the proposed project, anticipated in late 2004.

The green sturgeon was petitioned for listing in 2001. After a lengthy review, National Marine Fisheries Service determined that the species does not warrant listing in a status review published on January 29, 2003. However, the green sturgeon remains a candidate species due to remaining uncertainty regarding the status of populations that inhabit the west coast of North America. There is no evidence to suggest that this species is present in the Trinity River above Burnt Ranch Falls (**Appendix H**).

The Pacific lamprey, along with three other lamprey species, was petitioned for listing in 2003. However, the USFWS has declined to consider the petition at this time due to funding constraints and other ESA listing priorities.

The Klamath Mountains Province (KMP) ESU of steelhead, which includes stocks from the Trinity River, was proposed for listing as threatened on March 16, 1995; however, on February 7, 1998, National Marine Fisheries Service determined that the population did not warrant threatened status, but that it did warrant candidate status (as defined by NOAA Fisheries). Subsequent information on the KMP ESU steelhead was evaluated and National Marine Fisheries Service made a final listing determination that the ESU did not warrant listing in April 2001 (CFR Vol. 66, No. 65, April 4, 2001). However, the summer-run population segment of this ESU remains a California species of special concern, as well as a USFS sensitive species (Moyle et al. 1995, U.S. Forest Service 1995).

Similarly, in a 1998 status review of all west coast Chinook salmon stocks (Myers et al. 1998), the upper Klamath-Trinity rivers ESU Chinook salmon was determined to not warrant listing as a threatened or endangered species. However, spring-run Chinook salmon within the Klamath-Trinity basin are a California species of special concern (Moyle et al. 1995).

Local Setting

Aquatic Habitat Conditions

The aquatic environment within the ESL is composed of a variety of riverine habitat types (i.e., riffles, runs, pools). Each of these habitats consist of distinctive combinations of depth, relative water velocity, water temperature, cover, substrate composition (i.e., bedrock, cobble, gravel, sand, silt, etc), and adjacent riparian vegetation. Riparian wetland vegetation directly adjacent to the river is referred to as shaded riverine aquatic (SRA) habitat and is included as a component of designated critical habitat for coho salmon, as well as a component of EFH for both coho and Chinook salmon.

EFH refers to those waters and substrates necessary for the spawning, breeding, feeding, or growth to maturity. As defined, the term “waters” includes aquatic areas (and their associated physical, chemical, and biological properties) that are used by fish or, where appropriate, have historically been used by fish. The term “substrate” includes sediment, hard-bottom, structures underlying the waters, and associated biological communities. “Necessary” means the habitat required for a sustainable fishery and the managed species’ contribution to a healthy ecosystem. Finally, “spawning, breeding, feeding, or growth to maturity” refers to a species’ full life cycle.

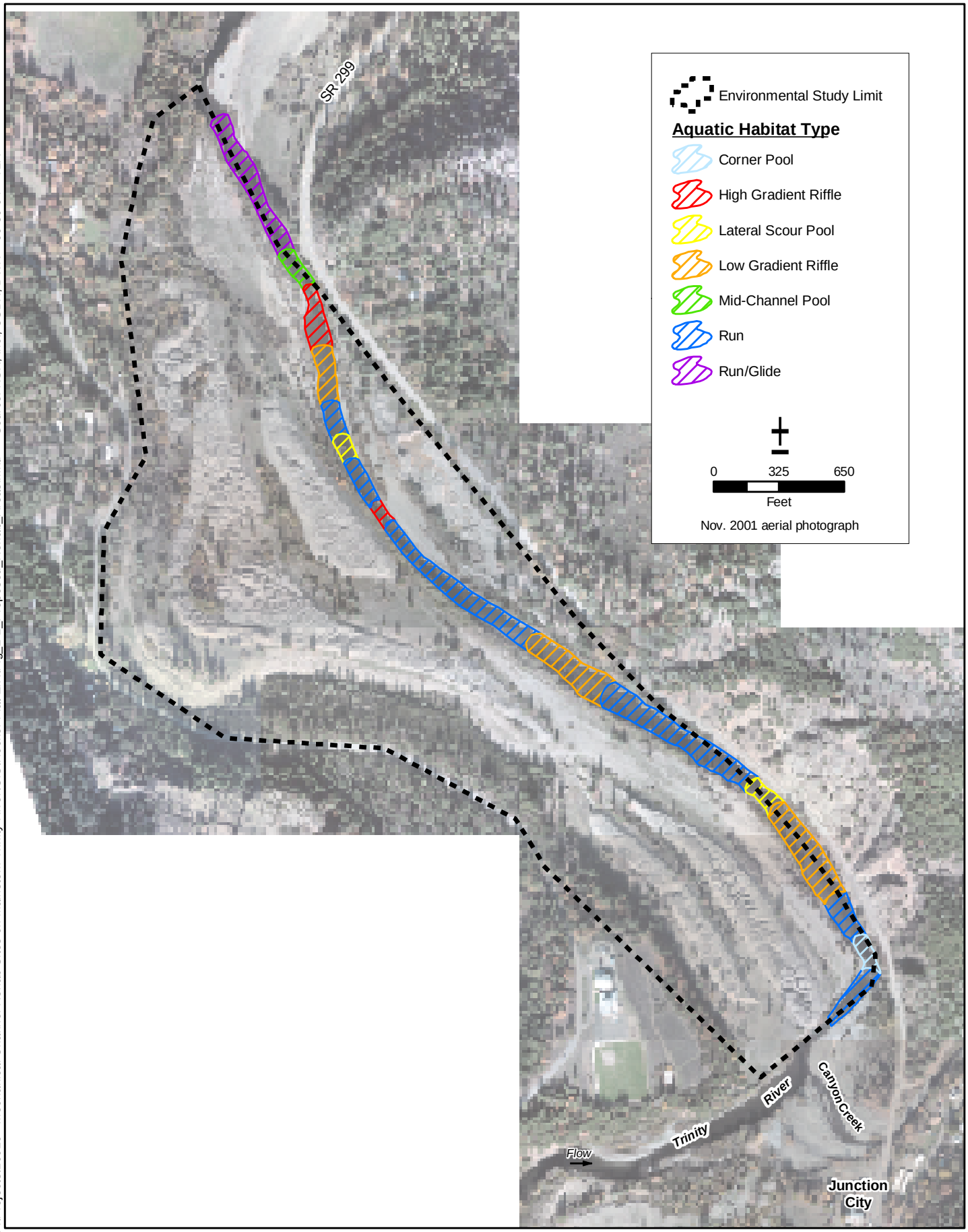
Freshwater EFH for salmon consists of four major components: spawning and incubation habitat; juvenile rearing habitat; juvenile migration corridors; and adult migration corridors and adult holding habitat (PFMC 2000). Important components of EFH for spawning, rearing, and migration include adequate substrate composition; water quality (e.g., dissolved oxygen, nutrients, temperature, etc.); water quantity, depth, and velocity; channel gradient and stability; food; cover and habitat complexity (e.g., large woody debris, pools, channel complexity, aquatic vegetation, etc.); space; access and passage; and floodplain and habitat connectivity (Pacific Fish Management Council 2000).

The river habitat within the ESL was characterized and mapped in October 2002 at a flow of 450 cfs. The river habitat consists of an approximately 5,500-foot-long riffle-run-pool series that includes four irregularly spaced pools (**Figure 3.6-3**). An engineered, feathered-edge floodplain constructed in the mid-1990s, known as the Jim Smith site, occurs near the middle of the ESL on the right bank of the river. Water depths through the proposed project reach range from an average of about 1.25 feet in the riffles, and about 2.5 feet in the runs, up to 5 feet in the pools at the summer base flow (450 cfs). Both banks exhibit mid- to late-seral riparian vegetation as a narrow strand about 15 to 50 feet wide creating SRA habitat covering about 65 percent of the river banks within the ESL. The Jim Smith site is an exception to this general characterization, where SRA covers less than 30 percent of the length of the bank, and the riparian vegetation is dominated by early to mid-seral vegetation that has been more regularly disturbed by high winter flows since removal of the vegetated berm and rehabilitation occurred at the site.

The entire reach provides suitable habitat for anadromous salmonids. Suitable spawning habitat occurs in all of the riffles within the ESL, particularly in the low-gradient riffles that are located in the upstream half of the reach. Spring-run Chinook salmon were observed spawning in these riffles during the habitat surveys. Fall-run Chinook salmon are also reported to spawn at these sites (C. Chamberlain, U.S. Fish and Wildlife Service – Arcata, unpublished data). Run and pool habitats appear to be suitable for juvenile salmonid rearing. Large cobbles and boulders dominate the river bottom in these habitats, providing suitable cover and refuge for rearing salmonids. Overhanging riparian vegetation, roots protruding from the banks, and large woody debris near the banks occurred throughout most of the habitat in the reach, offering additional cover and aquatic habitat complexity for rearing fish. Highly suitable fry habitat was limited to the stream edges in the low-gradient riffles and on the point bar on the bend near the upper end of the reach. Additional fry rearing habitat was observed at the tail outs of the four pool habitats. The deep corner pool near the upper end and the mid-channel pool near the lower end of the reach appear to provide suitable holding conditions for adult steelhead and salmon.

Native Anadromous Fish Species

All three species of native anadromous salmonids (i.e., spring- and fall-run Chinook salmon, coho salmon, and summer/fall- and winter-run steelhead) may be expected to occur within the ESL. All freshwater life stages of these species (i.e., adult, egg, fry, and juvenile/smolt) may be expected to utilize habitats within the ESL. The anadromous Pacific lamprey may also be expected to occur in each of its freshwater life stages (i.e., adult, egg, larval ammocoete, metamorphosed and emigrating juvenile) within this reach.



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North State Resources, Inc.

Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

Figure 3.6-3
Aquatic Habitat

Adult spring-run Chinook salmon migrate past Hocker Flat, and are likely to hold in the deeper pool habitats, especially from late April through August. These fish commence spawning about the second week of September and spawn through mid-October. Spawning was observed during early October on the riffles. Fry and juvenile spring-run would be expected in suitable habitats throughout the site from late December through October. Outmigration of spring- run smolts would occur from late October through June.

Adult fall-run Chinook migrate to and are expected to spawn within and near the proposed project reach in all suitable habitats, typically from late September through mid-December (C. Chamberlain, U.S. Fish and Wildlife Service, pers. comm.). Fry and juveniles are expected in suitable rearing habitats from January through June (N. Manji, California Department of Fish and Game pers. comm.). Sub-yearling fall Chinook smolts generally outmigrate from April through June (Leidy and Leidy 1984, Moyle 2002, T. Shaw, USFWS – Arcata, unpublished office report).

Adult coho migrate to and may spawn within or near the proposed project reach, typically from late October through December (J. Glase, National Park Service, pers. comm.). Although juvenile coho rearing habitat is considered to be limited in the general vicinity of this reach, juveniles are expected in suitable habitats year-round throughout the mainstem river from the North Fork Trinity River confluence upstream to Lewiston Dam (J. Glase, National Park Service, pers.comm.). Pool habitat associated with boulders and large woody debris are particularly preferred habitat by rearing coho salmon (Hassler 1987, Sandercock 1991, Moyle 2002). Such habitat is very limited in the proposed project reach. Yearling coho smolts typically outmigrate during storm spates from October through June (Hassler 1987, Sandercock 1991, Moyle 2002). Smolts are most abundant in downstream migrant traps from late April through June in the Klamath-Trinity basin (Glase 1994, National Research Council 2004); however, a few smolts have been observed migrating downstream in the Trinity River as late as August (J. Glase, National Park Service, pers. comm.). It is unclear if these late-season migrant fish are truly emigrating or simply re-distributing along the river to rear.

Adult summer/fall-run steelhead migrate and are expected to hold in the deeper pools and runs within the ESL from April through September (Leidy and Leidy 1984, Moyle 2002). These fish will typically actively feed through the salmon spawning season, and migrate to the upper river reaches and into tributaries to spawn from February through April. Winter steelhead typically migrate to spawning grounds from November through April and spawn during the same time as the summer/fall run. Suitable steelhead spawning habitat occurs in the riffles within the proposed project reach. Fry and juvenile steelhead of both runs may be expected in the riffle and run/pool habitats year-round, especially associated with large cobble and boulder cover as well as overhanging riparian vegetation and large woody debris (Hampton 1988, Moyle 2002). Suitable juvenile steelhead rearing habitat occurs throughout the proposed project reach. Sub-yearling, yearling, and two-year old smolts generally outmigrate at times similar to those of the coho salmon during storm spates from October through June (Glase 1994).

Adult Pacific lampreys migrate to spawn in the upper Trinity River and tributaries during the spring and early summer, although they are documented to occur in the river near Lewiston through August (Moffett

and Smith 1950, Moyle 2002). Suitable lamprey spawning habitat occurs on the low-gradient riffles and on the run/pool tail outs throughout the site. Based on juvenile outmigrant trapping data, larval lampreys and juveniles are expected to be abundant year-round in the upper Trinity River (J. Glase, National Park Service, pers. comm.). Juveniles require areas of relatively slow currents, and mud- and sand-bottomed backwaters and pools, where they burrow and filter feed on detritus and algae (Moyle 2002). Based on this habitat preference, lamprey ammocoetes may be expected in the mud and sand sediments of the pool and run/edgewater habitats throughout the proposed project reach.

Resident Native and Non-Native Fish Species

Site-specific information on the occurrence of resident fish species is not available for the proposed project reach. Therefore, we evaluated the potential for resident fish species to occur in or near the proposed project reach based on habitat characteristics observed at the site and professional knowledge of the habitat requirements and general geographic distributions of species known to inhabit the Trinity River. Species that can be expected to occur include speckled dace, Klamath smallscale sucker, three-spined stickleback, coast range sculpin, and marbled sculpin although, this latter species is considered uncommon in the Trinity River (Moyle 2002). All of these species may occur as adults and juveniles within this reach. They may be found in the pools, runs, and riffles during the spring and summer months, but retreat to the pools and slow edgewater areas during the winter months and higher flows. It is not known if these species spawn within this reach.

Adults and juveniles of the introduced brown trout are known to occur within the Trinity River downstream of Lewiston Dam. Brown trout are thought to occur mostly as a resident population occurring upstream of Grass Valley Creek, although significant numbers of brown trout are captured each year in the CDFG upstream migrant trap at Junction City (M. Currier, California Department of Fish and Game, pers. comm.). Whether these fish are anadromous migrants or simply moving within the river is not certain, although brown trout are known to exhibit anadromy in other streams where they occur. Brown trout have not been reported from the proposed project reach; however, suitable habitat occurs there.

3.6.2 REGULATORY SETTING

This section lists specific environmental review and consultation requirements and identifies permits and approvals that must be obtained from local, state, and federal agencies before construction of the proposed project.

Federal

NOAA Fisheries

Federal Endangered Species Act

The ESA defines “take” (Section 9) and generally prohibits the “taking” of a listed endangered or threatened species (16 USC. 1532, 50 CFR 17.3). Under the ESA, the “take” of a federally listed threatened or endangered species is defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” The term “harm” includes intentional or

negligent acts or omissions that actually kill or injure wildlife. Such acts may include significant habitat modification or degradation when it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Section 7 of the ESA requires federal agencies, in consultation with the Secretary of the Interior, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of designated critical habitat for these species. Reclamation, the federal lead agency for the proposed project, is required to consult with NOAA Fisheries concerning proposed project effects to SONCC ESU of coho salmon pursuant to Section 7 of the ESA. The 2000 Biological Opinion and Incidental Take Statement on the Mainstem Fisheries Restoration Program EIS/EIR provides ESA Section 7 coverage for the proposed action.

Magnuson-Stevens Fishery Conservation and Management Act

The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures designed to identify, conserve, and enhance EFH for those species regulated under a federal fisheries management plan.

The MSA requires federal agencies to consult with NFMS (NOAA Fisheries) on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH (MSA Section 305[b][2]). A component of this consultation process is the preparation and submittal of an Essential Fish Habitat Assessment (EFHA). The length of the EFHA will vary based on proposed project complexity and magnitude of potential impacts to EFH, but all EFHAs must include the following information: (1) a description of the proposed action; (2) an analysis of the effects, including cumulative effects, of the proposed action on EFH, the managed species, and associated species, such as major prey species, including affected life history stages; (3) the federal agency's views regarding the effects of the proposed action on EFH; and (4) proposed mitigation, if applicable. In instances where MSA and ESA issues overlap, NOAA Fisheries encourages an integrated approach for consultation.

The EFH mandate applies to all species managed under a federal fishery management plan (FMP). For the Pacific Coast (excluding Alaska), there are three FMPs covering groundfish, coastal pelagic species, and Pacific salmon. As the federal lead agency, Reclamation will need to consider the impact of the Proposed Action on EFH for coho and Chinook salmon in the Trinity River pursuant to the Pacific Coast Salmon FMP.

State

California Department of Fish and Game

Streambed Alteration (Sections 1600-1607 of the California Fish & Game Code)

State and local agencies, though not federal agencies such as Reclamation, may be subject to Section 1602 of the California Fish and Game Code which governs construction activities that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the CDFG. Under Section 1602, a discretionary Stream Alteration Agreement permit from the CDFG (Region 1 jurisdiction) must be issued by the CDFG to DWR prior to the initiation of construction activities within lands under jurisdiction. As a general rule, this requirement applies to

any work undertaken within the 100-year floodplain of a stream or river containing fish or wildlife resources.

California Endangered Species Act

Under the CESA, the CDFG has the responsibility for maintaining a list of endangered and threatened species (California Fish and Game Code 2070). The CDFG maintains a list of "candidate species," which are species that the CDFG formally notices as being under review for addition to the list of endangered or threatened species. The CDFG also maintains lists of "species of special concern," which serve as species "watch lists." Pursuant to the requirements of the CESA, any local or state agency reviewing a proposed project within its jurisdiction must determine whether any state-listed endangered or threatened species may be present in the project study area and determine whether the proposed project will have a potentially significant impact on such species. In addition, the CDFG encourages informal consultation on any proposed project that may impact a candidate species.

Project-related impacts to species on the CESA endangered or threatened list would be considered significant. State-listed species are fully protected under the mandates of CESA. "Take" of protected species incidental to otherwise lawful management activities may be authorized under Section 2081 of the Fish and Game Code of California. Authorization from CDFG would be in the form of an Incidental Take Permit. For the proposed project, DWR, though not Reclamation or BLM, would need to obtain an incidental take permit if the proposed project could result in the take of a state-listed species (i.e., coho salmon).

"Fully Protected" Fish Species

California law (Fish and Game Code, § 5515) also identifies certain "fully protected fish" that cannot lawfully be "taken" even with an incidental take permit. The following species are protected in this fashion: (1) Colorado River squawfish (*Ptychocheilus lucius*), (2) thicktail chub (*Gila crassicauda*), (3) Mohave chub (*Gila mohavensis*), (4) Lost River sucker (*Catostomus luxatus*), (5) Modoc sucker (*Catostomus microps*), (6) shortnose sucker (*Chasmistes brevirostris*), (7) humpback sucker (*Xyrauchen texanus*), (8) Owens River pupfish (*Cyprinoden radiosus*), (9) unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*), and (10) rough sculpin (*Cottus asperrimus*). None of these species is present in the Trinity River or its tributaries.

Local

Trinity County General Plan Goals and Objectives

The Trinity County General Plan contains goals and policies designed to guide the future physical development of the county, based on current conditions. The General Plan contains all the state-required elements, including community development and design, transportation, natural resources, health and safety, noise, housing, recreation, economic development, public facilities and services, and air quality. The following goals and policies, relative to fishery resource issues associated with the proposed project, were taken from the applicable elements of the General Plan (Trinity County 2001), including the Junction City Community Plan (Trinity County 1987).

County Wide Goals and Objectives

Environmental

To strive to conserve those resources of the County that are important to its character and economic well-being

- by assuring that developments occurring on these lands are compatible with the resources;
- by strongly supporting the County as "lead agency" or as an integral participant in any state or federal project within the County so that all agencies are made aware of local desires and all plans are coordinated;
- by utilizing a sound resource-related planning process in decision-making; and
- by protecting not only rare and endangered species, but also required habitat for more plentiful species.

Junction City Community Plan Goals and Objectives

This plan consists of approximately 42 square miles (27,000 acres) of area centered on the Trinity River from Maxwell Creek to slightly downstream from Helena.

Natural Resources

Goal: To preserve and maintain open space areas for a variety of wildlife uses.

- Protect floodplain areas from intensive development which could lead to adverse impacts on wildlife.
- Review future development to insure protection of significant habitat areas (other than critical winter range).
- Preserve and protect special habitat areas.

Goal: To protect and improve fish habitat within the Plan area.

- Encourage the development and implementation of fishery restoration projects in conformance with the Trinity River Restoration Project within the Plan area.

Goal: Maintain and enhance the high quality of the area's natural resources.

- Continue and support the County's policy prohibiting the use of herbicides or pesticides as a land management tool.

Project Consistency with the Trinity County General Plan

This section compares the goals and objectives of the proposed project to the relevant local planning policies (i.e., Trinity County General Plan, Junction City Community Plan) to determine if there are any inconsistencies.

As described in **Chapter 1,** Introduction, the proposed project would provide the opportunity to:

- increase the diversity and area of habitat for salmonids, particularly habitat suitable for rearing;
- increase rearing habitat for juvenile salmonid, including coho, Chinook, and steelhead;
- increase structural and biological complexity of habitat for various species of wildlife associated with riparian habitats;
- increase hydraulic and fluvial geomorphic diversity and complexity;
- provide a demonstration project to evaluate the fate and transport of mercury related to rehabilitation/restoration projects;
- measure/demonstrate the ecological response to changes in flow regimes, morphological features, and aquatic, riparian, and upland habitats; and
- provide a self-maintaining project independent of any future TRD flows.

The following project objectives apply to the proposed project's lead/responsible agencies for CEQA purposes:

- Evaluate changes in channel geometry in response to constructing channel and floodplain features designed for the river's current hydrologic regime.
- Evaluate the evolution of channel planform features in response to designing and implementing the project at a river segment (1-mile) scale.
- Evaluate the biological response (aquatic, riparian, upland) to changes in the physical environment, and incorporate this information into the AEAM Program.
- Conduct a preliminary assessment of the fate and transport of mercury in response to restoration activities in a historic mining district.
- Locate the project downstream of Canyon Creek to ensure that natural tributary accretion to mainstem flows maximizes the likelihood of maintaining the site prior to implementation of the ROD-recommended flow regime.

- Provide safe and reasonable access to the site for project planning, implementation, and monitoring.
  - Develop partnerships with willing participants, and encourage positive landowner interest and involvement.
  - Design the project to function with the river's current hydrology estimated at the site.
  - Integrate known fluvial and ecological theories and relationships with the site's measured physical and biological attributes and evaluate response over a definitive time frame.
  - Minimize in-stream work to reduce construction-related impacts, maximize the river's ability to rehabilitate itself during high flows, and reduce implementation cost and complexity.
  - Attempt to preserve unique and valuable geomorphic and biological features wherever practicable (i.e., hydraulic controls, high-quality spawning or adult holding habitat).

The following objectives apply to the proposed project's responsible and trustee agencies, including the SWRCB, the NCRWQCB, the SLC, the CDFG, and the HVT:

- compliance with the Water Code to ensure the highest reasonable quality of waters of the state and allocate those waters to achieve the optimum balance of beneficial uses;
- protection of the public trust assets of the Trinity River watershed;
- conservation, restoration, and management of fish, wildlife, and native plant resources; and
- compliance with the Water Quality Control Plan for the Hoopa Valley Indian Reservation to preserve and enhance water quality on the Reservation, and to protect the beneficial uses of water.

The goals and objectives associated with the proposed project are generally compatible with the applicable general plan goals and policies for land use summarized above. The overall goal of the proposed project is restore a segment of the Trinity River so that it functions in a manner that is closer to historic (i.e., pre-Lewiston Dam) conditions. Although there will be some mechanical vegetation removal along the Trinity River floodplain, which is a Scenic Conservation Overlay Zone, the proposed project will include both riparian and upland revegetation efforts intended to provide a more diverse plant assemblage than is currently present, therefore enhancing the long-term aesthetic values of the river corridor.

3.6.3 Environmental Consequences/Impacts and Mitigation Measures

Methodology

The following section provides a brief overview of the analytic methods used to assess potential impacts of the proposed project on fisheries resources. These methods included a comprehensive literature search and focused field surveys.

Evaluation of the possible presence of special-status fish species and sensitive habitats within the ESL established for the proposed project was conducted using database searches, informally consulting with resource agencies (i.e., CDFG, NOAA Fisheries, USFWS), and reviewing environmental documents and technical studies prepared for projects in the vicinity. The database search conducted as part of the evaluation was of the California Natural Diversity Database (CNDDB). The CNDDB contains occurrence records for special-status plant and animal species, as well as sensitive natural vegetation communities, by USGS quadrangle. A search of the *Junction City, Weaverville, Helena, and Hayfork Bally* quadrangles was conducted for the proposed project. In addition to the database search, North State Resources (NSR) retrieved a list of special-status species with potential to occur in the general vicinity of the proposed project from the USFWS (U.S. Fish and Wildlife Service, 2004; http://arcata.fws.gov/specieslist/search.asp). Agency representatives from the Corps, CDFG, NOAA Fisheries, and USFWS were contacted to discuss specific biological resource issues associated with the proposed project, including potential impacts and suggested mitigation measures.

A reconnaissance-level site visit was conducted on October 10, 2002, to characterize the aquatic habitats and potential suitable spawning and rearing habitat present within the ESL. The purpose of this assessment was to identify and map aquatic habitat within the ESL.

Significance Criteria

Significance criteria used to assess the potential impacts of the proposed project on fisheries resources are based on the current scientific understanding of biological requirements and ecological status of the species of interest, and the regulatory standards of county, state, and federal agencies, including the *CEQA Guidelines*. Effects were considered significant for anadromous salmonids and other native fish species if they resulted in any of the following:

- Potential for reductions in the number, or restrictions of the range, of an endangered or threatened native fish species or a native fish species that is a candidate for state listing or proposed for federal listing as endangered or threatened;
- Potential for substantial reductions in the habitat of any native fish species other than those that are listed as endangered or threatened or are candidates or proposed for endangered or threatened status;
- Potential for causing a native fish population to drop below self-sustaining levels;
- Substantial adverse effect, either directly or through habitat modifications, on any native anadromous species identified as a sensitive or special-status fish species in local or regional plans, policies, or regulations;
- Substantial interference with the movement of any native anadromous or resident fish species;
- A conflict with, or violation of, the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan relating to the protection of native anadromous species or resident fish species;
- Mortality of state or federally listed fish species, or species that are candidates for listing or proposed for listing;
- Reductions in the size of a native fish species' population sufficient to jeopardize its long-term persistence;
- Temporary impacts to habitats such that native fish species suffer increased mortality or lowered reproductive success that jeopardizes the long-term persistence of those local populations;
- Permanent loss of designated critical habitat and/or essential habitat of a listed species or special-status native fish species; or
- Reduction in the quantity or quality of habitats in which native fish species populations occur sufficient to reduce the long-term abundance and productivity of local populations.

Impacts and Mitigation Measures

The following sections provide detailed descriptions of the potential impacts to fishery resources and recommended mitigation measures for each alternative evaluated in the EA/DEIR. To reduce redundancy and improve readability, the impacts to the federally listed SONCC coho salmon, special-status (i.e., "species of special concern" for CEQA, and "species of concern" for NEPA) and non-listed fish species are described together under each alternative action. Because the threshold for "significance" of an impact is lower (i.e., more restrictive) for threatened and endangered species, impacts are described separately where they differ among species. The effects have been evaluated for the principal species of interest and address the full range of potential impacts to anadromous and resident riverine fishes within the ESL. The nature of the proposed project requires recognition that temporary impacts to salmonids and other riverine species would occur, but the ultimate goal of the project is to improve fish habitat suitability and availability over the long term.

Table 3.6-6 summarizes the potential fishery resource impacts resulting from implementation of the proposed project.

TABLE 3.6-6
SUMMARY OF FISHERY RESOURCE IMPACTS
HOCKER FLAT

Impact	No-Action Alternative	Proposed Action	Alternative 1	Proposed Action with Mitigation	Alternative 1 with Mitigation
1. Implementation of the proposed project could result in effects on potential spawning and rearing habitat for anadromous fishes, including federally listed coho salmon.	NI	LS/B	LS/B	N/A[1]	N/A
2. Implementation of the proposed project could result in increased erosion and sedimentation that could adversely affect fishes, including federally listed coho salmon.	NI	S	S	LS	LS
3. Construction activities associated with the proposed project could potentially result in the accidental spill of hazardous materials that could adversely affect fishes, including federally listed coho salmon.	NI	S	S	LS	LS
4. Construction activities associated with the proposed project could result in the mortality of rearing fishes, including federally listed coho salmon.	NI	S	S	LS	LS
5. Implementation of the proposed project would result in the permanent and temporary loss of shaded riverine aquatic habitat for anadromous salmonids.	NI	S	S	LS	LS

Notes:
LS = Less than Significant S = Significant NI = No Impact B = Beneficial N/A = Not Applicable
[1] Because this potential impact is less than significant, no mitigation is required.

Impact 3.6-1: Implementation of the proposed project could result in effects on potential spawning and rearing habitat for anadromous fishes, including federally listed coho salmon. ***No Impact for the No-Action Alternative; Less Than Significant Impact for the Proposed Action and Alternative 1.***

No-Action Alternative

Under the No-Action Alternative, there would be no effects on spawning and rearing habitat other than those associated with current ongoing actions.

Proposed Action

Coho Salmon. No permanent adverse effects to spawning habitat for coho salmon within the ESL will occur. **Figure 3.6-4** illustrates the extent of the grading activity that would occur under the Proposed Action. Long-term expectations are that implementation of the proposed project would result in an increase in channel migration across the floodplain, within design limits, within the ESL. This engineered fluvial channel dynamic would result in a net increase in point bar surface area through coarse sediment deposition, which would increase riffle spawning habitat within the ESL. Temporary effects on spawning habitat associated with construction of the proposed project are expected to be limited to short-term, localized sedimentation caused by settling of silt disturbed by bank-side excavation activities. The amount of silt disturbed by this activity is not expected to significantly affect downstream spawning areas. Construction near the active low-flow channel is planned to occur during the dry season (April 15th to October 15th), which is outside the coho salmon spawning period, thus avoiding disturbance to spawning fish.

Suitable rearing habitat for juvenile coho salmon and other salmonids occurs within the ESL. However, rearing habitat for coho salmon is limited by the relatively small amount of pool and backwater habitat associated with suitable cover. Some temporary effects on the quality of juvenile salmonid rearing habitat will occur through the removal of riparian vegetation contributing to SRA habitat in the proposed project reach. These temporary effects range from elimination of stream shading that moderates localized water temperatures to removal of the physical cover provided by overhanging riparian vegetation and associated roots protruding from eroding banks. These effects may result in displacement of rearing salmonid fishes from the proposed project reach by reducing the suitability of the habitat, and may lead to increased predation risk or reduced feeding efficiency through the loss of the cover function provided by the SRA habitat (Michney and Hampton 1984, Michney and Deibel 1986).

However, the temporary impacts on rearing habitat are expected to be offset by the permanent beneficial changes to physical rearing habitat associated with implementing the proposed project. These benefits will result from the previously described engineered improvement in river access to, and channel migration through, the floodplain, and from the revegetation of the floodplain with native plant species that will eventually contribute shade and large wood to the river channel. Improved river access to the floodplain during elevated spring-time flows is expected to increase available slow, shallow water habitat preferred by salmonid fry. This fluvial channel migration through the floodplain may create new shallow point bar habitat which is preferred by salmonid fry. The channel migration process is expected to also create pool and backwater habitats that would increase the relative abundance of this preferred coho rearing habitat, compared to the existing condition within the proposed project reach. Ultimately, the collective improvements in fluvial channel dynamics contributed by this proposed action and by planned future bank rehabilitation throughout the upper Trinity River will improve rearing habitat diversity for all anadromous salmonids (U.S. Fish and Wildlife Service and Hoopa Valley Tribe 1999).

Chinook Salmon. Potential impacts and benefits to Upper Klamath-Trinity Rivers ESU Chinook salmon populations in the Trinity River resulting from implementation of the Proposed Action would be similar

to those previously described for coho salmon. Spring- and fall-run salmon are known to spawn and rear within the ESL. Spring-run Chinook salmon juveniles can be expected to rear year-round in the ESL.

Steelhead. Potential impacts and benefits to the KMP ESU steelhead populations in the Trinity River resulting from implementation of the Proposed Action would be similar to those previously described for coho and Chinook salmon. Summer, fall, and winter runs of KMP ESU steelhead are known to migrate and stage, and they may spawn (as adults) and rear (as juveniles) within the ESL established for the proposed project.

Pacific Lamprey. Potential impacts and benefits to Pacific lamprey populations in the Trinity River resulting from implementation the Proposed Action would be similar to those previously described for coho salmon and other anadromous salmonids. Temporary impacts specific to Pacific lamprey may include disturbance of spawning lamprey, which spawn during the early summer. The removal of riparian vegetation that contributes to SRA habitat within the ESL would potentially further temporarily affect adult Pacific lamprey by reducing holding and hiding habitat, which is particularly important for upstream migrant adults. However, the implementation of the revegetation plan will alleviate this impact over the longer term.

Alternative 1

Coho Salmon. Alternative 1 would result in temporary and permanent construction-related impacts to riverine habitats similar to those under the Proposed Action. **Figure 3.6-4** illustrates the extent of the grading activity relative to Alternative 1. Most of the expected benefits of the Proposed Action would occur. The difference between this alternative and the Proposed Action is that most of the excavation will be associated with the riparian berms adjacent to the Trinity River, and only a small increase in floodplain would be immediately realized, which would likely result in a greater resistance to, and a greater time for, channel migration to occur at the rehabilitated banks. Subsequent improvements in fish habitat could require a greater time period than to the Proposed Action.

Chinook Salmon. Alternative 1 would result in temporary and permanent construction-related impacts to spawning and rearing habitat for Upper Klamath-Trinity Rivers ESU Chinook salmon similar to those associated with the Proposed Action. Most of the expected benefits of the Proposed Action would occur, but would require a greater time period before realized.

Steelhead. Alternative 1 would result in temporary and permanent construction-related impacts to spawning and rearing habitat for KMP ESU steelhead similar to those associated with the Proposed Action. Most of the expected benefits of the Proposed Action would occur, but would require a greater time period before realized.

Pacific Lamprey. Alternative 1 would result in temporary and permanent construction-related impacts to spawning and rearing habitat for Pacific lampreys similar to those associated with the Proposed Action. Most of the expected benefits of the Proposed Action would occur, but would require a greater time period before realized.

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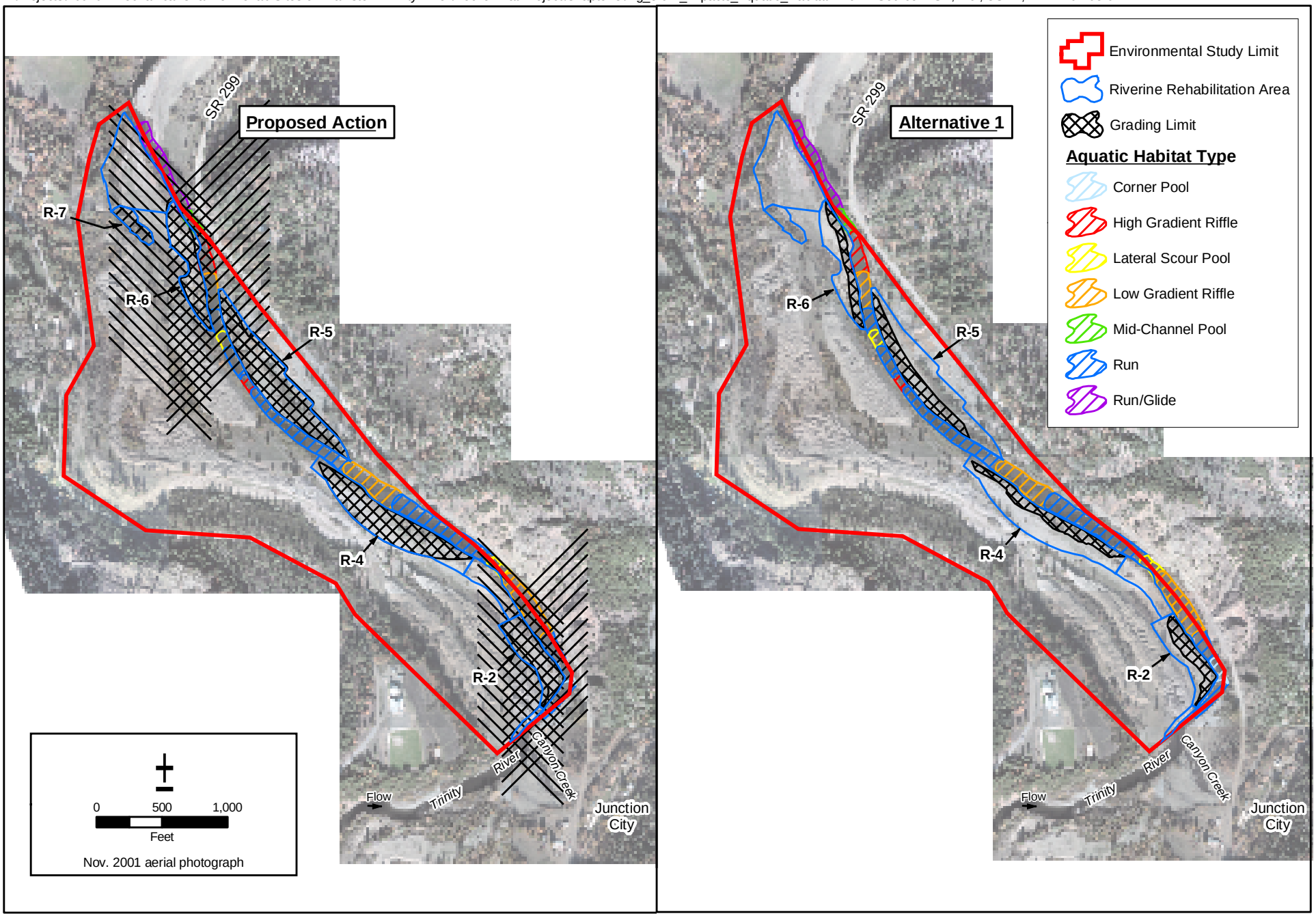


Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

North State Resources, Inc.

Figure 3.6-4
Relative Impacts of Project Alternatives on Aquatic Habitat
Proposed Action and Alternative 1

Mitigation Measures

No-Action Alternative; Proposed Action; Alternative 1

No significant impacts were identified; therefore, mitigation is not required.

Significance after Mitigation: N/A.

Impact 3.6-2: Implementation of the proposed project could result in increased erosion and sedimentation levels that could adversely affect fishes, including federally listed coho salmon. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action and Alternative 1.***

No-Action Alternative

Under the No-Action Alternative, there would be no increase in erosion or sedimentation levels that could adversely affect fish species other than those levels associated with other TRRP actions.

Proposed Action

Coho Salmon. Activities related to implementation of the Proposed Action would result in the localized loss of vegetation and general disturbance to the soil. Removal of vegetation and soil could accelerate erosion processes within the ESL and increase the potential for sediment to enter the Trinity River. The turbidity of a water body is related to the concentration of suspended solids. Suspended solids and turbidity generally do not acutely affect aquatic organisms unless they reach extremely high levels (i.e., levels of suspended solids reaching 25 mg/L). At these high levels, suspended solids can adversely affect the physiology and behavior of aquatic organisms and may suppress photosynthetic activity at the base of food webs, affecting aquatic organisms either directly or indirectly (Alabaster and Lloyd 1980).

Sedimentation of in-stream gravels could significantly change the composition and abundance of aquatic invertebrate populations, thus affecting food availability for salmonids. Sedimentation of fines in cobble and gravel substrates would reduce the amount of interstitial spacing between bed materials that provide a source of cover for fry and juvenile salmonids. Potential sedimentation of river gravels could reduce the quality of suitable rearing and spawning habitats (Cordone and Kelley 1961).

Within the ESL, silt and sand in the river banks would be disturbed during excavation of the riverine rehabilitation sites. Loosened soils on the excavated floodplains may be more easily mobilized than under the existing condition by rainfall and during the first high flows of the winter. Fill placements and treatments in the upland spoiling sites could be vulnerable to erosion and silt runoff during storms. Although no in-river excavation is planned, minor amounts of sidecast can be anticipated to fall into the river during the earth work and site contouring.

Silt disturbance, increased turbidity, and any sedimentation of the streambed associated with implementation of the proposed project are expected to be localized and temporary. Some silt may settle near or on known spawning habitats located downstream of riverine rehabilitation areas, particularly R-2, R-4, and R-6, but is not expected to impair redd excavation or spawning. All earth work is expected to be performed during the dry season, and thus would avoid effects on adult coho migration and spawning, and smolt emigration. Any juvenile coho salmon rearing in the area during this timeframe could be

temporarily displaced or their social behavior could be temporarily disrupted by turbidity created during this activity. Behavioral disruption, even temporarily, could result in some increased vulnerability to competitive interactions or predation for juvenile coho salmon (Berg and Northcote 1985). These temporary impacts were anticipated and addressed in the 2000 biological opinion and associated incidental take statement for the proposed project described in this EA/DEIR.

Chinook Salmon. Potential impacts to Upper Klamath-Trinity Rivers ESU Chinook salmon populations in the Trinity River resulting from implementation of the Proposed Action would be similar to those previously described for coho salmon. Consequently, some construction disturbance of silt, potential erosion runoff, and increased turbidity could take place during the migration and rearing seasons. Spring- and fall-run Chinook salmon are known to spawn in suitable habitats within the ESL, although the proposed construction period would avoid the spawning months. Spring-run Chinook juveniles are expected to rear throughout the year within the ESL.

Steelhead. Potential impacts to the KMP ESU steelhead populations in the Trinity River resulting from implementation of the Proposed Action would be similar to those previously described for coho and Chinook salmon. Summer, fall, and winter runs of KMP ESU steelhead are known to migrate, stage (as adults), and rear (as juveniles) within the proposed project ESL, throughout the proposed construction season. All three runs generally spawn during the winter.

Pacific Lamprey. Potential impacts on Pacific lamprey populations in the Trinity River resulting from implementation of the Proposed Action would be similar to those previously described for coho salmon and other anadromous salmonids. Adult Pacific lampreys migrate upstream to spawn from spring through early summer and again in the fall. Larval lampreys inhabit the river year-round. Siltation of nests that may be built in suitable habitats (i.e., low-gradient riffles adjacent to sites R-2, R-4, and R-6) could occur. Filter feeding by larval lampreys could be disrupted by an increase of suspended sediments caused by construction-related erosion, although this impact would be very localized and temporary.

Alternative 1

Coho Salmon. Alternative 1 would result in temporary effects on coho salmon from erosion, sedimentation, and turbidity levels similar to those described for the Proposed Action. Most of the expected benefits of the Proposed Action would also occur. The difference between this alternative and the Proposed Action is that the areas of excavation and upland fill and spoils placement would be smaller which would result in less disturbed and loosened soil and potentially less localized sedimentation and turbidity during storms and initial flood events that involve the excavated riverine rehabilitation areas.

Chinook Salmon. Alternative 1 would result in temporary effects on erosion, sedimentation, and turbidity impacts for Upper Klamath-Trinity Rivers ESU Chinook salmon similar to those associated with the Proposed Action.

Steelhead. Alternative 1 would result in temporary effects on KMP ESU steelhead from erosion and sedimentation similar to those associated with the Proposed Action.

Pacific Lamprey. Alternative 1 would result in temporary effects on Pacific lampreys from erosion and sedimentation similar to those associated with the Proposed Action.

Mitigation Measures

No-Action Alternative

No significant impacts were identified; therefore, mitigation is not required.

Significance after Mitigation: N/A.

Proposed Action; Alternative 1

2a: Turbidity increases associated with proposed project construction activities shall not exceed the NCRWQCB water quality objectives for turbidity in the Trinity River basin. Turbidity levels are defined in nephelometric turbidity units (NTUs). The current threshold for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (2001), is summarized below.

- Turbidity shall not be increased by more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof.

2b: To ensure that turbidity levels do not exceed the threshold listed above during project construction activities at the river's edge, Reclamation or its contractor shall monitor turbidity levels 50 feet upstream and 500 feet downstream of the point of river's edge construction activities. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every 2 hours during periods of increased turbidity.

2c: Reclamation or its contractor shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that includes silt fences, sediment filters, dewatering activities, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls and dewatering activities shall be adequate to minimize sediment inputs into the Trinity River until vegetation re-growth occurs. All sediment containment devices and erosion control devices will be inspected daily during the construction period to ensure that the devices are properly functioning. Any erosional control devices found to be nonfunctional must be repaired or replaced within 10 days following their discovery or by the end of the work day if rain is imminent or if a greater than 50 percent possibility of rain has been forecasted within the next 24 hours by the National Weather Service. In those cases where, for safety reasons, repairs cannot be made immediately, they should be completed as soon as the work can safely be performed. Excavated and stored materials will be kept in upland sites with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland sites. All applicable erosion control standards will be required during stockpiling of materials.

Significance after Mitigation: Less than Significant.

Impact 3.6-3: Construction activities associated with the proposed project could potentially result in the accidental spill of hazardous materials that could adversely affect fishes, including federally listed coho salmon. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action and Alternative 1.***

No-Action Alternative

Under the No-Action Alternative, no potential risk of accidental hazardous material spills exists other than that associated with current ongoing actions.

Proposed Action

Coho Salmon. Construction activities typically include the refueling of construction equipment on location. As a result, minor fuel and oil spills could occur, and there would be a risk of larger releases. Without rapid containment and clean up, these materials could be potentially toxic, depending on the location of the spill in proximity to surface water features, including the Trinity River. Oils, fuels, and other contaminants could have deleterious effects on all salmonid life stages within close proximity to construction activities.

Chinook Salmon. Potential impacts to Upper Klamath-Trinity Rivers ESU Chinook salmon populations in the Trinity River resulting from accidental spill of hazardous materials would be similar to those previously described for coho salmon.

Steelhead. Potential impacts to KMP ESU steelhead populations in the Trinity River resulting from accidental spill of hazardous materials would be similar to those previously described for coho salmon.

Pacific Lamprey. Potential impacts to pacific lamprey populations in the Trinity River resulting from accidental spill of hazardous materials would be similar to those previously described for coho salmon.

Alternative 1

Risk of, and impacts incurred by, construction-related accidental spills of hazardous materials associated with Alternative 1 would be similar to those associated with the Proposed Action for all anadromous fish species.

Mitigation Measures

No-Action Alternative

No significant impacts were identified; therefore, mitigation is not required.

Significance after Mitigation: N/A.

Proposed Action; Alternative 1

Construction specifications shall include the following measures to reduce potential impacts associated with accidental spills of pollutants (e.g., fuel, oil, grease, etc.) to vegetation and aquatic habitat resources within the proposed project ESL:

3a: Equipment and materials shall be stored away from wetland and surface water features.

3b: Vehicles and equipment used during construction shall receive proper and timely maintenance to reduce the potential for mechanical breakdowns leading to a spill of materials. Maintenance and fueling shall be conducted in an area at least 150 feet away from the Trinity River.

3c: Spill containment booms will be maintained onsite at all times during construction operations and/or staging of equipment or fueling supplies. Fueling trucks will maintain a spill containment boom at all times.

3d: The contractor will develop and implement site-specific best management practices (BMPs), a water pollution control plan, and emergency spill controls, and will be responsible for containment and removal of any toxins released.

Section 3.5 provides additional details on mitigation measures developed for water quality standards and local ordinances. The responsible agencies will be involved in the development and approval of these plans and practices.

Significance after Mitigation: Less than Significant

Impact 3.6-4: Construction activities associated with the proposed project could result in mortality to adult and juvenile fishes, including federally listed coho salmon, during the in-stream construction phase. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action and Alternative 1.***

No-Action Alternative

Under the No-Action Alternative, construction-related mortality to rearing salmonids would not occur other than by those processes associated with current ongoing processes.

Proposed Action

Coho Salmon. Coho salmon are known to occur throughout the Trinity River. Limited suitable coho salmon rearing habitat exists within the ESL, and juvenile coho salmon may be expected to rear within the ESL year-round. Adult coho migrate through the ESL, and suitable spawning habitat exists within the ESL. Direct injury to, or mortality of, coho salmon will be generally avoided during construction activities because no in-river work is planned under the Proposed Action. Excavation work on the bank near the shallow water at river's edge could disturb or injure coho fry using such habitat during the first part of the construction season (May–June).

A small, temporary, but uncertain, level of stranding of coho salmon fry may occur on the newly excavated floodplains during rapidly receding flood-flow periods during the winter and early spring when fry are emerging. Stranding of fry under such receding flood conditions occurs on naturally shallow flood plains and in flood bypasses (Sommer et al. 2001). The wider riverine rehabilitation areas, particularly R-4 and R-5, may create a slight stranding hazard due to the flat (i.e., no riverward slope) engineered surface of those sites. All of the rehabilitation site floodplain designs incorporate a downstream slope equal to that of the river channel and would drain in a downstream direction that would be guided toward the river channel by earthwork contours. As fluvial channel migration occurs through the floodplain, the potential for fry stranding on the floodplain is expected to equilibrate to that of a natural stranding risk.

Chinook Salmon. Potential impacts to Upper Klamath-Trinity Rivers ESU Chinook salmon populations in the Trinity River resulting from implementation the Proposed Action would be similar to those previously described for coho salmon.

Steelhead. Potential impacts to the KMP ESU steelhead populations in the Trinity River resulting from implementation the Proposed Action would be similar to those previously described for coho and Chinook salmon.

Pacific Lamprey. Potential impacts on Pacific lamprey populations in the Trinity River resulting from implementation of the Proposed Action would be similar to those previously described for coho salmon and other anadromous salmonids.

Alternative 1

Construction-related mortality of adult and juvenile fishes associated with Alternative 1 would be similar to that of the Proposed Action. The difference in magnitude of a potential for a fry stranding hazard on the floodplain compared to the Proposed Action is uncertain. However, the unevenness of the existing floodplain surfaces and remnant rills and pits from past mining activities, particularly in R-4 and R-6, create numerous areas that would pool during flood recession, creating stranding hazards for salmonid fry.

Mitigation Measures

No-Action Alternative

No significant impacts were identified; therefore, mitigation is not required.

Significance after Mitigation: N/A.

Proposed Action; Alternative 1

4a: To avoid or minimize potential injury and mortality of fish during excavation (berm removal) on the river banks, equipment shall be operated slowly and deliberately to alert and scare adult and juvenile salmonids away from the work area.

4b: Monitoring of the rehabilitated floodplain sites (including control areas R-3 and R-8) for salmon fry stranding shall be performed by a qualified fishery biologist immediately after recession of floodflow events designated as a 1.5- year or less frequent event (i.e., $Q \geq 6000$ cfs) for a period of 3 years following construction. Such fry stranding surveys shall be performed during the months of January through May. If stranding is observed, Reclamation will take the appropriate measures to modify floodplain topography to reduce the likelihood of future occurrences of fry stranding.

Significance after Mitigation: Less than Significant.

Impact 3.6-5: Implementation of the proposed project would result in the permanent and temporary loss of shaded riverine aquatic habitat for anadromous salmonids. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action and Alternative 1.***

No-Action Alternative

Under the No-Action Alternative, loss of SRA habitat would not occur other than by those processes associated with current ongoing actions.

Figure 3.6-5 illustrates the riparian habitat associated with the proposed project. For purposes of this EA/DEIR, riparian habitat is a general term that encompasses the range of riparian vegetation conditions within the ESL. It does not have a specific legal description or definition; however, it does include information from habitat mapping and the wetland delineation described in **Section 3.7. Table 3.6-7** illustrates impacts to SRA habitat under the Proposed Action and Alternative 1. Specifically, the table describes the impacts with regards to acres of riparian habitat that would be permanently affected; riparian habitat that would be temporarily affected; riparian habitat that would be restored through revegetation; and riparian habitat anticipated to be restored through natural recruitment and succession.

TABLE 3.6-7
IMPACTS TO RIPARIAN HABITAT
HOCKER FLAT

Impact	Proposed Action (acres)	Alternative 1 (acres)
Permanent impacts to riparian habitat	8.28	5.18
Temporary impacts to riparian habitat	5.86	6.51
Riparian habitat restored through revegetation	5.67	5.67
Riparian habitat restored through natural recruitment *	5.80	0.93

*Assumed to be 50% of non-revegetated graded area

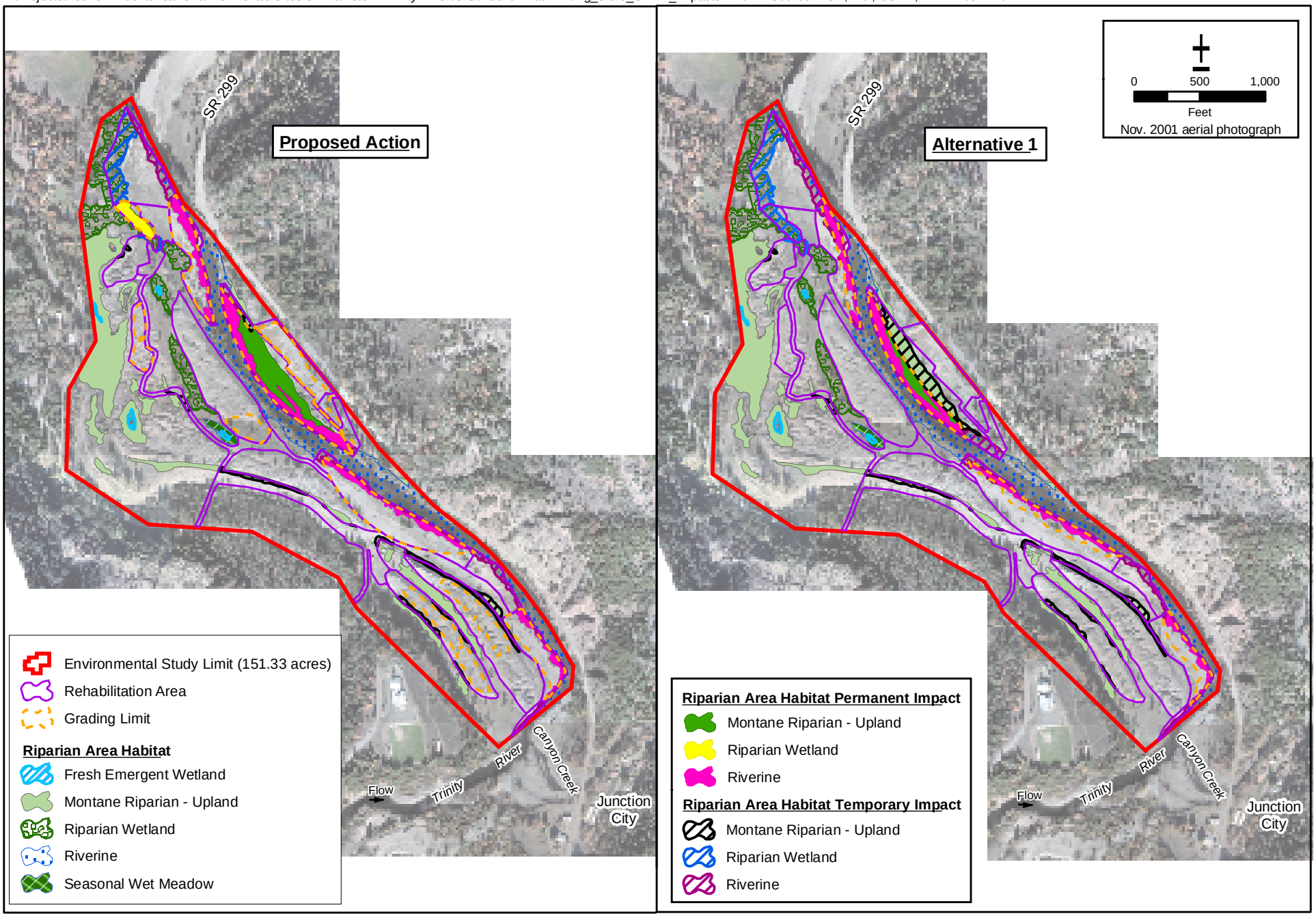
Proposed Action

Coho Salmon. Removal of montane riparian wetland vegetation along the banks of the Trinity River could adversely affect the quality of rearing habitats used by salmonids. Riparian vegetation is important to the maintenance of healthy fish habitat. Riparian areas provide shade and temperature benefits, sediment, nutrient and chemical regulation, stream bank stability, and inputs of large woody debris and organic matter to the channel. Riparian vegetation that is adjacent to the river, a component of SRA habitat, is included as an element of designated critical habitat for the SONCC ESU coho salmon and a component of EFH for Chinook and coho salmon.

Removal of the riparian berm and re-activation of the adjacent floodplains within the riverine rehabilitation areas would allow for restoration of most of the riparian habitat (mixture of willows, alders, and cottonwoods) estimated to be lost as a result of berm removal and floodplain contouring. Riparian habitat removed under the Proposed Action would be replaced during the revegetation efforts described in **Appendix G**. Therefore, no permanent net loss of SRA features would necessarily occur.

Chinook Salmon. Potential impacts to Upper Klamath-Trinity Rivers ESU Chinook salmon populations in the Trinity River resulting from implementation the Proposed Action would be similar to those previously described for coho salmon.

F:\Projects\10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River\GIS\Hocker Flat EIR\Fig_3.6-5_SRHA_Impacts.mxd Source: NSR, Inc.; USBR; DWR 08-17-04 TLA



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Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

Figure 3.6-5
Riparian Area Habitat

Steelhead. Potential impacts to the KMP ESU steelhead populations in the Trinity River resulting from implementation the Proposed Action would be similar to those previously described for coho and Chinook salmon.

Pacific Lamprey. Potential impacts on Pacific lamprey populations in the Trinity River resulting from implementation the Proposed Action would be similar to those previously described for coho salmon and other anadromous salmonids.

Alternative 1

Impacts to riparian habitat for Alternative 1 are listed in **Table 3.6-7**, and are expected to be less than the impacts of the Proposed Action. Riparian habitat removed under Alternative 1 would be replaced during the revegetation efforts described in **Appendix G**. Therefore, no permanent net loss of SRA features would necessarily occur. However, because less floodplain will be made suitable for riparian revegetation under Alternative 1, it may be more difficult to identify and prepare areas that are appropriate for riparian revegetation, more difficult to sustain the habitat once planted, and less natural recruitment will likely occur.

Mitigation Measures

No-Action Alternative

No significant impacts were identified; therefore, mitigation is not required.

Significance after Mitigation: N/A.

Proposed Action; Alternative 1

To maintain overall SRA habitat values within the proposed project reach, the proposed project would be designed to minimize losses of riparian vegetation adjacent to the Trinity River channel, except where necessary to re-activate river access to the floodplain. Exclusionary fencing shall be installed along the boundaries of all riparian areas outside of delineated rehabilitation areas where construction access would have to occur to ensure that impacts to riparian vegetation are minimized. To compensate for loss of riparian vegetation within the ESL, Reclamation shall implement the following measures:

5a: Mitigation for riparian plant removal will be based on the actual acreage of riparian vegetation coverage affected by the proposed project rather than the specific numbers of plants. This measure will support the TRRP objective of removing the homogeneous plant community and replacing it with a diverse assemblage of riparian vegetation.

5b: The proposed project is designed to minimize losses to SRA features outside of individual rehabilitation sites but within the ESL to the fullest extent possible. When a temporary or permanent loss of riparian vegetation is unavoidable, Reclamation will replant at a 1:1 ratio (1 acre will be replanted for every acre of riparian vegetation lost). This 1:1 ratio was selected because since the construction of the TRD, the channel of the Trinity River has experienced an increase in riparian vegetation of up to 300 percent compared to pre-TRD conditions.

5c: Reclamation shall develop and implement a revegetation plan for impacts to riparian habitat that occur during proposed project construction. **Appendix G** is a draft revegetation plan that has been prepared for this EA/DEIR. This plan identifies planting mixes, planting procedures,

and monitoring requirements. Planted species include riparian species native to the area that would resist invasion by noxious plant species. The revegetation plan will identify appropriate mitigation for impacts to SRA habitat, describe planting techniques and locations, and incorporate plantings of native species that would resist invasion by noxious plant species.

5d: Reclamation or its contractor shall monitor the plantings annually for up to 3 years to ensure that trees and shrubs have become established. Supplemental planting will be conducted, as necessary, to ensure that this performance standard is met. To meet the revegetation success criteria, the rehabilitation areas should demonstrate a 60 percent survival rate for planted species at the end of the third growing season. Natural recruitment of native riparian species can be included in this criterion. If recovery success cannot be determined after 3 years, an additional 2 years of monitoring shall be conducted. If at any time during the monitoring period it is determined that the success criteria will not be met in the planted and naturally restored areas, additional remediation measures shall be developed and implemented. Once riparian mitigation has been successfully completed, Reclamation shall submit a memorandum to the U.S. Army Corps of Engineers and NOAA Fisheries documenting the results.

Significance after Mitigation: Less than Significant.

SECTION 3.7

Vegetation, Wildlife and Wetlands

3.7 Vegetation, Wildlife, and Wetlands

As described in **Section 3.3** (Geology, Fluvial Geomorphology, and Soils), impacts to vegetation, wildlife, and wetland resources from the proposed project would largely be a by-product of geomorphic processes, including the amount and timing of flows and the transport and deposition of sediment. This section describes the non-fisheries biological resources (i.e., vegetation, wildlife, and wetlands) that are known to occur within the proposed project study area, as well as the effects on these resources. Fishery resources are described in **Section 3.6**. Discussion of biological resources under the "Local Setting" subsection is based on a focused literature review, informal consultation with resource agencies, and observations made during site visits. Vegetation communities and wildlife habitats were identified and characterized during field surveys.

3.7.1 AFFECTED ENVIRONMENT/ENVIRONMENTAL SETTING

Plant Communities

Regional Setting

Prior to dam construction, the natural hydrograph of the Trinity River was characterized by high winter and spring flows followed by greatly reduced summer flows (with great inter-year variability). Large winter and spring floods maintained multi-age woody riparian vegetation via channel scouring, periodic channel migration, and varying seed distribution during flow recession. The result was a mosaic of early-successional willow-scrub vegetation combined with patches of more mature willow-alder and alder-dominated associations. Construction of the TRD greatly reduced the magnitude of peak flows, obstructed coarse sediment input from above the dam, and allowed fine sediment to accumulate on channel features that had previously been regularly scoured by flood flows. The result is a more static system that is susceptible to expansion and maturation of woody riparian vegetation. Expansion and maturation of woody riparian vegetation has had detrimental effects, including formation of a riparian berm that effectively armors and anchors the riverbanks, thereby preventing the river from meandering within the channel. Establishment of these berms further exacerbates the encroachment and maturation of woody vegetation.

Existing riparian vegetation is most prevalent from the Lewiston Dam to the confluence with the North Fork. This reach includes approximately 330 acres of early-successional willow-dominated vegetation, 170 acres of more mature later-successional alder-dominated vegetation, and 380 acres of willow-alder mix (U.S. Fish and Wildlife Service 1999). Between the North Fork and the South Fork, the mainstem Trinity River channel is constrained by canyon walls that limit riparian vegetation to a narrow band. In comparison to upstream reaches, peak flows in this reach have been affected only modestly by dam operations. Between the South Fork and the Klamath River, the Trinity River alternates between confined reaches with little riparian vegetation to alluvial reaches with vegetation similar to pre-dam conditions in the reach between Lewiston Dam and the North Fork. At Trinity and Lewiston Reservoirs, plant species consist of those typically found in standing water and include floating species, rooted aquatic species, and emergent wetland species. Emergent wetland and riparian vegetation is constrained by fluctuating water levels and steep banks.

Local Setting

The following descriptions of plant community types at the proposed project location follow the nomenclature used in *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986) and *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer 1988). **Figure 3.7-1** illustrates the locations of plant communities mapped throughout the ESL.

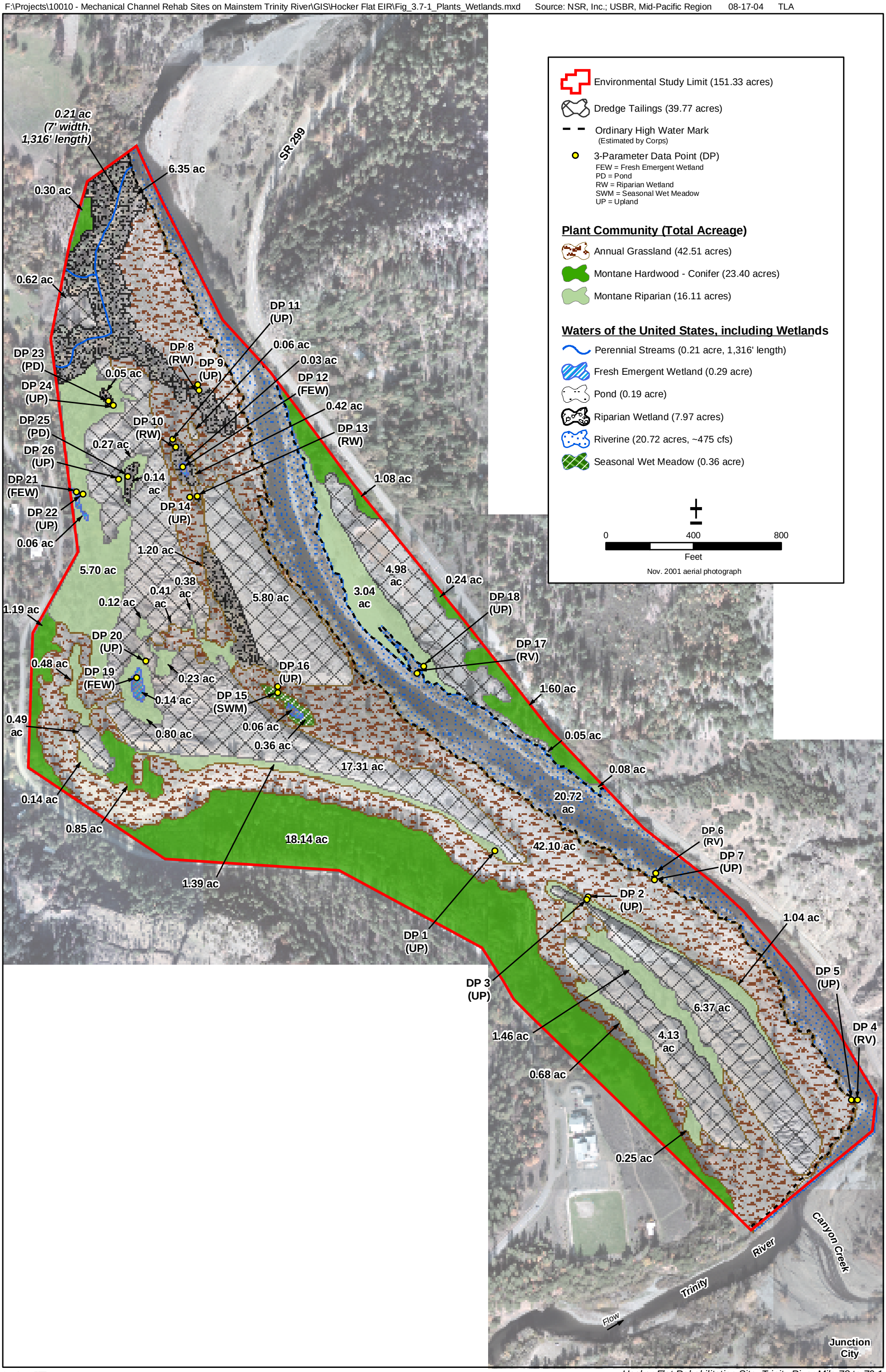
Three plant communities occur within the 151.33-acre ESL: montane hardwood–conifer, montane riparian, and annual grassland. Within these plant communities are "waters of the United States." under Corps jurisdiction; they include riparian wetland, fresh emergent wetland, and seasonal wet meadow features. Other waters of the United States consist of riverine (the Trinity River), pond, and perennial stream features. These features are described in more detail under the subsection Jurisdictional Wetlands.

The montane hardwood–conifer plant community occurs primarily adjacent to annual grassland and dredger tailings areas along the western and eastern boundaries of the ESL. Dominant tree species observed within the montane hardwood–conifer plant community include Pacific madrone (*Arbutus menziesii* – UPL[1]), bigleaf maple (*Acer macrophyllum* – FAC), ponderosa pine (*Pinus ponderosa* – FACU), gray pine (*Pinus sabiniana* – UPL), Douglas fir (*Pseudotsuga menziesii* var. *menziesii* – UPL, canyon live oak (*Quercus chrysolepsis*– UPL and black oak (*Quercus kelloggii* – UPL). Shrub species observed include common manzanita (*Arctostaphylos manzanita* – UPL), buck brush (*Ceanothus cuneatus* – UPL), cascara (*Rhamnus purshiana* – NI), skunkbrush (*Rhus trilobata* – NI), snowberry (*Symphoricarpos albus* var. *laevigatus* – FACU), and poison oak (*Toxicodendron diversilobum* – UPL). The underlying herbaceous layer includes ripgut brome (*Bromus diandrus* – UPL), cheatgrass (*Bromus tectorum* – UPL), blue wild rye (*Elymus glaucus* – FACU), silver bush lupine (*Lupinus albifrons* – UPL), purple sanicle (*Sanicula bipinnatifida*– UPL), and false hedge-parsley (*Torilis arvensis* – UPL). Annual grassland habitat is a minor component of the montane hardwood-conifer plant community within the ESL.

The montane riparian (upland) plant community occurs adjacent to the Trinity River. Montane riparian habitat is composed of typical riparian plant species that occur in Trinity County. Dominant tree species include bigleaf maple, white alder (*Alnus rhombifolia* – FACW), Oregon ash (*Fraxinus latifolia* – FACW), black cottonwood (*Populus balsamifera* ssp. *trichocarpa* – FACW), and Goodding's black willow (*Salix gooddingii* – OBL). Understory species include mugwort (*Artemisia douglasiana* – FACW), virgin's bower (*Clematis ligusticifolia* – FAC), American dogwood (*Cornus sericea* – FACW), Oregon golden-aster (*Heterotheca oregona* – UPL), dalmatian toadflax (*Linaria genistifolia* ssp. *dalmatica* – UPL), white sweet clover (*Melilotus alba* – FACU+), musk monkeyflower (*Mimulus moschatus* – OBL), straggly gooseberry (*Ribes divaricatum* – FACW), Himalayan blackberry (*Rubus discolor* – FACW*), California blackberry (*R. ursinus* –

[1] Wetland indicator status: UPL=Upland plant; FAC=facultative wetland plant; FACU=facultative upland plant; FACW=facultative wetland plant; OBL=obligate wetland plant; NI=plant with no indicator status; +/- = wetter or drier modifiers; * = indicator status under consideration.

F:\Projects\10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River\GIS\Hocker Flat EIR\Fig_3.7-1_Plants_Wetlands.mxd Source: NSR, Inc.; USBR, Mid-Pacific Region 08-17-04 TLA



Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

North State Resources, Inc.

Revised Figure 3.7-1
Plant Community Types and
Boundaries of Waters of the United States, including Wetlands
August 17, 2004

FACW*), narrow-leaved willow (*Salix exigua* – OBL), arroyo willow (*Salix lasiolepis* – FACW), shining willow (*Salix lucida* – NI), and California wild grape (*Vitis californica* – FACW).

The annual grassland plant community occurs primarily between areas of dredger tailings, the montane riparian plant community, and the montane hardwood–conifer plant community. This plant community is dominated by introduced annual grass species, including soft brome (*Bromus mollis* – FACU-), cheatgrass, and smooth brome (*Bromus inermis* – UPL). Dalmatian toadflax (*Linaria genistifolia* – UPL) a non-native species was the dominant forb found within this plant community type at the site.

Special-Status Plant Species

For the purposes of this evaluation, listed plant species are vascular plants that are (1) designated as rare, threatened, or endangered by the state or federal governments; or (2) are proposed for rare, threatened, or endangered status; and/or (3) are state or federal candidate species. Other special-status plant species are listed as Species of Concern by the USFWS and/or are included on the California Native Plant Society (CNPS) List 1A, 1B, or 2 (CNPS 2001).

A written request was submitted to the USFWS for a formal list of federal special-status species potentially occurring on the *Junction City* USGS 7.5-minute quadrangle. An e-mail response from the USFWS directed Reclamation to access the updated species list available on the USFWS web page (http://arcata.fws.gov/specieslist/speciesreport.asp). This list was accessed in June 2004. It includes species that currently have endangered, threatened, or candidate status within the *Junction City* quadrangle (**Appendix H**). This list does not identify any special-status plant species as being potentially present.

Regional Setting

A list of special-status plant species considered for the proposed project was compiled by performing searches of the California Natural Diversity Database (CNDDB) and CNPS Electronic Inventory database, informally consulting with the CDFG and the USFWS, and reviewing biological literature for the proposed project region (**Appendix I)**. Based upon location and habitat parameters, 21 special-status plant species were identified that could potentially occur within the ESL (**Table 3.7-1**). The results of the CNDDB database search for the *Junction City, Hayfork Bally, Dedrick, Weaverville, Rush Creek Lakes, and Helena* quadrangles indicate that seven special-status plants have been observed within these quadrangles; however, none of them occur within a 5-mile radius of the proposed project site. The CNDDB occurrences of special-status plants within the above-listed quadrangles include flagella-like atractylocarpus (C*ampylopodiella stenocarpa*), Heckner's lewisia (*Lewisia cotyledon* var. *heckneri*), elongate copper-moss (*Mielichhoferia elongata*), Dudley's rush (*Juncus dudleyi*), Regal's rush (*Juncus regelii*), three-leaved beardtongue (*Penstemon filiformis*), and English Peak greenbriar (*Smilax jamesii*).

Vegetation Surveys

Floristic (vegetation) inventory and special-status plant surveys were conducted within the ESL on June 5 and 20, 2002, May 14, 2003, June 5, 2003, and August 16, 2003. These botanical studies were conducted in accordance with guidelines developed by the CDFG (2000). Ground surveys were conducted at the appropriate season when special-status plant species were most likely to be identifiable (i.e., the blooming period). A comprehensive list of observed plant species at the Hocker Flat site is included in **Appendix J**. No special-status plant species were detected within the ESL established for the proposed project.

TABLE 3.7-1
SPECIAL-STATUS PLANT SPECIES POTENTIALLY LOCATED AT THE HOCKER FLAT SITE

Common Name (*Scientific Name*)	Status FED/ST/ CNPS/BLM	General Habitat	Flowering Period	Comments
McDonald' s rock cress (*Arabis macdonaldiana*)	E/E/1B/--	Crevices, cracks, and margins of rocks on barren to shrub-covered shallow, rocky, ultramafic soils (3900-7200').	May-July	Habitat within the proposed project study area is too low in elevation for this species. Suitable habitat *does not* exist within the proposed project study area. **This species was not detected within the ESL**.
Flagella-like atractylocarpus (C*ampylopodiella stenocarpa*)	--/--/2/--	Cismontane woodland	--	Suitable habitat exists within the proposed project study area. This species was not detected within the ESL**.**
Bottlebrush sedge (*Carex hystericina*)	--/--/2/--	Marshes, swamps, and in wet places along streambanks (1960– 2000')	June	Suitable habitat exists within the proposed project study area. **This species was not detected within the ESL.**
Flaccid sedge (*Carex leptalea*)	--/--/2/--	Marshes, swamps, wet meadows, bogs, fens, and in wet places along streambanks (0– 2300')	May-July	Suitable habitat exists within the proposed project study area. **This species was not detected within the ESL.**
Fox sedge (*Carex vulpinoidea*)	--/--/2/--	Freshwater marshes, swamps, and riparian woodlands (100-4000').	May-June	Suitable habitat exists within the proposed project study area. **This species was not detected within the ESL.**
Shasta chaenactis (*Chaenactis suffrutescens*)	--/--/1B/S	Rocky open slopes, cobbly river terraces, and occasionally on road cuts, on serpentine soils or glacial till.	May-September	Suitable habitat exists within the proposed project study area. **This species was not detected within the ESL.**
Northern clarkia (*Clarkia borealis ssp. borealis*)	--/--/1B/S	Chaparral, cistmontane woodland, and lower montane coniferous forests.	June-September	Suitable habitat exists within the proposed project study area. **This species was not detected within the ESL.**
Clustered lady' s-slipper (*Cypripedium fasciculatum*)	SC/--/4/S	Coniferous forest habitat on serpentinite seeps and streambanks; a Survey and Manage species (BLM).	March-July	Suitable habitat *does not* exist within the proposed project study area. **This species was not detected within the proposed project ESL.**
Mountain lady' s-slipper (*Cypripedium montanum*)	--/--/4/S	Cismontane woodland and broad-leafed upland and montane coniferous forest habitat; a Survey and Manage species (BLM).	March-August	Suitable habitat *does not* exist within the proposed project study area. **This species was not detected within the ESL.**

TABLE 3.7-1
SPECIAL-STATUS PLANT SPECIES POTENTIALLY LOCATED AT THE HOCKER FLAT SITE

Common Name (*Scientific Name*)	Status FED/ST/ CNPS/BLM	General Habitat	Flowering Period	Comments
Oregon fireweed (*Epilobium oreganum*)	SC/--/1B/S	Wet, gently sloping meadows, bogs, pond margins, and banks of slow-moving streams, in full sun to part shade.	June-September	Suitable habitat exists within the proposed project study area. **This species was not detected within the ESL.**
Scott Mountains fawn lily (*Erythronium citrinum* var. *roderickii*)	--/--/1B/S	Montane forests on soils derived from serpentine or granitic parent material.	March-April	Suitable habitat exists within the proposed project study area. **This species was not detected within the ESL.**
Scott Mountain bedstraw (*Galium serpenticum* ssp. *scotticum*)	--/--/1B/S	Steep serpentine talus slopes in lower montane coniferous forest.	June-July	Suitable habitat *does not* exist within the proposed project study area. **This species was not detected within the ESL.**
Nile' s harmonia (*Harmonia doris-nilesiae*)	--/--/1B/S	Dry, stony serpentine openings in mixed-conifer-oak forest on ridgetops and moderate to steep slopes	May-July	Suitable habitat *does not* exist within the proposed project study area. **This species was not detected within the ESL.**
Stebbins' harmonia (*Harmonia stebbinsii*)	SC/--/1B/S	Shallow, rocky, ultramafic substrates; edges between timber and brush, roadsides on gently south-facing slopes.	May-July	Suitable habitat exists within the proposed project study area. **This species was not detected within the ESL.**
Pickering' s ivesia (*Ivesia pickeringii*)	SC/--/1B/S	Lower montane conifer forests; seasonally wet meadows, swales, and rocky ephemeral stream beds on ultramafic soils.	June-August	Suitable habitat exists within the proposed project study area. **This species was not detected within the ESL.**
Dudley' s rush (*Juncus dudleyi*)	--/--/2/--	Wetlands or other wet areas in lower montane coniferous forest habitat (1490-6560')	July-August	Suitable habitat exists within the proposed project study area. **This species was not detected within the ESL.**
Regel' s rush (*Juncus regelii*)	--/--/2/--	Meadows and wet places in upper montane coniferous forest habitat	August	Suitable habitat exists within the proposed project study area. **This species was not detected within the ESL.**
Heckner' s lewisia (*Lewisia cotyledon* var. *heckneri*)	SC/--/1B/S	Outcrops and cliffs of various rock types, often near streams or rivers, in part to full shade, usually on northern aspects. Occurs in a variety of forest types.	May-July	Suitable habitat exists within the proposed project study area. **This species was not detected within the ESL.**
Howell' s lewisia (*Lewisia cotyledon* var. *howellii*)	SC/--/3/--	Rocky places in broadleaf upland and lower montane coniferous forests, chaparral, and cismontane woodland.	April-July	Suitable habitat exists within the proposed project study area. **This species was not detected within the ESL.**
Elongate copper-moss (*Mielichhoferia elongata*)	--/--/2/--	Cismontane woodland; grows on soil with a high content of copper and iron that is toxic for higher plants.	--	Suitable habitat exists within the proposed project study area. **This species was not detected within the ESL.**
Howell' s montia (*Montia howellii*)	--/--/2/--	Early-successional, vernally moist habitats, often on compacted fine sediments.	March-May	Suitable habitat exists within the proposed project study area. **This species was not detected within the ESL.**

TABLE 3.7-1
SPECIAL-STATUS PLANT SPECIES POTENTIALLY LOCATED AT THE HOCKER FLAT SITE

Common Name (*Scientific Name*)	Status FED/ST/ CNPS/BLM	General Habitat	Flowering Period	Comments
Wolf' s evening primrose (*Oenothera wolfii*)	--/--/1B/--	Coastal habitats and lower montane coniferous forests; usually on sandy, mesic substrates.	May-October	Suitable habitat exists within the proposed project study area. **This species was not detected within the ESL.**
Thread-leaved beardtongue (*Penstemon filiformis*)	SLC/--/1B/S	Rocky openings in lower montane woodlands and coniferous forests on ultramafic substrates	June-July	Suitable habitat exists within the proposed project study area. **This species was not detected within the ESL.**
White beaked-rush (*Rhynchospora alba*)	--/--/2/--	Bogs, fens, meadows, marshes, and swamps (freshwater).	July-August	Suitable habitat *does not* exist within the proposed project study area. **This species was not detected within the ESL.**
Brownish beaked-rush (*Rhynchospora capitellata*)	--/--/2/--	Meadows, marshes, swamps; moist areas in montane coniferous forest.	July-August	Suitable habitat exists within the proposed project study area. **This species was not detected within the ESL.**
Canyon Creek stonecrop (*Sedum paradisum*)	SC/--/1B/S	Chaparral, broad-leafed upland and coniferous forests; granitic, rocky substrate.	May-July	Suitable habitat exists within the proposed project study area. **This species was not detected within the ESL.**
Red Mountain catchfly (*Silene campanulata* ssp. *campanulata*)	--/E/4/--	Chaparral and lower montane coniferous forest; usually on rocky serpentinite.	April-July	Suitable habitat *does not* exist within the proposed project study area. **This species was not detected within the ESL.**
English peak greenbriar (*Smilax jamesii*)	--/--/1B/S	Lakesides, streambanks, alder thickets, bracken fern slopes, and moist slopes in montane forests (4000-8000')	May-July	Habitat within the proposed project study area is too low in elevation for this species. Suitable habitat *does not* exist within the proposed project study area. **This species was not detected within the ESL.**
Salmon Mountains wakerobin (*Trillium ovatum* ssp. *oettingeri*)	SLC/--/4/--	Moist areas in montane coniferous forest and riparian scrub habitat.	February-July	Suitable habitat exists within the proposed project study area. **This species was not detected within the ESL.**

Notes:
FED = Federal
ST = State of California
CNPS = California Native Plant Society
BLM = U.S. Bureau of Land Management

Federal & State Codes:
E = Endangered; T = Threatened;
SC = Species of Concern
SLC = Species of Local Concern
S = BLM Sensitive

CNPS Codes:
List 1B = Rare, Threatened or Endangered in CA and elsewhere
List 2 = Rare, Threatened, or Endangered in CA but common elsewhere
List 3 = More information is needed
List 4 = Limited distribution

Survey and Manage Species

At the time the technical studies for the proposed project were initiated, BLM was required to conduct surveys for Survey and Manage species that were specifically listed in the Northwest Forest Plan ROD (U.S. Department of Agriculture, 1994). Subsequently, in 2001, the Department of Agriculture and

Department of Interior issued a ROD for *Amendments to the Survey and Manage, Protection Buffer, and Other Mitigation Measures Standards and Guidelines* (U.S. Department of Agriculture 2001). Ultimately, a Supplemental Environmental Impact Statement (SEIS) was prepared to examine an alternative "that replaces the Survey and Manage mitigation requirements with existing USFS and BLM special status species programs to achieve the goals of the Northwest Forest Plan through a more streamlined process." A new ROD was issued by the agencies in March 2004 (U.S. Department of Agriculture 2004) that documented the decision to remove or modify the Survey and Manage Mitigation Measure Standards and Guidelines. As a result, the implementing agencies (USFS, BLM) have discontinued the Survey and Manage program and transferred selected Survey and Manage taxa to agency Special-Status Species Programs (SSSP). Survey and Manage taxa that met the criteria for addition to agency SSSP lists will now be managed pursuant to the SSSP policies of the respective agencies (BLM/Oregon/Washington and California, and USFS Regions 5 and 6).

To facilitate organization of the following discussion, species previously listed as Survey and Manage are referred to in that regard.

Joe Molter, botanist for the BLM, surveyed selected sites involving Federal lands associated with the Hocker Flat site for vascular plant species included in the Survey and Manage Standards of the Northwest Forest Plan. A list of vascular plant species with potential to occur on the proposed project site was compiled by performing an Interagency Species Management System (ISMS) Database search and reviewing the Survey Protocols for the species listed on Table 1-1 of the amended ROD of the Northwest Forest Plan (United States Forest Service and Bureau of Land Management 2001) and USFS and BLM visions for the 2001 Survey and Manage Annual Species Review (United States Forest Service and Bureau of Land Management 2002). This list included two species with the potential to occur on the project site: clustered lady's slipper (*Cypripedium fasciculatum*) and mountain lady's slipper (*Cypripedium montanum*). The survey was conducted on May 31, 2002. No suitable habitat for the two species was present within the ESL, and neither species was found during the botanical surveys.

Jeanne McFarland, botanist for BLM's Arcata Field Office, conducted pre-disturbance surveys at Hocker Flat for nonvascular plants and fungi, collectively known as cryptograms, in compliance with the Northwest Forest Plan ROD. The surveys, which were conducted during the summer of 2002, consisted of a close inspection of all suitable substrates for the fungus *Bridgeoporus nobilissimus* (the only pre-disturbance Survey and Manage fungus). No Survey and Manage cryptogamic species were present within the ESL, and no appropriate habitat for these species was identified within the ESL on public lands.

BLM Sensitive

Plant species designated "BLM sensitive" are *not* federally or state-listed as endangered or threatened, nor are they proposed or candidates for listing, but they are designated by the BLM State Director for special management consideration. The BLM Manual Section 6840 defines sensitive species as "…those species that are (1) under status review by the USFWS/NMFS; or (2) whose numbers are declining so rapidly that Federal listing may become necessary, or (3) with typically small and widely dispersed populations; or (4)

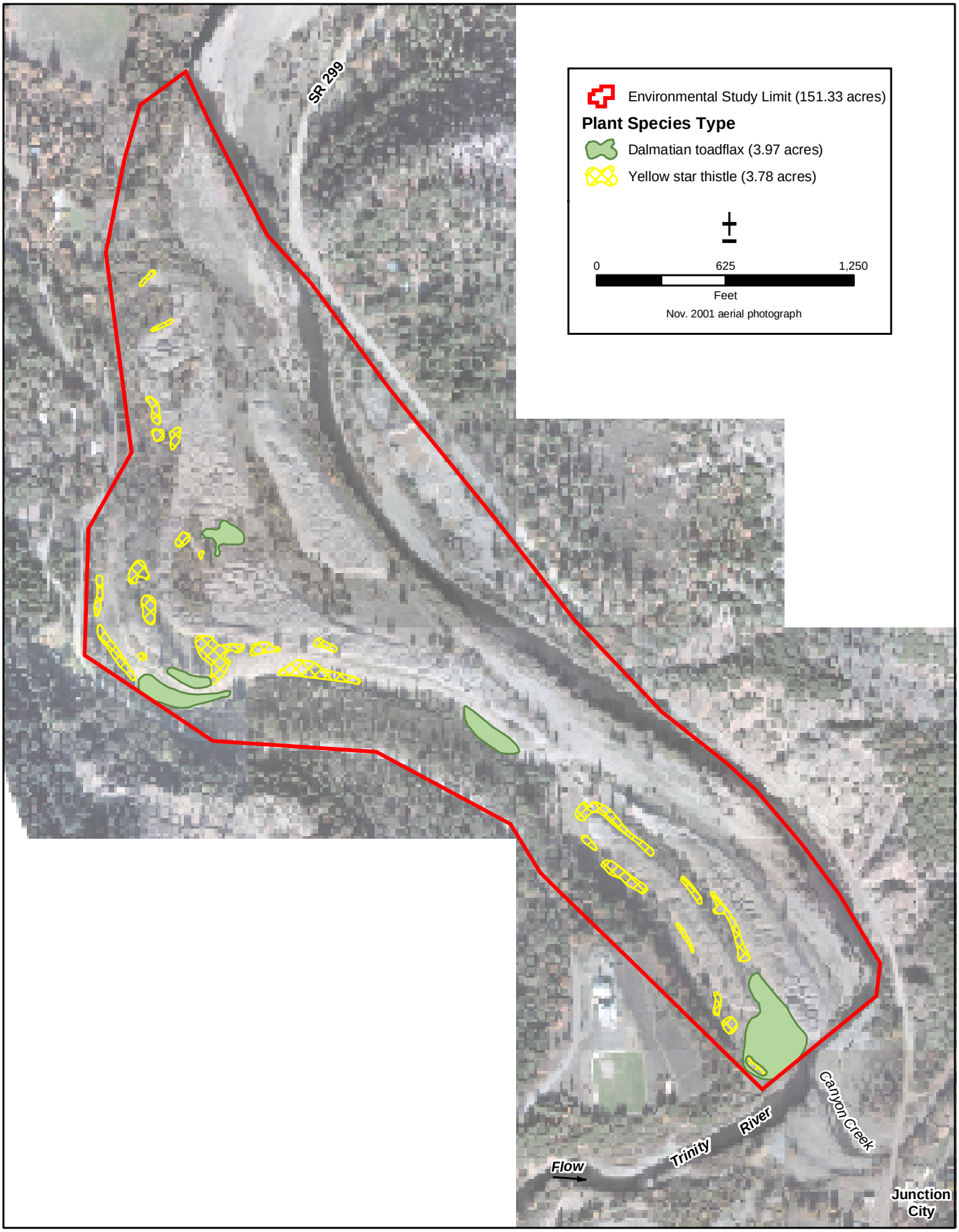
those inhabiting ecological refugia or other specialized or unique habitats." Existing California-BLM policy concerning the designation of sensitive species identifies two conditions that must be met before a species may be considered as BLM sensitive: (1) a significant population of the species must occur on BLM-administered lands, and (2) the potential must exist for improvement of the species' condition through BLM management.

The BLM's policy provides sensitive species with the same level of protection afforded federal candidate species. Nine BLM sensitive species with potential to occur within the Hocker Flat ESL site were identified: Shasta chaenactis (*Chaenactis suffrutescens*), northern clarkia (*Clarkia borealis ssp. borealis*), Oregon fireweed (*Epilobium oreganum*), Scott Mountains fawn lily (*Erythronium citrinum* var. *roderickii*), Stebbins' harmonia (*Harmonia stebbinsii*), Pickering's ivesia (*Ivesia pickeringii*), Heckner's lewisia (*Lewisia cotyledon* var. *heckneri*), thread-leaved beardtongue (*Penstemon filiformis*), and Canyon Creek stonecrop (*Sedum paradisum*). However, no BLM sensitive plant species were observed within the ESL during the 2002 and 2003 botanical surveys.

Non-Native and Invasive Plant Species

Weed Management Areas (WMAs) are local organizations that bring together landowners and managers (private, city, county, State, and Federal) in a county, multi-county, or other geographical area to coordinate efforts and expertise against common invasive (noxious) weed species. The WMA functions under the authority of a mutually developed memorandum of understanding (MOU) and is subject to statutory and regulatory weed control requirements. The lead agency for the WMAs is the California Department of Food and Agriculture (CDFA). Cooperators in the Trinity County WMA include Trinity County Department of Agriculture and the USDA Agricultural Research Service. Trinity County has in place weed eradication programs for diffuse knapweed (*Centaurea diffusa*), bull thistle (*Cirsium vulgare*), dalmation toadflax (*Linaria genistifolia* ssp. *dalmatica*), Klamathweed (*Hypericum perforatum*), plumeless thistle (*Carduus acanthoides*), scotch thistle (*Onopordum tauricum*), and yellow star-thistle (*Centaurea solstitialis*).

A number of non-native and invasive plant species were observed during the botanical surveys in 2002 and 2003. These species are typically opportunistic and will colonize particularly in areas of disturbance. The CDFA recognizes invasive species as being as A-, B-, or C-listed plants. Non-native and/or invasive plant species observed at the Hocker Flat site include: tree of heaven (*Ailanthus altimssima*), yellow star-thistle (C-listed), Canada thistle (*Cirsium arvense*, B-listed), Bermuda grass (*Cynodon dactylon*, C-listed), Klamathweed (C-listed), and Dalmation toadflax (A-listed) (**Figure 3.7-2**). The most apparent of these non-native/invasive plants at the site are tree of heaven and yellow star-thistle.



F:\Projects\10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River\GIS\Hocker Flat EIR\Fig_3.7-2_Invasive_Plants.mxd Source: NSR, Inc.; USBR, Mid-Pacific Region 06-23-03 TLA

North State Resources, Inc.

Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

Figure 3.7-2
Non-native and Invasive Plant Species

Wildlife

Regional Setting

Many wildlife species that inhabited river and riparian habitats prior to the TRD still occur along the Trinity River, although species that prefer early-successional stages or require greater riverine structural diversity likely occurred in greater abundance prior to the TRD. Common species present prior to the TRD likely included rough-skinned newt (*Taricha granulosa*), western aquatic garter snake (*Thamnophis couchi*), foothill yellow-legged frog (*Rana boylii*), western pond turtle (*Clemmys marmorata*), and American dipper (*Cinclus mexicanus*). Wildlife species that foraged on the abundant salmon and steelhead runs (e.g., black bear [*Ursus americanus*], bald eagle [*Haliaeetus leucocephalus*], and other scavengers) were also common along the pre-dam Trinity River (U.S. Fish and Wildlife Service et al. 2000a). The current flow regime has established conditions favoring upland habitat at the expense of wetland and aquatic habitat. The shift in habitat types is a causative factor in the current depressed populations of aquatic, semi-aquatic, and wetland wildlife species compared to terrestrial species. Species such as the northwestern pond turtle (*Clemmys marmorata marmorata*), an example of a semi-aquatic species, have declined since construction of the TRD in response to diminishing instream habitat. In contrast, species that favor mature, late-successional riparian habitats, such as the northern goshawk (*Accipiter gentiles*) and black salamander (*Aneides flavipunctatus*), prefer the current mature conditions (U.S. Fish and Wildlife Service et al. 2000a). Impounded water in reservoirs attracts resting and foraging waterfowl and other species that favor standing or slow-moving water. The TRD reservoirs also provide important foraging habitat for eagles and other raptors that prey on fish and waterfowl.

Local Habitat Types

Table 3.7-2 shows each wildlife habitat type (as defined in *A Guide to Wildlife Habitats of California* [Mayer and Laudenslayer 1988]) and corresponding plant communities observed within the ESL. The table also includes a list of wildlife species commonly associated with each wildlife habitat type.

TABLE 3.7-2
WILDLIFE HABITATS AND ASSOCIATED SPECIES FOR THE PROPOSED PROJECT
HOCKER FLAT

Habitat Type	Corresponding Plant Community	Associated Wildlife Species
Montane Hardwood– Conifer	Montane Hardwood–Conifer	Ensatina (*Ensatina escholtzi*) Sharp-shinned hawk (*Accipiter striatus*) Mountain quail (*Oreortyx pictus*) California quail (*Callipepla californica*) Mourning dove (*Zenaida macroura*) Western scrub-jay (*Aphelocoma californica*) Virginia opossum (*Didelphis marsupialis*) Vagrant shrew (*Sorex vagrans*) Black-tailed jackrabbit (*Lepus californicus*) Gray fox (*Urocyon littoralis*)

TABLE 3.7-2
WILDLIFE HABITATS AND ASSOCIATED SPECIES FOR THE PROPOSED PROJECT
HOCKER FLAT

Habitat Type	Corresponding Plant Community	Associated Wildlife Species
Montane Riparian	Montane Riparian Riparian Wet Meadow Riparian Wetland	Western skink (*Eumeces skiltonianus*) Rubber boa (*Charina bottae*) Northern flicker (*Colaptes auratus*) Common yellowthroat (*Geothlypis trichas*) Song sparrow (*Melospiza melodia*) Vagrant shrew (*Sorex vagrans*) Beaver (*Castor canadensis*) Raccoon (*Procyon lotor*) Striped skunk (*Mephitis mephitis*)
Annual Grassland	Annual Grassland	Western fence lizard (*Sceloporus occidentalis*) Common garter snake (*Thamnophis sirtalis*) Western rattlesnake (*Crotalus viridis*) Black-tailed jackrabbit (*Lepus californicus*) California ground squirrel (*Spermophilus beecheyi*) Botta' s pocket gopher (*Thomomys bottae*) Western harvest mouse (*Reithrodontomys megalotis*) California vole (*Microtus californicus*) Coyote (*Canis lantrans*) Turkey vulture (*Cathartes aura*) American kestrel (*Falco sparverius*)
Fresh Emergent Wetland	Seasonal Wet Meadow Fresh Emergent Wetland	Black salamander (*Aneides flavipunctatus*) Western toad (*Bufo boreas*) Pacific chorus frog (*Pseudacris regilla*) Rubber boa (*Charina bottae*) Striped racer (*Coluber constrictor*) Western aquatic garter snake (*Thamnophis couchi*) Black phoebe (*Sayornis nigricans*) Water shrew (*Sorex palustris*) Shrew-mole (*Neurotrichus gibbsii*) Raccoon (*Procyon lotor*)
Riverine	Riverine	Bullfrog (*Rana catesbeiana*) Western pond turtle (*Clemmys marmorata*) Mallard (*Anas platyrynchos*) Great blue heron (*Ardea herodias*) Osprey (*Pandion haliaetus*) Belted kingfisher (*Ceryle alcyon*) Beaver (*Castor canadensis*) River otter (*Lutra canadensis*)

Special-Status Wildlife Species

For the purposes of this evaluation, listed wildlife species include taxa that are (1) designated as threatened or endangered by the state or federal governments (i.e., "listed species"); or (2) are proposed or petitioned for federal threatened or endangered status; and/or (3) are state or federal candidates for threatened or endangered status. "Other" special-status wildlife species are identified by the USFWS as Species of Concern and/or are identified by the CDFG as Species of Special Concern and/or California Fully Protected Species.

A list of special-status wildlife species considered for analysis in this environmental document was compiled by performing a CNDDB database search, conducting informal consultations with the CDFG and USFWS (**Appendices H** and **I**), and reviewing biological literature for the general area (**Table 3.7-3**). Habitat information for the special-status wildlife species was excerpted from:

- California Department of Fish and Game, Habitat Conservation Planning Branch website: http://www.dfg.ca.gov/hcpb/species/species.shtml
- Amphibian and Reptile Species of Special Concern in California (Jennings and Hayes 1994)
- California's Wildlife, Volume II, Birds (Zeiner et al. 1990a)
- California's Wildlife, Volume III, Mammals (Zeiner et al. 1990b)

Federal and state status designations and general habitat requirements for each species are provided in the table. A comments section provides information on whether suitable habitat exists within the ESL. Conclusions presented in this table are based on the knowledge of local professional biologists and historic survey information.

Twenty-five of the wildlife species listed in **Table 3.7-3** may occur in the vicinity of the proposed project based on available habitat and species distribution. These species include foothill yellow-legged frog (*Rana boylii*), northwestern pond turtle (*Clemmys marmorata marmorata*), western tailed frog (*Ascaphus truei*), Trinity bristle snail (*Monadenia setosa*), northern spotted owl (*Strix occidentalis caurina*), northern goshawk (*Accipiter gentiles*), bald eagle (*Haliaeetus leucocephalus*), golden eagle (*Aquila chrysaetos*), American peregrine falcon (*Falco peregrinis anatum*), little willow flycatcher (*Empidonax traillii brewsteri*), yellow warbler (*Dendroica petechia*), yellow-breasted chat (*Icteria virens*), bank swallow (*Riparia riparia*), osprey (*Pandion haliaetus*), Cooper's hawk (*Accipter cooperi*), sharp-shinned hawk (*Accipiter striatus*), American marten (*Martes americana*), Pacific fisher (*Martes pennanti*), California wolverine (*Gulo gulo luteus*), and six special-status bat species. Species accounts for each of these species are provided below, including specific data that are applicable to the proposed project.

Wildlife Surveys

Personnel from the USFS Redwood Sciences Laboratory and U.S. Fish and Wildlife Service performed baseline surveys in April through October 2003 for herpetofauna at Hocker Flat (Welsh et al. 2003). Personnel from the Redwood Sciences Laboratory also conducted riparian/riverine point count bird surveys and riverine mammal surveys at each of the rehabilitation sites in May through October 2003 (Miller et al. 2003). Survey results are included below under each species account (if detected).

TABLE 3.7-3
SPECIAL-STATUS WILDLIFE SPECIES CONSIDERED FOR THE HOCKER FLAT ANALYSIS

Common Name (Scientific Name)	Current Status[1]	General Habitat	Comments
Amphibians			
Foothill yellow-legged frog *(Rana boylii)*	FSC, CSC, BLM	Cool, fast-moving streams and rivers with rocky substrate in chaparral, forests, and woodlands.	The proposed project ESL provides suitable habitat for and is within the known range of the species. **This species was detected within the ESL during a 2003 survey.**
Western tailed frog (*Ascaphus truei*)	FSC, CSC	Permanent streams of low temperature in montane hardwood-conifer, redwood, Douglas fir, and ponderosa pine forests.	The proposed project ESL provides suitable habitat for and is within the known range of the species. **This species was *not* detected within the ESL during a 2003 survey and there have been no incidental observations.**
Reptiles			
Northwestern pond turtle *(Clemmys marmorata marmorata)*	FSC, CSC	Rivers and streams with slow-moving water or pools and some canopy cover. Require basking sites such as partially submerged logs, rocks, or exposed mud banks.	The proposed project ESL provides suitable habitat for the species. **This species was detected within the ESL during a 2003 survey.**
Invertebrates			
Trinity bristle snail (*Monadenia setosa*)	FSC, CT	Moist, well-drained talus slopes in mixed deciduous-coniferous forests and on forested riparian benches.	The proposed project ESL does not provide suitable habitat for the species. **This species was *not* detected within the ESL during a 2003 survey and there have been no incidental observations.**
Birds			
Cooper' s hawk *(Accipter cooperi)*	CSC	Nests in riparian areas and oak and conifer woodlands; forages at woodland edges.	The proposed project ESL provides suitable nesting and foraging habitat for the species. **This species was *not* detected within the ESL during a 2003 survey and there have been no incidental observations.**
Northern goshawk (*Accipiter gentiles*)	FSC, CSC	Rare permanent resident and confirmed breeder in Trinity County. Hunts birds and small mammals in flight. Typically nests in north-facing conifer forests near water.	The proposed project ESL provides suitable foraging habitat for the species**.** **This species was *not* detected within the ESL during a 2003 survey and there have been no incidental observations.**

TABLE 3.7-3
SPECIAL-STATUS WILDLIFE SPECIES CONSIDERED FOR THE HOCKER FLAT ANALYSIS

Common Name (Scientific Name)	Current Status[1]	General Habitat	Comments
Sharp-shinned hawk *(Accipter striatus)*	CSC	Nests in riparian areas and oak and conifer woodlands; forages at woodland edges.	The proposed project ESL provides suitable nesting and foraging habitat for the species**.** **This species was *not* detected within the ESL during a 2003 survey and there have been no incidental observations.**
Golden eagle *(Aquila chrysaetos)*	CSC, CFP, BLM	Rare permanent resident in Trinity County. Nests on cliffs and tall trees on hillsides; forages over open grasslands or early successional stage vegetation. Suitable foraging habitat occurs on the gravel bars and open areas along the river.	The open grassy or young seral stage vegetation on river bars within the ESL provides suitable foraging habitat. Suitable nesting habitat does *not* occur within the proposed project ESL. **This species was *not* detected within the ESL during a 2003 survey and there have been no incidental observations.**
Yellow-billed cuckoo (*Coccyzus americanus*)	FC, CE	Obligate riparian nesters; only breed in streamside forests, especially those dominated by mature willow and cottonwood stands. Most nesting occurs within relatively large patches of riparian forest, usually 25 to 100 acres in extent.	Not known to occur in Trinity County. **(ESL is outside of the current known range of the species).**
Yellow warbler *(Dendroica petechia)*	CSC	Nests and forages in dense riparian scrub habitat.	Montane riparian (upland) habitat within the proposed project ESL provides suitable nesting and foraging habitat for the species. **This species was detected within the ESL during a 2003 survey.**
Little willow flycatcher *(Empidonax traillii brewsteri)*	FSC, CE	Rare summer resident in wet meadow and montane riparian habitats at 2,000 to 8,000 ft elevation.	Montane riparian habitat within the proposed project ESL provides suitable nesting and foraging habitat for the species. **Willow flycatchers were detected within the ESL during a 2003 survey. *Nests were not detected and breeding activity has not been confirmed.* It is currently assumed that the observed birds were migrants.**
American peregrine falcon *(Falco peregrinis anatum)*	FD, CE, CFP	Rare permanent resident and confirmed breeder in Trinity County. Forages over marshes and grasslands on flying birds up to duck size. Nesting habitat includes high, protected cliffs and ledges near water. May forage 5 km or more from nesting area.	The proposed project ESL provides suitable foraging habitat. *No* suitable nesting habitat present. **This species was *not* detected within the ESL during a 2003 survey and there have been no incidental observations.**

TABLE 3.7-3
SPECIAL-STATUS WILDLIFE SPECIES CONSIDERED FOR THE HOCKER FLAT ANALYSIS

Common Name (Scientific Name)	Current Status[1]	General Habitat	Comments
Bald eagle *(Haliaeetus leucocephalus)*	FT(FPD), CE, CFP	Forages on live and dead fish and nests in large trees or snags. Requires large bodies of water, including ocean shorelines, lake margins, and large, open river courses for foraging, nesting and wintering habitat.	The proposed project ESL provides suitable foraging habitat for the species. Suitable nesting habitat does *not* occur within the proposed project ESL. **This species was detected within the ESL during surveys performed in 2002 and 2003; however, no nests have been found.**
Yellow-breasted chat *(Icteria virens)*	CSC	Nests and forages in dense riparian habitat with mature riparian tree species (e.g., willow, cottonwood).	Suitable habitat (i.e., dense riparian vegetation) is present within the proposed project ESL. **This species was detected within the ESL during a 2003 survey.**
Osprey *(Pandion haliaetus)*	CSC	Utilizes similar habitat as the bald eagle, often competing for foraging and nesting resources. Forages on live and dead fish and nests in large trees or snags. Requires large bodies of water, including ocean shorelines, lake margins, and large, open river courses for foraging, nesting, and wintering habitat.	The proposed project ESL provides suitable foraging habitat but *no* nesting habitat for the species**.** **This species was *not* detected within the ESL during a 2003 survey and there have been no incidental observations.**
Bank swallow *(Riparia riparia)*	FSC, CT	Colony nester restricted to isolated places where fine-textured or sandy, vertical bluffs or riverbanks are available in which to dig nesting cavities.	The proposed project ESL does *not* provide habitat for the species. Species is considered extremely rare in Trinity County. **This species was *not* detected within the ESL during a 2003 survey and there have been no incidental observations.**
Northern spotted owl *(Strix occidentalis caurina)* Critical Habitat	FT	Prefers multiple-story canopy dominated by big trees with cavities or broken tops; frequently in mixed conifer habitats. Most often in old-growth or mixed old-growth and mature trees.	The proposed project ESL, and within 0.25 miles of its perimeter, does *not* provide suitable nesting, roosting or foraging habitat. Based on informal consultation with the USFWS, no protocol-level surveys were conducted. **This species was *not* detected within the ESL and there have been no incidental observations.**
Mammals			
Pacific fisher (*Martes pennanti*)	FSC, CSC, BLM	Dens and forages in old-growth forests or mixed stands of old-growth and mature trees. May use riparian corridors for movement.	Species may use the Trinity River as a travel corridor. **No species-specific survey has been performed for this species. No incidental observations have been made of this species within the ESL.**

TABLE 3.7-3
SPECIAL-STATUS WILDLIFE SPECIES CONSIDERED FOR THE HOCKER FLAT ANALYSIS

Common Name (Scientific Name)	Current Status[1]	General Habitat	Comments
American marten (*Martes americana*)	FSC	Dens and forages in old-growth forests or mixed stands of old-growth and mature trees. May use riparian corridors for movement.	Within the proposed project ESL, habitat suitable for denning is extremely limited. This species may use the Trinity River as a travel corridor. **No species-specific survey has been performed for this species. No incidental observations have been made of this species within the ESL.**
California wolverine *(Gulo gulo luteus)*	FSC, CT, CFP	A scarce resident of North Coast Mountains in Trinity County, typically at elevations above 1600 feet. Den in caves, cliffs, hollow logs, cavities in the ground, under rocks; may dig dens in snow, or use old beaver lodges (Thomas 1979). Forage in open to sparse tree habitats on ground, in trees, burrows, among rocks, in or under snow, and sometimes in shallow water.	Denning would *not* likely occur within the proposed project ESL due to the moderate number of human residences. Wolverine may on rare occasions utilize the Trinity River as a travel corridor**.** **No species-specific survey has been performed for this species. No incidental observations have been made of this species within the ESL.**
Pale Townsend' s big-eared bat *(Corynorhinus townsendii pallescens)*	FSC, CSC	Uncommon, but occurs throughout California in all but alpine habitats. Most abundant in mesic habitats. Hibernation sites are usually cold but not below freezing; maternity sites are warm and can occur in caves, tunnels, mines, and buildings. Highly susceptible to nest abandonment due to human disturbance.	Marginal roosting and foraging habitat occurs within the proposed project ESL **Species-specific surveys (i.e., acoustic or netting surveys) not conducted; therefore, definitive identification not possible**. **No evidence of bats (i.e., guano stains at base of trees/structures) was observed within the ESL**.
Small-footed myotis bat *(Myotis ciliolabrum)*	FSC, BLM	Occurs in a wide variety of habitats, primarily in relatively arid wooded and brushy uplands near water from sea level to 8900 feet. Forages in arid upland grasslands, open woodlands, and over water. Roosts in caves, mines, buildings, bridges, rock crevices, and under tree bark.	The proposed project ESL provides potentially suitable roosting and foraging habitat. **Species-specific surveys (i.e., acoustic or netting surveys) not conducted; therefore, definitive identification not possible**. **No evidence of bats (e.g., guano stains at base of trees/structures) was observed within the ESL**.

TABLE 3.7-3
SPECIAL-STATUS WILDLIFE SPECIES CONSIDERED FOR THE HOCKER FLAT ANALYSIS

Common Name (Scientific Name)	Current Status[1]	General Habitat	Comments
Long-eared myotis bat *(Myotis evotis)*	FSC, BLM	The long-eared myotis is uncommon but widespread in California. Has been found in most habitats, but prefers coniferous woodlands. Roosts singularly in buildings, crevices, spaces under bark, and in snags. Forages among trees and over brush, usually in close association with water.	The proposed project ESL provides potentially suitable roosting and foraging habitat. **Species-specific surveys (i.e., acoustic or netting surveys) not conducted; therefore, definitive identification not possible**. **No evidence of bats (e.g., guano stains at base of trees/structures) was observed within the ESL**.
Fringed myotis bat *(Myotis thysanodes)*	FSC, BLM	Mesic habitats, roosting in caves, mines, tunnels, and buildings. Maternity roosts can have 200 individuals. Roosts typically in valley foothill hardwood and hardwood-conifer habitats from 4000–7000 feet, but forages in open, early-successional stage habitats near water.	The proposed project ESL provides potentially suitable roosting and foraging habitat. **Species-specific surveys (i.e., acoustic or netting surveys) not conducted; therefore, definitive identification not possible**. **No evidence of bats (e.g., guano stains at base of trees/structures) was observed within the ESL**.
Long-legged myotis bat (*Myotis volans*)	FSC	Occurs throughout the Coast Ranges from Oregon to Mexico and in most of the Sierra Nevada, but is absent from the arid Central Valley. Most common in woodland and forest habitat above 4000 feet. Roosts in rock crevices, buildings, under tree bark, and in snags, mines and caves. Trees are the most important day roosts.	The proposed project ESL provides potentially suitable roosting and foraging habitat. **Species-specific surveys (i.e., acoustic or netting surveys) not conducted; therefore, definitive identification not possible**. **No evidence of bats (e.g., guano stains at base of trees/structures) was observed within the ESL**.
Yuma myotis bat *(Myotis yumanensis)*	FSC, BLM	Forages over water such as ponds, streams, stock tanks in open woodlands. Roosts in buildings, caves, mines, abandoned swallow nests, bridges, and rock crevices. Common and widespread in California.	The proposed project ESL provides potentially suitable roosting and foraging habitat. **Species-specific surveys (i.e., acoustic or netting surveys) not conducted; therefore, definitive identification not possible**. **No evidence of bats (e.g., guano stains at base of trees/structures) was observed within the ESL**.

[1]Status Codes:

BLM = BLM Sensitive
CE = California Endangered
CFP = California Fully Protected
CSC = California Species of Special Concern
CT = California Threatened
FC = Federal Candidate
FD = Federal De-listed (status monitored for 5 years)
FSC = Federal Species of Concern
FPD = Federal Petitioned for De-listing
FSC = Federal Species of Special Concern

Survey and Manage Species

As discussed above under Special-Status Plant Species, the term Survey and Manage Species is no longer valid. The following discussion continues to use the term to provide continuity throughout this section. A list of wildlife species with potential to occur within the ESL was compiled by performing an Interagency Species Management System (ISMS) Database search and reviewing the survey protocols for the species listed on Table 1-1 of the amended ROD of the Northwest Forest Plan (U.S. Department of Agriculture 2001) and the revisions included in the 2002 Survey and Management Annual Species Review (U.S. Department of Agriculture 2003). The ESL established for the proposed project includes public lands managed by BLM (rehabilitation areas R-6 and R-8).

Pre-disturbance surveys for mollusks were conducted on this site during the spring 2001 and fall 2002 survey periods. No mollusks were located during either visit. Much of the ESL was underwater (and unsuitable for mollusk habitat) during May 2002 high Trinity River flows. The public lands within the ESL were determined to be unsuitable as survey and manage mollusk habitat.

BLM Sensitive

BLM Manual Section 6840 defines sensitive species as "…those species that are (1) under status review by the USFWS/NMFS; or (2) whose numbers are declining so rapidly that Federal listing may become necessary, or (3) with typically small and widely dispersed populations; or (4) those inhabiting ecological refugia or other specialized or unique habitats." Existing California-BLM policy concerning the designation of sensitive species identifies two conditions that must be met before a species may be considered as BLM sensitive: (1) a significant population of the species must occur on BLM-administered lands, and (2) the potential must exist for improvement of the species' condition through BLM management (CDFG 2002c). The "Sensitive Species" designation is not meant to include federally listed species, proposed species, candidate species, or state-listed species. The BLM's policy provides sensitive species with the same level of protection given to federal candidate species. Six of the wildlife species with potential to occur within the ESL are designated BLM Sensitive species.

Species Accounts

Foothill Yellow-legged Frog

The foothill yellow-legged frog, a state species of special concern, breeds in low-velocity shallow water near sparsely vegetated gravel bars. These areas have been reduced by 95 percent compared to pre-dam conditions (Lind et al. 1996). Escape habitat, in the form of nearby pools, has also been reduced by low flows, fine sediment accumulation, and riparian encroachment. Since the construction of the dams, controlled river flow has resulted in habitat alteration, changes in land use, and flow-induced mortality, all contributing to severe declines in the foothill yellow-legged frog (Lind et al. 1996). During the 2003 herpetofauna surveys, foothill yellow-legged frogs were detected.

The natural recession in flows following peak snowmelt runoff is believed to be a cue for egg deposition for the foothill yellow-legged frog. Prior to dam construction, snowmelt flows peaked sometime in the

spring and gradually tailed off towards summer. However, dam releases have not always included a spring recession, or the recession has been greatly weakened and/or out of sync with tributary flows, thereby negating an important breeding cue for this species. Release schedules that do not match the natural snowmelt recession may result in reduced reproductive success for the foothill yellow-legged frog. For example, a scheduled peak release may wash away eggs that were deposited in response to earlier tributary recessions. Conversely, a late snowmelt peak from the tributaries may harm eggs deposited because of the artificial recession of dam releases.

Suitable habitat for foothill yellow-legged frog is present within the ESL. Baseline surveys detected foothill yellow-legged frogs at the Hocker Flat site. Evidence of reproduction included three egg masses that were found less than 0.2 mile downstream of the ESL (Welsh et al. 2003).

Northwestern Pond Turtle

Northwestern pond turtle, a federal species of concern, a state species of special concern, and a BLM sensitive species, inhabits ponds, lakes, and slow moving streams. Although the western pond turtle still occupies some locations in the Trinity River, "the alterations of channel morphology and flow regimes associated with damming (have decreased the) habitat suitability" for the species (Reese and Welsh 1998). For example, instream pools used by turtles for cover and protection from predators have largely been lost because of channelization. This habitat has been replaced to some extent by undercut banks with slow-moving water. Areas that historically provided low water velocities during high flows (e.g., side channels and gravel bars) have also been reduced, resulting in increased mortality to hatchlings and juveniles. Furthermore, because current summer releases from the dam are colder than pre-dam conditions, development in early life stages could be affected, as well as behavior in all life stages. The harmful effects of the coldwater releases are compounded by a reduction in thermal stratification compared to pre-dam conditions, a consequence of the decreased structural diversity. In other words, the turtle (and many other species) no longer has the temperature choices it had in pre-dam conditions.

Suitable habitat for northwestern pond turtles is present within the ESL, and the species was detected in the immediate vicinity of the Hocker Flat site during the 2003 herpetofauna survey.

Western Tailed Frog

Western tailed frogs, a federal species of concern and a state species of special concern, occur in low-temperature permanent streams in conifer-dominated habitats of Douglas fir (*Pseudotsuga menziesii*), redwood (*Sequoia sempervirens*), Sitka spruce (*Picea sitchensis*), Ponderosa pine (*Pinus ponderosa*), and western hemlock (*Tsuga heterophylla*), which possess the habitat structure most likely to create the low temperature and clear water conditions that the life stages of tailed frogs require. Tailed frogs also occur in montane hardwood–conifer habitats. They are more frequently found in mature or late-successional stands than in younger stands. The elevation range of the species is from sea level to 6,500 ft.

Suitable habitat for western tailed frogs is present within the ESL; however, they were not detected in the immediate vicinity of the Hocker Flat site during the 2003 herpetofauna surveys nor have there been any incidental observations made during any other surveys within the ESL.

Trinity Bristle Snail

The Trinity bristle snail, a federal species of concern and a state threatened species, is found primarily in riparian forest areas. The snail lives mainly along riparian corridors within Douglas fir–yellow pine forests having a dense, deciduous hardwood understory. The only location this habitat may be available is in association with area R-8. It is restricted to moist but well-drained, well-shaded canyon slopes or streamside benches covered with a layer of leaf mold at least 4 inches deep.

Field surveys conducted by BLM in 2001/2002 on BLM lands within the ESL for the proposed project found no mollusks. The BLM portion of the ESL was determined to be inadequate Trinity bristle snail habitat. There have been no incidental observations of this species within the ESL.

Northern Spotted Owl

The northern spotted owl, federally listed as a threatened species, prefer multiple-story, dense canopy dominated by large trees with cavities or broken tops for nesting, frequently in mixed conifer or hardwood–mixed conifer habitats. Foraging areas are commonly in similar habitat, often with lower density canopy cover, and smaller trees. Spotted owls are also known to forage along the edges of clear cuts or other natural openings.

As a result of informal consultation with the USFWS, no protocol-level surveys for northern spotted owls were conducted within the Hocker Flat ESL. According to a habitat assessment of the proposed project site and within at least 0.25 mile of the ESL perimeter, performed in 2003, the site does not contain appropriate nesting, roosting, or foraging habitat for northern spotted owls. The Hocker Flat site consists of predominantly dry hillsides or floodplain habitat with scattered residential housing throughout. Dispersal habitat was not considered during the assessment due to the variability of habitats spotted owls use for dispersal, and the determination that dispersing owls are mobile and therefore, not likely to be negatively affected by the proposed restoration activities. There are no known occurrences of northern spotted owls within 5 miles of the proposed project ESL.

Bald Eagle

The bald eagle is currently federally listed as a threatened species, although it is proposed for delisting. It is also listed as endangered by the state and is a California fully-protected species.

Bald eagle nesting typically occurs in close proximity to a water source, and nearly always within 1 mile. Preferred nest trees are often the tallest and largest diameter trees in a stand, with large branches to support the nest. Bald eagles range throughout California. Preferring quiet areas near water, they breed in mountain and foothill forests and woodlands near reservoirs, lakes, and rivers. Breeding territories are concentrated in northern California.

Bald eagles typically forage for fish and waterfowl in large water bodies, including lakes and streams. They also forage in uplands in search of birds, small mammals, or carrion. The bald eagle has experienced a reduction in Trinity River forage because of the declining salmon escapements, a result of the construction and operation of the TRD. However, the eagle adapts well to reservoirs where it forages

on fish and waterfowl. Eight bald eagle pairs are known to exist in the areas surrounding Trinity and Lewiston Reservoirs. Reproductive success of eagles near Trinity and Lewiston Reservoirs has generally exceeded the recovery goal of one young per occupied nest (as established in the Pacific Region recovery plan: U.S. Fish and Wildlife Service 1986). Bald eagle use of the reservoirs increases dramatically in some winters.

Suitable nesting habitat for the bald eagle is not present within the proposed project ESL. Suitable foraging habitat for the species is present along the Trinity River corridor, including Hocker Flat. The USFS Redwood Sciences Laboratory (USDA Forest Service 2003) conducted float and point count surveys for bald eagles in 2002 and 2003. Bald eagles were detected during these surveys either perched or flying in the vicinity of the ESL; however, no active nests were observed within 0.25 mile of the proposed project.

Little Willow Flycatcher

The little willow flycatcher, state listed as endangered, is a summer resident in California, breeding in riparian willow thickets, often in association with wetlands. Typically there is a water source in close proximity to the nest that provides the aquatic habitat component to support a prey base (insects) for this species. The riparian willow habitat type preferred by this species is considered to be early-successional. In the Trinity River basin, this habitat type was more abundant in the pre-dam floodplain than it is currently. Approximately a dozen willow flycatchers were recorded annually in Trinity River surveys between 1990 and 1992; however, no breeding birds were detected (Wilson 1995). The lack of standing water and flying insects—a result of channelization of the river—was speculated to be a possible factor limiting willow flycatcher breeding. Montane riparian habitat within the proposed project ESL provides suitable habitat for nesting and foraging. Willow flycatchers were detected at the Hocker Flat site during point count surveys in 2003 although no nests or breeding activities were observed. Staff from the USFS Redwood Sciences Laboratory is currently (2004) conducting protocol-level willow flycatcher surveys within the Hocker Flat ESL. There have been no detections of willow flycatchers from these surveys, suggesting that the flycatchers detected earlier were likely migrating through the area (P. Herrera, USFS Redwood Sciences Laboratory, pers. comm., 2004).

Yellow Warbler

Yellow warblers forage and nest along dense riparian habitat. Because of brood parasitism by brown-headed cowbirds and riparian habitat destruction, the yellow warbler is a California species of special concern. Suitable nesting and foraging habitat for the species exists within the ESL, although there are no recorded nest sites identified by the CNDDB program within the vicinity of the proposed project and no nests have been found during surveys. However, yellow warblers were observed within the ESL during the 2003 point count surveys.

Yellow-Breasted Chat

As with the yellow warbler, brood parasitism and riparian habitat destruction have led to a decline in the yellow-breasted chat population. The species is currently designated as a species of special concern in California. The species requires dense riparian thickets of willows, vine tangles, and dense brush

associated with streams, swampy ground, and margins of small ponds for foraging and nesting. Suitable habitat for the species exists within the ESL. Yellow-breasted chats were observed within the ESL during the 2003 point count surveys, although no nests were found.

American Peregrine Falcon

Peregrine falcons have been federally delisted; however, this species remains on the state endangered list, and is "fully protected" under state law by Fish and Game Code Section 3511. Peregrine falcon eyries are typically located on protected cliff ledges near streams or rivers. Preferred foraging areas include streams or rivers, marshes, and wetlands. No suitable nesting habitat is present within the ESL, or within 0.25 mile, although suitable foraging habitat is present. The species was not observed within the ESL during point count surveys performed in 2003, and no incidental observations were made during the 2004 field surveys.

Osprey

The osprey, a state species of special concern and a species protected against "take" by California Fish and Game Code Section 3505, forages over clear open waters such as rivers, lakes, and reservoirs. The species nests in large trees, snags, and dead-topped trees near bodies of water. No suitable nesting habitat is present within the ESL, although suitable foraging habitat is present. The species was not observed within the ESL during point count surveys performed in 2003, and no incidental observations were made during the 2004 field surveys.

Cooper's Hawk

The Cooper's hawk, a state species of special concern, nests in riparian woodland associated with canyons and floodplains. Destruction of riparian woodlands by deforestation and flood-control systems throughout the state has resulted in this species being designated as a state species of concern. Suitable foraging and nesting habitat for this species exists within the ESL, but no recorded nest sites were identified by the CNDDB program. The species was not observed within the ESL during point count surveys performed in 2003, and no incidental observations were made during the 2004 field surveys.

Sharp-Shinned Hawk

The sharp-shinned hawk, a state species of special concern, prefers scattered coniferous, deciduous, or mixed woodlands for nesting sites. Destruction of woodlands by deforestation and development has resulted in a loss of habitat for the species. The species is currently designated as a species of concern by CDFG. Suitable foraging and nesting habitat for this species exists within the ESL, but no recorded nest sites identified by the CNDDB program occur within the ESL. The species was not observed within the ESL during point count surveys performed in 2003, and no incidental observations were made during the 2004 field surveys.

Bank Swallow

The bank swallow, which is a federal species of concern and is state-listed as threatened, is a neotropical migrant found primarily in riparian and other lowland habitats in California west of the deserts during the

spring-fall period. In the summer, the species is restricted to riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with fine-textured or sandy soils, into which it digs nesting holes. Bank swallows feed predominantly over open riparian areas, but also over brushland, grassland, wetlands, water, and cropland. In migration, they flock with other swallows over many open habitats. The California range of this species is estimated to be reduced by 50 percent since 1900. Today, only approximately 110 to120 colonies remain within the state. Perhaps 75 percent of the current breeding population in California occurs along the banks of the Sacramento and Feather rivers in the northern Central Valley. Other colonies persist along the central coast from Monterey to San Mateo counties, and in northeastern California in Shasta, Siskiyou, Lassen, Plumas, and Modoc counties (Zeiner et al. 1990). The species is considered extremely rare in Trinity County. The alluvial features within the ESL do not provide habitat for bank swallows. The species was not observed within the ESL during point count surveys performed in 2003, and no incidental observations were made during the 2004 field surveys.

Golden Eagle

The golden eagle is a state species of concern and a “fully protected bird” pursuant to California Fish and Game Code Section 3511. Preferred foraging habitat for the golden eagle includes chaparral, grasslands, and desert associations, as well as open-canopied, early-successional coniferous forests and woodlands. Prey species include jackrabbit and other small mammals, although carrion may be eaten when prey species are scarce. Secluded cliffs with overhanging ledges and large trees in open areas are used for nesting and cover (Zeiner et al. 1990). Alternative nest sites are maintained and old nests reused. The golden eagle is a permanent, year-round resident throughout most of California, with the exception of the Central Valley floor, where it is a winter migrant, and the high mountain portion of the Sierra Nevada, where it occurs as a summer resident only. The open, grassy or young seral stage vegetation within the ESL provides marginal foraging habitat for the species. Suitable nesting habitat does not occur within the ESL. The species was not observed within the ESL during point count surveys performed in 2003, and no incidental observations were made during the 2004 field surveys.

Northern Goshawk

The northern goshawk is a federal species of concern and a state species of special concern. Northern goshawks forage in wooded areas, using snags and dead-topped trees for observation of potential prey. The species typically nests in dense, mature conifer and deciduous forests on north slopes in the densest part of stands but near openings. Nest sites tend to be located near a water source and riparian areas. Alternative nest sites are maintained and old nests reused. The alluvial nature of the ESL provides marginal foraging habitat for the species, but suitable nesting habitat does not occur within the ESL. The species was not observed within the ESL during point count surveys performed in 2003 and no incidental observations were made during the 2004 field surveys.

American Marten

The American marten is a federal species of concern. Optimal habitats for the American marten are various mixed evergreen forests with more than 40 percent crown closure with large trees and snags, including red fir, lodgepole pine, subalpine conifer, mixed conifer, Jeffrey pine, and eastside pine forests.

Small clearings, meadows, and riparian areas provide foraging habitats, particularly during snow-free periods; the species forages along the edge of water, on ground, and in trees, snags, logs, and rock areas. The species uses cavities in large trees, snags, stumps, logs or burrows, caves, and crevices in rocky areas for denning cover. The American marten less commonly dens in woodpiles, cabins, and other human artifacts. The species has been known to den under snow near logs, stumps, or other objects. Within the ESL, habitat suitable for denning is extremely limited. The species may use the Trinity River as a travel corridor. No species-specific surveys have been conducted for American martens within or near the ESL, and there have been no incidental observations of this species.

Pacific Fisher

The Pacific fisher, a candidate species for federal listing and a state species of special concern, occurs in intermediate to large-tree stands of coniferous forests and deciduous-riparian habitats with a high percentage canopy closure (greater than 50 percent). Fishers den in protected cavities in large trees, snags, logs, rock areas, or shelters provided by slash or brush piles. The species forages on the ground and in trees. Suitable denning habitat is not available in or adjacent to the ESL. The species may also use the Trinity River as a travel corridor. Due to the lack of denning habitat, no species-specific surveys have been conducted for Pacific fishers within or near the ESL, and there have been no incidental observations of this species.

California Wolverine

The California wolverine, a state threatened species and a “fully protected mammal” under California law (Fish and Game Code, Section 4700), is a scarce resident of the Klamath mountains in Trinity County, typically occurring at elevations above 1,600 feet. Individuals have been observed in mixed conifer, red fir, and lodgepole habitats, and may also use subalpine conifer, alpine dwarf-shrub, wet meadow, and montane riparian. The species prefers areas having little human disturbance. California wolverines den in caves, cliffs, hollow logs, cavities in the ground, and under rocks; they may dig dens in snow or use old beaver lodges (Thomas 1979). The species forages in open to sparse tree habitats on the ground, in trees, burrows, among rocks, in or under snow, and sometimes in shallow water. Wolverines can travel great distances, and have very large home ranges. Wolverines may, on rare occasions, use the Trinity River as a travel corridor, but denning would not likely occur within the ESL due to the number of human residences and likelihood of disturbance. Due to the lack of denning habitat, no species-specific surveys have been conducted for California wolverines within or near the ESL, and there have been no incidental observations of this species.

Bat Species

Special-status bat species with potential to occur within the ESL include pale Townsend’s big-eared bat, small-footed myotis bat, long-eared myotis bat, fringed myotis bat, long-legged myotis, and Yuma myotis bat. These six species of bat roost in cool, dark crevices or shaded areas by day and forage for insects by night. All of these species are known to forage over dry grasslands, as well as creeks, ponds, and lakes. Suitable roosting sites include caves, cliff faces, mine adits, tunnels, bridges, trees, and abandoned buildings (Zeiner et al. 1990). Marginal roosting and foraging habitat for these species is present;

however, no structures for roosting are present within the ESL. No species-specific surveys have been conducted for any of the bat species within or near the ESL. There have been no incidental observations of bats during any of the field surveys.

Jurisdictional Wetlands

Regional Setting

Although information on the historic location and function of wetlands in the vicinity of the proposed project is limited**, Figure 3.3-5** suggests that the historic dredging activities that occurred throughout the ESL substantially modified the character and function of wetlands prior to construction of the TRD. An assessment of the geomorphic features within the ESL suggest that prior to the dredging activities, the floodplain of the Trinity River was much larger than what has developed in association with the construction, and operation of the TRD since 1964. Based on these historic assumptions, wetland acreage has likely declined following dam construction in part because reduced flows now inundate less of the floodplain. Fringe strands of freshwater emergent vegetation, scrub-shrub, and forested wetlands now occur intermittently, where a wider belt of wetland likely existed under pre-dam conditions. Reduction in alternate point bars has also reduced post-dam wetland acreage by curtailing formation of side channels and other meander-related features.

Local Setting

On June 19 and 20, 2002, and May 14, 2003, NSR wetland scientists conducted a delineation of jurisdictional waters of the United States within the ESL established for the proposed project. The delineation was conducted according to the methodology described in the 1987 Corps Wetland Delineation Manual. The method utilized a three-parameter approach (i.e., vegetation, soils, and hydrology) to identify and delineate the boundaries of jurisdictional wetlands. Jurisdictional wetland features were mapped on aerial photographs for each site (1 inch = 200 feet scale). Specific information on the characteristics of the wetland types present within the ESL is provided in **Appendix D**. **Table 3.7-4** provides a summary of the Waters of the United States within the ESL. In addition to riparian wetland, fresh emergent wetland, and seasonal wet meadow features, this table includes “other waters of the United States (e.g., riverine, pond, and perennial stream features). A field verification was conducted by the Corps, and the verification letter issued to Reclamation on July 8, 2004. The administrative record documenting the verification process is included in **Appendix D**.

TABLE 3.7-4
SUMMARY OF JURISDICTIONAL WATERS
HOCKER FLAT

Wetland Type	Total Acreage
Total Wetlands	
Riparian	7.97
Seasonal Wet Meadow	0.36
Fresh Emergent	0.29
Total Wetlands	**8.62**
Other Waters	
Trinity River (Riverine)	20.72
Perennial Creek	0.21
Pond	0.19
Total Other Waters	**21.12**
Total Jurisdictional Waters	**29.74**

Both upland and riparian wetland areas within the montane riparian plant community exhibit similarities in vegetative composition. However, the observed positive field indicators of wetland hydrology and hydric soils within the riparian wetland features define the primary distinction between upland and wetland. Furthermore, herbaceous plant species that occur almost always (>99 percent probability; OBL) in wetlands and herbaceous plant species that usually occur (>67 percent to 99 percent probability; FACW) in wetlands were observed within riparian wetland features. These plant species include torrent sedge (*Carex nudata* – FACW+), tall flatsedge (*Cyperus eragrostis* – FACW), least spikerush (*Eleocharis acicularis* – OBL), smooth scouring rush (*Equisetum laevigatum* – FACW), and reed canary grass (*Phalaris arundinaceae* – OBL). Therefore, all three wetland criteria (hydrophytic vegetation, wetland hydrology, and hydric soils) were observed within the delineated riparian wetlands.

Fresh emergent wetland within the ESL consists of herbaceous plant species that tolerate long-duration inundation. Dominant plant species include slender-beak sedge (*Carex athrostachya* – FACW), common rush (*Juncus effuses* – OBL), Himalayan blackberry (*Rubus discolor* – FACW), water buttercup (*Ranunculus aquatilis* – OBL), sandbar willow (*Salix exigua* – FACW), arroyo willow (*Salix lasiolepsis* – FACW), and narrow-leaf cattail (*Typha angustifolia* – OBL). Positive field indicators of wetland hydrology and hydric soils were observed.

Seasonal wet meadow occurs in areas where water does not appear to pond but saturates to the surface for sufficient duration to create a wetland habitat. These areas are likely affected by hydrologic factors other than the Trinity River. Seasonal wet meadow is typically composed of herbaceous plant species that tolerate long-duration saturation. Within the study area, seasonal wet meadow is dominated by smooth scouring rush and Canada bluegrass (*Poa compressa* – FAC). This wetland feature is a monoculture of

smooth scouring rush with Canada bluegrass and Himalayan blackberry occurring along the margin. Positive field indicators of wetland hydrology and hydric soils were observed.

The riverine area is limited to the open water channel of the mainstem of the Trinity River. The Trinity River is dominated by run and riffle habitats, with boulder, cobble, gravel, and sand substrates. Vegetation within the active river channel is sparse with occasional clumps of sedges (*Carex* spp.).

Two pond features are associated with montane riparian habitat within the ESL. These features are characterized by open water and the absence of vegetation, inundation, saturation, and long-duration ponding.

Perennial water features (in addition to the Trinity River) within the ESL include two stream reaches with a total length of 1,316 feet and an area of 0.21 acre. One of these perennial stream segments (unnamed) drains to a second stream (Hocker Creek) within the ESL in the vicinity of R-7. Hocker Creek then drains to the Trinity River at the northern end of the ESL (R-8). These perennial water features are characterized by a distinct bed and bank and ordinary high water mark, and an absence of vegetation due to scouring.

3.7.2 REGULATORY SETTING

This section lists specific environmental review and consultation requirements and identifies permits and approvals that must be obtained from local, state, and federal agencies before construction of the proposed project.

Federal

U. S. Army Corps of Engineers

Section 404, Clean Water Act

The objective of the Clean Water Act (CWA 1977, as amended) is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Discharge of fill material into waters of the United States, including wetlands, is regulated by the Corps under Section 404 of the federal Clean Water Act (33 USC 1251-1376). Corps regulations implementing Section 404 define waters of the United States to include intrastate waters, including lakes, rivers, streams, wetlands, and natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce. Wetlands are defined for regulatory purposes as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3; 40 CFR 230.3). The placement of structures in "navigable waters of the United States" is also regulated by the Corps under Section 10 of the federal Rivers and Harbors Act (33 USC 401 et seq.). Projects are permitted under either individual or general (e.g., nationwide) permits. Specific applicability of permit type is determined by the Corps on a case-by-case basis. Based on preliminary conversation with the Corps (San Francisco District – Eureka Field Office), the proposed project is expected to be permitted under Nationwide Permit Number 27 (Wetland and Riparian Restoration and Creation Activities).

In 1987, the Corps published a manual that standardized the manner in which waters of the United States, including wetlands, were to be delineated nationwide. To determine whether areas that appear to be wetlands are subject to Corps jurisdiction (i.e., are "jurisdictional" wetlands), a wetlands delineation must be performed. Under normal circumstances, positive indicators from three parameters (1) wetland hydrology, (2) hydrophytic vegetation, and (3) hydric soils must be present to classify a feature as a jurisdictional wetland. In addition to verifying wetlands for potential jurisdiction, the Corps is responsible for the issuance of permits for projects that propose filling of wetlands. Any permanent loss of a jurisdictional wetland as a result of project construction activities is considered a significant impact.

The location and boundaries of wetlands and other waters potentially impacted by the proposed project were evaluated based on field surveys, aerial photograph interpretation, and existing published information. The delineation was conducted on June 19 and 20, 2002, and May 14, 2003, using methods specified in the Corps' 1987 guidelines (Environmental Laboratory 1987). The delineation report was used by the Corps to verify the location and extent of Section 404 and Section 10 jurisdiction.

NOAA Fisheries & U.S. Fish and Wildlife Service

Federal Endangered Species Act

The ESA defines "take" (Section 9) and generally prohibits the "taking" of a species listed as endangered or threatened (16 USC. 1532, 50 CFR 17.3). Under the ESA, the "take" of a federally listed species is deemed to occur when an intentional or negligent act or omission causes the agent of the action "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." The term "harm" includes acts that actually kill or injure wildlife. Such acts may include significant habitat modification or degradation when it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. Section 7 of the ESA requires federal agencies, in consultation with the Secretary of the Interior, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of designated critical habitat for these species. Reclamation, as the federal lead agency for the proposed project, is required to consult with NOAA Fisheries concerning project effects to SONCC ESU of coho salmon pursuant to Section 7 of the ESA. NOAA Fisheries has determined that the proposed Hocker Flat Rehabilitation Project is covered under their 2000 Biological Opinion for the Trinity River mainstem Fishery Restoration Program.

As a result of informal consultation with the USFWS, no protocol-level surveys for northern spotted owls were conducted within the Hocker Flat ESL. According to a habitat assessment of the proposed project site and within at least 0.25 mile of the ESL perimeter, performed in 2003, the site does not contain appropriate nesting, roosting, or foraging habitat for northern spotted owls. The Hocker Flat site consists of predominantly dry hillsides or floodplain habitat with scattered residential housing throughout. Dispersal habitat was not considered during the assessment due to the variability of habitats spotted owls use for dispersal, and the determination that dispersing owls are mobile and therefore, not likely to be negatively affected by the proposed restoration activities. There are no known occurrences of northern spotted owls within 5 miles of the proposed project ESL.

U.S. Fish and Wildlife Service

Migratory Bird Treaty Act (MBTA)

Migratory birds are protected under the MBTA of 1918 (16 USC 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). The direct injury or death of an individual of this species, due to construction activities or any construction-related disturbance that causes nest abandonment or forced fledging of this species, would be considered a significant impact. Any removal of active nests during the breeding season or any disturbance that results in the abandonment of nestlings is considered a "take" of the species under federal law.

State

California Department of Fish and Game

Streambed Alteration (Sections 1600-1607 of the California Fish & Game Code)

State and local public agencies such as the DWR are subject to Section 1602 of the California Fish and Game Code, which governs construction activities that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the CDFG. Under Section 1602 of the California Fish and Game Code, a discretionary Streambed Alteration Agreement from the CDFG (Region 1 for the proposed project) must be issued by the CDFG to DWR (or potentially to Reclamation) prior to the initiation of construction activities within lands under jurisdiction. As a general rule, this requirement applies to any work undertaken within the 100-year floodplain of a stream or river containing fish or wildlife resources.

California Endangered Species Act

Under the CESA, the CDFG has the responsibility for maintaining a list of endangered and threatened species (California Fish and Game Code 2070). The CDFG maintains a list of "candidate species," which are species that the CDFG formally notices as being under review for addition to the list of endangered or threatened species. The CDFG also maintains lists of "species of special concern," which serve as species "watch lists." Pursuant to the requirements of the CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed endangered or threatened species may be present in the project study area and determine whether the proposed project will have a potentially significant impact on such species. In addition, the CDFG encourages informal consultation on any proposed project that may impact a candidate species.

Project-related impacts to species on the CESA endangered or threatened list would be considered significant. State-listed species are fully protected under the mandates of the CESA. "Take" of protected species incidental to otherwise lawful management activities may be authorized under California Fish and Game Code Section 2081. Authorization from the CDFG would be in the form of an Incidental Take Permit. The proposed project would require an incidental take permit issued to DWR if the proposed project would result in the take of a state-listed species (e.g., coho salmon).

Native Plant Protection Act

The Native Plant Protection Act (California Fish and Game Code Section 1900-1913) prohibits the taking, possessing, or sale within the state of any plants with a state designation of rare, threatened, or endangered (as defined by the CDFG). An exception to this prohibition in the Act allows landowners, under specified circumstances, to take listed plant species, provided that the owners first notify the CDFG and give that state agency at least 10 days to come and retrieve (and presumably replant) the plants before they are plowed under or otherwise destroyed (Fish and Game Code, Section 1913 exempts from "take" prohibition "the removal of endangered or rare native plants from a canal, lateral ditch, building site, or road, or other right of way"). Project impacts to these species are not considered significant unless the species are known to have a high potential to occur within the area of disturbance associated with construction of the proposed project.

Birds of Prey

Under Section 3503.5 of the California Fish and Game Code it is unlawful to take, possess, or destroy any birds in the orders of Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird, except as otherwise provided by this code or any regulation adopted pursuant thereto.

"Fully Protected" Species

California statutes also accord "fully protected" status to a number of specifically identified birds, mammals, reptiles, and amphibians. These species cannot be "taken," even with an incidental take permit. Section 3505 of the California Fish and Game Code makes it unlawful to "take" "any aigrette or egret, osprey, bird of paradise, goura, numidi, or any part of such a bird." Section 3511 protects from "take" the following "fully protected birds": (a) American peregrine falcon (*Falco peregrinus anatum*); (b) brown pelican; (c) California black rail (*Laterallus jamaicensis coturniculus*); (d) California clapper rail (*Rallus longirostris obsoletus*); (e) California condor (*Gymnogyps californianus*); (f) California least tern (*Sterna albifrons browni*); (g) golden eagle; (h) greater sandhill crane (*Grus canadensis tabida*); (i) light-footed clapper rail (*Rallus longirostris levipes*); (j) southern bald eagle (*Haliaeetus leucocephalus leucocephalus*); (k) trumpeter swan (*Cygnus buccinator*); (l) white-tailed kite (*Elanus leucurus*); and (m) Yuma clapper rail (*Rallus longirostris yumanensis*). Section 3513 makes it "unlawful to take or possess any migratory nongame bird as designated in the MBTA, except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA."

California Fish and Game Code Section 4700 identifies the following "fully protected mammals" that cannot be "taken": (a) Morro Bay kangaroo rat (*Dipodomys heermanni morroensis*); (b) bighorn sheep (*Ovis canadensis*), except Nelson bighorn sheep (subspecies *Ovis canadensis nelsoni*); (d) Guadalupe fur seal (*Arctocephalus townsendi*); (e) ring-tailed cat (genus *Bassariscus*); (f) Pacific right whale (*Eubalaena sieboldi*); (g) salt-marsh harvest mouse (*Reithrodontomys raviventris*); (h) southern sea otter (*Enhydra lutris nereis*); and (i) wolverine (*Gulo gulo*).

California Fish and Game Code Section 5050 protects from "take" the following "fully protected reptiles and amphibians": (a) blunt-nosed leopard lizard (*Crotaphytus wislizenii silus*); (b) San Francisco garter

snake (*Thamnophis sirtalis tetrataenia*); (c) Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*); (d) limestone salamander (*Hydromantes brunus*); and (e) black toad (*Bufo boreas exsul*).

Of all of these "fully protected species," the only ones that may be of concern for the proposed project are American peregrine falcon and golden eagle.

California Regional Water Quality Control Board

Section 401 Water Quality Certification/ Waiver

The NCRWQCB, Trinity River Basin Region, is responsible for enforcing water quality criteria and protecting water resources in association with the proposed project. The NCRWQCB is responsible for controlling discharges to surface waters of the state by issuing waste discharge requirements (WDR's) or commonly by issuing conditional waivers to WDR's. The NCRWQCB requires that a project proponent obtain a Section 401 (Clean Water Act) water quality certification or waiver for Section 404 permits granted by the Corps. For wetlands impacts totaling less than 1 acre, the NCRWQCB typically issues a waiver, provided the applicant is also applying for a Streambed Alteration Agreement from the CDFG. The NCRWQCB has 60 days to issue a waiver. For between 1 and 2 acres of wetland impacts, a waiver could also be issued, but only after thorough review by agency or public comments during the 40-day comment period on the Corps issue notice (if the Corps has required an individual permit). For more than 2 acres of wetland removal, the NCRWQCB requires a mitigation plan, a public hearing, and approval of the water quality certification by the SWRCB.

A request for water quality certification (including WDR's) by the NCRWQCB and a Notice of Intent (NOI) application to comply with the General Permit for Storm Water Discharges Associated with Construction Activities will be prepared and submitted following completion of the NEPA/CEQA process and submittal of the wetland delineation to the Corps.

Local

Trinity County General Plan Goals and Objectives

The Trinity County General Plan contains goals and policies designed to guide the future physical development of the county, based on current conditions. The General Plan contains all the state-required elements, including community development and design, transportation, natural resources, health and safety, noise, housing, recreation, economic development, public facilities and services, and air quality. The following goals and policies related to vegetation, wildlife, and wetland issues associated with the proposed project were taken from the applicable elements of the General Plan (Trinity County 2001). The General Plan includes the Junction City Community Plan (Trinity County 1987).

County Wide Goals and Objectives

Environmental. To strive to conserve those resources of the county that are important to its character and economic well-being:

- By assuring that developments occurring on these lands are compatible with the resources.

- By strongly supporting the county as "lead agency" or as an integral participant in any state or federal project within the county so that all agencies are made aware of local desires and all plans are coordinated.
- By utilizing a sound resource-related planning process in decision-making.
- By protecting not only rare and endangered species, but also required habitat for more plentiful species.

Junction City Community Plan Goals and Objectives

This plan includes the area centered on the Trinity River from Maxwell Creek to slightly downstream of Helena.

Natural Resources

Goal: To preserve and maintain open space areas for a variety of wildlife uses.

- Protect floodplain areas from intensive development which could lead to adverse impacts on wildlife.
- Review future development to ensure protection of significant habitat areas (other than critical winter range).
- Achieve a balance between development and maintenance of open space for critical deer winter range.
- Preserve and protect special habitat areas, such as mineral springs for general wildlife usage, and snag areas along the Trinity River for Bald Eagles and other raptors.

Goal: Maintain, and enhance the high quality of the area's natural resources.

- Continue, and support, the County's policy prohibiting the use of herbicides or pesticides as a land management tool.
- Encourage rehabilitation efforts of old brush fields aimed at increasing deer winter forage opportunities throughout the Plan Area.
- Work with property owners adjacent to the Trinity River to retain existing riparian vegetation.

Goal: To encourage the continued use of resource lands for resource production purposes.

- Encourage the sound use of mineral resources, especially sand and gravel operations, which also reduce sedimentation of the Trinity River.

Project Consistency with the Trinity County General Plan and Community Plans

This section compares the goals and objectives of the proposed project to the relevant local planning polices (i.e., Trinity County General Plan, Junction City Community Plan) to determine if there are any inconsistencies.

As described in **Chapter 1,** Introduction, the proposed project would provide the opportunity to:

- increase the diversity and area of habitat for salmonids, particularly habitat suitable for rearing;
- increase rearing habitat for juvenile salmonids, including coho, Chinook and steelhead;
- increase structural and biological complexity of habitat for various species of wildlife associated with riparian habitats;
- increase hydraulic and fluvial geomorphic diversity and complexity;
- provide a demonstration project to evaluate the fate and transport of mercury related to rehabilitation/restoration projects;
- measure/demonstrate the ecological response to changes in flow regimes, morphological features, and aquatic, riparian, and upland habitats; and
- provide a self-maintaining project independent of any future TRD flows.

The following project objectives apply to the proposed project's lead/responsible agencies for CEQA purposes:

- Evaluate changes in channel geometry in response to constructing channel and floodplain features designed for the river's current hydrologic regime.
- Evaluate the evolution of channel planform features in response to designing and implementing the project at a river segment (1-mile) scale.
- Evaluate the biological response (aquatic, riparian, upland) to changes in the physical environment, and incorporate this information into the AEAM Program.
- Conduct a preliminary assessment of the fate and transport of mercury in response to restoration activities in a historic mining district.
- Locate the project downstream of Canyon Creek to ensure that natural tributary accretion to mainstem flows maximizes the likelihood of maintaining the site prior to implementation of the ROD-recommended flow regime.
- Provide safe and reasonable access to the site for project planning, implementation, and monitoring.
- Develop partnerships with willing participants, and encourage positive landowner interest and involvement.
- Design the project to function with the river's current hydrology estimated at the site.
- Integrate known fluvial and ecological theories and relationships with the site's measured physical and biological attributes and evaluate response over a definitive time frame.
- Minimize in-stream work to reduce construction-related impacts, maximize the river's ability to rehabilitate itself during high flows, and reduce implementation cost and complexity.

- Attempt to preserve unique and valuable geomorphic and biological features wherever practicable (i.e., hydraulic controls, high-quality spawning or adult holding habitat).

The following objectives apply to the proposed project's responsible and trustee agencies, including the SWRCB, the NCRWQCB, SLC, CDFG, and the HVT:

- compliance with the Water Code to ensure the highest reasonable quality of waters of the state and allocate those waters to achieve the optimum balance of beneficial uses;
- protection of the public trust assets of the Trinity River watershed;
- conservation, restoration, and management of fish, wildlife, and native plant resources; and
- compliance with the Water Quality Control Plan for the Hoopa Valley Indian Reservation to preserve and enhance water quality on the Reservation, and to protect the beneficial uses of water.

The goals and objectives associated with the proposed project are generally compatible with the applicable general plan goals and policies for land use summarized above. The overall goal of the proposed project is restore a segment of the Trinity River so that it functions in a manner that is closer to historic (i.e., pre-Lewiston Dam) conditions. Although there will be some mechanical vegetation removal along the Trinity River floodplain, which is a Scenic Conservation Overlay Zone, the proposed project will include both riparian and upland revegetation efforts intended to provide a more diverse plant assemblage than what is currently present, therefore enhancing the long-term aesthetic values of the river corridor.

3.7.3 ENVIRONMENTAL CONSEQUENCES/IMPACTS AND MITIGATION MEASURES

Methodology

The following section provides a brief overview of the analytic methods used to assess potential impacts of the proposed project on vegetation, wildlife, and wetland resources. These methods included a comprehensive literature search and focused field surveys.

Evaluation of the possible presence of special-status plant and wildlife species and sensitive plant communities/habitats within the proposed project ESL were conducted using database searches, informally consulting with resource agencies (CDFG, NMFS, USFWS), and reviewing environmental documents and technical studies prepared for proposed projects in the vicinity. The database searches conducted as part of the evaluation were the CNDDB and the CNPS Electronic Inventory. The CNDDB contains occurrence records for special-status plant and animal species, as well as sensitive natural vegetation communities, by USGS quadrangle. A search of the *Junction City, Hayfork, Bally, Weaverville, Dedrick, Rush Creek Lakes, and Helena* quadrangles was conducted for the proposed project. The CNPS Electronic Inventory allows users to query the *Inventory of Rare and Endangered Vascular Plants of California* using a set of search criteria. The result of the search is a list of special-status plant species. In addition to the database searches, NSR submitted a written request for a list of special-status species with potential to occur in the proposed project ESL from the USFWS. Agency

representatives from the Corps, CDFG, NMFS, and USFWS, were contacted to discuss specific biological resource issues associated with the proposed project, including potential impacts and suggested mitigation measures.

An initial reconnaissance-level site visit was conducted in May 2002 to characterize the vegetation communities and associated wildlife habitats present within the ESL. A habitat assessment for northern spotted owls was conducted on February 3, 2003 and included the ESL as well as a 0.25 mile area surrounding the ESL. A jurisdictional wetland delineation was conducted (in accordance with the 1987 Corps guidelines) on June 19 and 20, 2002, and May 14, 2003, within the ESL.

Focused plant surveys were conducted on June 5 and 20, 2002, and May 14, June 5, and August 16, 2003, to determine if special-status plant species were present within the ESL, and to characterize the nature and location of non-native and invasive plant species.

Significance Criteria

Significance criteria used to analyze the potential impacts of the proposed project on vegetation, wildlife, and wetland resources include factual and scientific information, and regulatory standards of county, state, and federal agencies, including the *CEQA Guidelines*. These criteria have been developed to establish thresholds to determine significance of impacts pursuant to the CEQA (Section 15064.7) and should not be confused with a “take” or adverse effect under the ESA. Additionally, significance criteria do not apply for purposes of the NEPA.

Impacts on vegetation would be significant if implementation of the proposed project would result in any of the following:

- potential for reductions in the number, or restrictions of the range, of an endangered or threatened plant species or a plant species that is a candidate for state listing or proposed for federal listing as endangered or threatened;
- potential for substantial reductions in the habitat of any native plant species including those that are listed as endangered or threatened or are candidates or proposed for endangered or threatened status;
- potential for causing a native plant population to drop below self-sustaining levels;
- potential to eliminate a native plant community;
- substantial adverse effect, either directly or through habitat modifications, on any plant identified as a sensitive or special-status species in local or regional plans, policies, or regulations;
- substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations;
- a conflict with any local policies or ordinances protecting vegetation resources;

- a conflict with, or violation of, the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, state, or federal habitat conservation plan relating to the protection of plant resources; or
- potential for spread of non-native and invasive plant species.;

Impacts on wildlife would be significant if implementation of the proposed project would result in any of the following:

- mortality of state or federally listed wildlife species, or species that are candidates for listing or proposed for listing;
- potential for reductions in the number, or restrictions of the range, of an endangered or threatened wildlife species or a wildlife species that is a candidate for state listing or proposed for federal listing as endangered or threatened;
- potential for substantial reductions in the habitat of any wildlife species, including those that are listed as endangered or threatened or are candidates or proposed for endangered or threatened status;
- potential for causing a wildlife population to drop below self-sustaining levels;
- substantially block or disrupt major terrestrial wildlife migration, or travel corridors;
- substantial adverse effect, either directly or through habitat modifications, on any wildlife species identified as a sensitive or special-status species in local or regional plans, policies, or regulations;
- substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations;
- a conflict with any state or local policies or ordinances protecting wildlife resources; or
- a conflict with, or violation of, the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, state, or federal habitat conservation plan relating to the protection of wildlife species.

Impacts on wetlands would be significant if they would result in any of the following:

- substantial adverse effect on any riparian habitat;
- substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to marsh, vernal pool, etc.) through direct removal, filling, hydrological interruption, or other means;
- a conflict with any local policies or ordinances protecting wetland and/or riparian resources; or
- a conflict with, or violation of, the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, state, or federal habitat conservation plan relating to the protection of wetland resources.

Impacts and Mitigation Measures

Table 3.7-5 summarizes the potential vegetation, wildlife, and wetlands impacts resulting from the proposed project.

TABLE 3.7-5
SUMMARY OF IMPACTS FOR VEGETATION, WILDLIFE AND WETLANDS

Impact	No-Action Alternative	Proposed Action	Alternative 1	Proposed Action with Mitigation	Alternative 1 with Mitigation
1. Implementation of the proposed project would result in the loss of upland plant communities.	NI	LS	LS	N/A[1]	N/A
2. Construction of the proposed project could result in the loss of individuals of a special-status plant species.	NI	NI	NI	NI	NI
3. Construction activities associated with the proposed project could result in the loss of jurisdictional wetlands and riparian habitat.	NI	S	S	LS	LS
4. Construction activities associated with the proposed project could disrupt active raptor nests (northern goshawk, Cooper' s hawk, sharp-shinned hawk).	NI	S	S	LS	LS
5. Construction activities associated with the proposed project could result in impacts to nesting individuals of yellow warbler and yellow-breasted chat.	NI	S	S	LS	LS
6. Construction activities associated with the proposed project could result in impacts to northern spotted owl.	NI	LS	LS	N/A	N/A
7. Construction activities associated with the proposed project could result in impacts to little willow flycatcher.	NI	S	S	LS	LS
8. Construction activities associated with the proposed project could result in impacts to BLM sensitive species.	NI	S	S	LS	LS
9. Construction activities associated with the proposed project could result in impacts to Trinity bristle snail.	NI	S	S	LS	LS
10. Construction activities associated with the proposed project could result in impacts to foothill yellow-legged frog.	NI	S	S	LS	LS
11. Construction activities associated with the proposed project could result in impacts to northwestern pond turtle.	NI	S	S	LS	LS
12. Construction activities associated with the proposed project could restrict terrestrial wildlife movement through the proposed project ESL.	NI	LS	LS	N/A	N/A
13. Construction activities associated with the proposed project could result in the loss of bald eagle, golden eagle, American peregrine falcon, and osprey foraging and perching habitat.	NI	LS	LS	N/A	N/A

TABLE 3.7-5
SUMMARY OF IMPACTS FOR VEGETATION, WILDLIFE AND WETLANDS

Impact	No-Action Alternative	Proposed Action	Alternative 1	Proposed Action with Mitigation	Alternative 1 with Mitigation
14. Construction activities associated with the proposed project could result in the loss of roosting and foraging habitat for bat species.	NI	LS	LS	N/A	N/A
15. Implementation of the proposed project could result in the spread of non-native and invasive plant species.	NI	S	S	N/A	N/A

Notes:
LS = Less than Significant S = Significant NI = No Impact N/A = Not Applicable
[1]Because this potential impact is less than significant, no mitigation is required.

Impact 3.7-1: Construction activities associated with the proposed project would result in the loss of upland plant communities. ***No Impact for the No-Action Alternative; Less than Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, no construction-related impacts to upland plant communities would occur.

Proposed Action

Table 3.7-6 indicates the total acreage of permanent and temporary impacts to upland plant communities as a result of the Proposed Action.

TABLE 3.7-6
EXPECTED AREA OF DISTURBANCE TO UPLAND PLANT COMMUNITIES

Upland Plant Community Type	Approximate Area of Disturbance (Acres)			
	Proposed Action		Alternative 1	
	Temporary	Permanent	Temporary	Permanent
Montane Hardwood– Conifer	0.77	0.01	0.77	0.00
Montane Riparian[2] – Upland	0.87	2.60	0.87	0.94
Annual Grassland	9.21	7.52	9.21	2.37
Total	**10.85**	**10.13**	**10.85**	**3.31**

[2] In some instances, montane riparian habitat occurs in upland areas. This community type, while composed of similar plant species as montane riparian wetlands, does not meet two of the three Corps criteria for being classified as a jurisdictional water (i.e., lacking hydrology and hydric soils indicators).

Section 3.6, Impact 3.6-5 provides a detailed discussion on the impacts to riparian vegetation as it relates to SRA habitat and special-status species. The reader is referred to **Table 3.6-7** for additional information on the impacts and expected changes in the amount of riparian habitat for the proposed project.

The permanent loss of 10.13 acres and a temporary impact to 10.85 acres of upland habitat is not considered significant due to the relative abundance of these upland plant community types within the ESL and local area. Furthermore a majority of the permanent loss in upland communities will be replaced with an early and diverse stage of riparian community which is relatively rare along the river. Access routes and staging areas will be restored to their original condition upon completion of work. Additionally, any affected upland areas will be re-vegetated with native plant species.

Alternative 1

Table 3.7-5 indicates the total acreage of permanent and temporary impacts to upland plant communities as a result of Alternative 1. The permanent loss of 3.31 acres and a temporary impact to 10.85 acres of upland habitat is not considered significant due to the relative abundance of these upland plant community types within the ESL. Access routes and staging areas will be restored to their original condition upon completion of work. Additionally, upland areas will be revegetated with native plant species.

Mitigation Measures

No-Action Alternative; Proposed Action; Alternative 1

Since no significant impact was identified for these alternatives, no mitigation is required.

Significance after Mitigation: N/A.

Impact 3.7-2: Construction of the proposed project could result in the loss of individuals of a special-status plant species. ***No Impact for the No-Action Alternative, Proposed Action, and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, no construction-related impacts to a special-status plant species would occur.

Proposed Action and Alternative 1

The entire ESL was surveyed for special-status plant species in 2003/2004. No special-status plants were detected within the ESL.

Mitigation Measures

No-Action Alternative; Proposed Action; Alternative 1

Since no significant impact was identified for these alternatives, no mitigation is required.

Significance after Mitigation: N/A.

Impact 3.7-3: Construction activities associated with the proposed project could result in the loss of jurisdictional wetlands and riparian habitat. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, no loss of jurisdictional wetlands would occur.

Proposed Action

A delineation of potential jurisdictional wetlands and other waters of the United States within the ESL (following the methodology identified in the 1987 Corps guidelines), was conducted by NSR on June 19 and 20, 2002, and May 14, 2003. A total of 29.74 acres of potential jurisdictional waters of the United States composed of 20.72 acres of riverine (other waters), 0.21 acre of perennial stream, 0.19 acre of pond, 0.36 acre of seasonal wet meadow, 0.29 acre of fresh emergent wetland, and 7.97 acres of riparian wetland features, were mapped within the ESL. **Table 3.7-7** lists impacts to these wetland features for the Proposed Action and Alternative 1.

Construction activities associated with the Proposed Action will result in both permanent and temporary impacts to jurisdictional wetland features located within the ESL. Construction of the Proposed Action would result in the permanent loss of 0.65 acre of riparian wetland and 5.03 acres of riverine habitat. Impacts to shaded riverine aquatic (SRA) habitat are analyzed in **Section 3.6**, Fishery Resources. Construction access routes and channel improvements would temporarily disturb 1.84 acres of riparian wetland and 2.18 acres of riverine habitat. Both permanent and temporary impacts to jurisdictional wetlands would be considered significant.

TABLE 3.7-7
EXPECTED AREA OF DISTURBANCE TO JURISDICTIONAL WATERS WITHIN HOCKER FLAT ESL, PROPOSED ACTION AND PROJECT ALTERNATIVE 1

Wetland Type	Approximate Area of Disturbance (Acres)			
	Proposed Action		Alternative 1	
	Temporary	Permanent	Temporary	Permanent
Riparian Wetland	1.84	0.65	2.50	0
Fresh Emergent Wetland	0	0	0	0
Seasonal Wet Meadow	0	0	0	0
Riverine	2.18	5.03	2.99	4.23
Perennial Stream	0.13	0.004	0.13	0
Pond	0	0	0	0
Total	**4.15**	**5.68**	**5.62**	**4.23**

Alternative 1

Construction activities associated with Alternative 1 will result in both permanent and temporary impacts to jurisdictional wetland features located within the ESL. Project construction associated with Alternative 1 would result in the permanent loss of 4.23 acres of riverine habitat. Construction access routes and

channel improvements would temporarily disturb 2.50 acres of riparian wetland and 2.99 acres of riverine habitat. Both permanent and temporary impacts to jurisdictional wetlands would be considered significant.

Mitigation Measures

No-Action Alternative

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A.

Proposed Action; Alternative 1

3a: Prior to the start of construction activities, Reclamation shall retain a qualified biologist to identify construction access routes necessary for the proposed project to ensure that these features avoid and/or minimize to the fullest extent impacts to jurisdictional waters. In addition, jurisdictional waters shall be clearly identified in the construction drawings along with specific instructions to avoid any construction activity within these features. Each jurisdictional feature proposed to be avoided will be flagged, staked, or otherwise marked to ensure that construction activities do not encroach upon these features. The exclusionary fencing shall be inspected and maintained on a regular basis throughout the construction phase.

3b: To mitigate for the loss of jurisdictional waters habitat, specifically riparian wetland, the proposed project would be designed to avoid and minimize losses to wetland vegetation within the ESL to the fullest extent feasible. When loss of riparian wetland is unavoidable, Recommended mitigation allowances are justified because: 1). Reclamation will mitigate impacted riparian plants based on aerial requirements. A revegetation design that provides for planting 20 ft x 20 ft native plant pods separated by 20 ft intervals is planned. The actual surface area encompassed by the pods will be a minimum of 1/2 of the impacted riparian area. Natural revegetation between the pods will occur to obtain full aerial (1:1) mitigation requirements. Permit requirements will be met if 5 years post-project implementation delineation of riparian communities determines that there have been aerial increases in all riparian plant communities within the ESL established for the proposed.

Reclamation or their contractor will be revegetate riparian areas with a substantial diversity of native plant revegetation areas (20 ft x 20 ft pods separated by 20 ft intervals). Planted areas will grow in over time and will provide increased diversity in riparian structure and species over that which presently exists. Because the present Trinity River channel is encroached (up to 300%) with riparian vegetation that is homogenous in nature, strict replacement requirements based on original stem counts and species are not desirable;

Floodplain values and functions will be enhanced by the Hocker Flat Project. Consequently, substantial new areas beyond those identified in pre-project plant community delineations, are expected to recruit to riparian (wetland) habitats, of both seasonal and perennial nature, within a 3-5 year post-project window.

Significance after Mitigation: Less than Significant.

Impact 3.7-4: Construction activities associated with the proposed project could disrupt active raptor nests. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, no construction-related impacts to active raptor nests would occur.

Proposed Action

Noise and visual disturbance associated with construction activities occurring during the nesting season (March through July) can disrupt nesting raptors and lead to nest abandonment and nest failure. Raptor species such Cooper's hawk and sharp-shinned hawk, which are designated as state species of concern, as well as red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), American kestrel (*Falco sparverius*), great horned owl (*Bubo virginianus*), and barn owl (*Tyto alba*) are all known to occur and nest throughout the Trinity River corridor. Particular nesting habitat preferred by these species that is present within or adjacent to the ESL includes montane hardwood-conifer and montane riparian habitat.

Although the raptor species mentioned above are not afforded full protection under the ESA, it is considered unlawful to take, possess, or destroy the nest or eggs of any birds pursuant to Section 3503.5 of the California Fish and Game Code and the MBTA (16 USC 703-711). As a result, any loss of or disturbance to these nesting raptor species would be considered a significant impact.

Alternative 1

Construction-related impacts to active raptor nests associated with Alternative 1 would be less than or similar to the Proposed Action.

Mitigation Measures

No-Action Alternative

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A.

Proposed Action; Alternative 1

4a: All vegetation (i.e., trees, shrubs) that will need to be removed within the proposed project construction limits shall be removed between August 1st and February 15th (i.e., outside the nesting season for raptor species) to ensure that active raptor nest trees are not removed as a result of proposed project construction activities. If all vegetation removal has been completed between August 1st and February 15th, no pre-construction surveys would be required.

4b: If vegetation removal cannot be accomplished between August 1st and February 15th , Reclamation shall retain a qualified biologist to conduct a minimum of one survey (subsequent surveys would be separated by at least one week) for nesting raptors, including Cooper's hawk and sharp-shinned hawk, within a 500-foot radius around proposed construction activities. Active raptor nests located within 500 feet of construction activities shall be mapped, where practicable and feasible. If active nests are identified within the construction disturbance area, they may removed only after the young have fledged, or the fate of the nest has been

determined. A qualified biologist shall monitor the nest(s) to determine when the young have fledged and submit status reports to the CDFG, as appropriate, throughout the nesting season. Nest tree removal shall only be performed in consultation with, and with pre-approval from, the CDFG.

Significance after Mitigation: Less than Significant.

Impact 3.7-5: Construction activities associated with the proposed project could result in impacts to nesting individuals of yellow warbler and yellow-breasted chat. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, no construction-related impacts to nesting individuals of yellow warbler and yellow-breasted chat would occur.

Proposed Action

Potential nesting habitat for yellow warbler and yellow-breasted chat is present within the riparian habitat associated with the Trinity River corridor and suitable nesting habitat is found within the ESL. Both of these species are designated as Species of Special Concern by the CDFG. Even though no recorded nest sites for yellow warbler or yellow-breasted chat in the general vicinity of the proposed project were identified by the CNDDB (2004) and no nests were observed during surveys conducted in 2003, there is potential for the two species to nest within the ESL based on available habitat. Both species were observed within the ESL during point count surveys in 2003. The proposed project would require the removal of riparian vegetation, and noise associated with construction activities also could disturb individuals nesting directly adjacent to the ESL. These species are protected by both the MBTA (16 USC 703-711) and the California Fish and Game Code (Sections 3503 and 3513). Essentially, these regulatory provisions consider it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird species designated in the MBTA. As a result, any loss of or disturbance to a nesting yellow warbler or yellow-breasted chat nest would be considered significant.

Alternative 1

Construction-related impacts to nesting individuals of yellow warbler and yellow-breasted chat associated with Alternative 1 would be similar to or less than the Proposed Action.

Mitigation Measures

No-Action Alternative

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A.

Proposed Action; Alternative 1

5a: All vegetation (i.e., trees, shrubs) removal within the construction limits shall be removed between August 1st and March 1st (i.e., outside of the nesting season for yellow warbler and yellow-breasted chat) to ensure that active nest trees are not removed as a result of proposed

project construction activities. If all vegetation removal activities are completed between August 1st and March 1st, no pre-construction surveys would be required.

5b: If vegetation removal cannot be accomplished between August 1st and March 1st, Reclamation shall retain a qualified biologist to conduct a minimum of one survey (subsequent surveys would be separated by at least one week) for yellow warbler and yellow-breasted chat within a 500-foot radius around proposed construction limits. Active nests for each species that are located within 500 feet of construction activities shall be mapped, where practicable and feasible. If active nest trees are identified within the construction disturbance zone, they may only be removed prior to March 1st, or after the young have fledged (based on field verification). A qualified biologist shall monitor the nests to determine when the young have fledged and submit status reports to the CDFG throughout the nesting season. Nest tree removal shall only be performed in consultation with, and with pre-approval from, the CDFG.

Significance after Mitigation: Less than Significant.

Impact 3.7-6: Construction activities associated with the proposed project could result in impacts to northern spotted owl. ***No Impact for the No-Action Alternative; Less-than-Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, no construction-related impacts to northern spotted owl would occur.

Proposed Action

No suitable nesting, roosting, dispersal, or foraging habitat for northern spotted owl is located within the ESL. Protocol-level surveys for northern spotted owl were not conducted, based on the negative results of the habitat assessment performed within and near (0.25 mile buffer) the ESL.

As previously discussed, there are no known occurrences of northern spotted owl within 5 miles of the proposed project. This distance is beyond the standard exclusionary zones (i.e., within 1.3 miles from a known spotted owl activity center or designated critical habitat) currently recommended to prevent adverse impacts to this species that may occur as a result of construction activities (D. Wineberg, BLM, and T. Quinn, STNF, pers. comm.., 2002). In addition, construction noise is anticipated to be minimal and is not likely to impact the northern spotted owl.

Alternative 1

Construction-related impacts to northern spotted owl associated with Alternative 1 would be similar or less than the Proposed Action.

Mitigation Measures

No-Action Alternative; Proposed Action; Alternative 1

Since no significant impact was identified for these alternatives, no mitigation is required.

Significance after Mitigation: N/A.

Impact 3.7-7: Construction activities associated with the proposed project could result in impacts to little willow flycatcher. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative no construction-related impacts to little willow flycatcher would occur.

Proposed Action

Riparian habitat (wetland and upland) within the ESL provides suitable nesting and foraging habitat for the little willow flycatcher. Willow flycatchers were observed within the ESL during a point count survey in 2003; however, these birds were likely migrating rather than breeding. Though no nesting individuals have been observed in or near the proposed project, there is the potential for new nesting territories to become established within the ESL in subsequent nesting seasons, prior to the start of construction. Disturbance from traffic and equipment operation and personnel activities during the breeding season (March-July) could result in nest failure or abandonment. There is also a potential for the direct loss of active or potential nest trees or shrubs during site preparation.

Alternative 1

Construction-related impacts to little willow flycatcher associated with Alternative 1 would be similar to or less than the Proposed Action.

Mitigation Measures

No-Action Alternative

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A.

Proposed Action; Alternative 1

The following mitigation measures shall be implemented to avoid or minimize potential impacts to little willow flycatcher:

7a: All vegetation (i.e., trees, shrubs) removal within the construction limits (including the temporary construction access routes) shall be removed between September 1st and March 1st (i.e., outside the nesting season for willow flycatcher) to ensure that active nest trees are not removed as a result of proposed project construction activities.

7b: If construction is proposed between the months of April and August, and vegetation has not been removed from the construction area, a protocol-level survey for willow flycatchers within 500 feet of the construction limits shall be conducted during the spring prior to construction. If no active nests are observed, construction may proceed. If construction activities are to occur between September and March, no surveys would be required. A letter report that summarizes the survey results shall be submitted to the CDFG. If active nests are present, establish an initial 300-foot no-disturbance buffer around the nest location. The nest will then be monitored by a qualified biologist to determine if the buffer is adequate. If the buffer size does not appear adequate, consultation with CDFG must occur and the buffer size may need to be enlarged.

Significance after Mitigation: Less than Significant.

Impact 3.7-8: Construction activities associated with the proposed project could result in impacts to BLM sensitive species. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action and Alternative 1, except for the Pacific fisher; for the Pacific fisher, Less-than-Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, no construction-related impacts to BLM sensitive species would occur.

Proposed Action

As previously discussed, plant surveys for BLM sensitive and Survey and Manage species were conducted within the ESL during the spring and summer of 2002. None of the three BLM sensitive species with potential to occur within the ESL were identified during the focused surveys. Additionally, pre-disturbance surveys for mollusks were conducted within the ESL during the spring 2001 and fall 2002 survey periods. No mollusks were located during either visit.

No species-specific wildlife surveys for BLM sensitive and Survey and Manage species have been conducted, with the exception of herpetofauna. Six of the wildlife species with potential to occur within the ESL are designated BLM sensitive species: foothill yellow-legged frog, Pacific fisher, small-footed myotis bat, long-eared myotis bat, fringed myotis bat, and Yuma myotis bat (see **Table 3.7-1**). With the exception of the Pacific fisher, potential impacts to these species are discussed under their respective impact sections below. The Pacific fisher may use the Trinity River as a travel corridor; however, suitable denning habitat is not present within the project ESL. Therefore, less than significant impacts are expected and mitigation measures are not provided for the Pacific fisher.

Alternative 1

Construction-related impacts to BLM sensitive species under Alternative 1 would be similar to the Proposed Action.

Mitigation Measures

No-Action Alternative

Since no significant impact was identified for this alternative, no mitigation is required.

Significance after Mitigation: N/A.

Proposed Action; Alternative 1

Mitigation measures for individual species are listed under each respective impact statement (Impacts 10, 11, and 14).

Significance after Mitigation: N/A.

Impact 3.7-9: Construction activities associated with the proposed project could result in impacts to the Trinity bristle snail. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, no construction-related impacts to the Trinity bristle snail would occur.

Proposed Action

The ESL provides some limited suitable habitat for the Trinity bristle snail, in riparian forest near the fresh emergent and pond wetland types and perhaps near Hocker Creek adjacent to the project site. Construction activities associated with the Proposed Action may impact Trinity bristle snails directly and indirectly. Potential direct effects include mortality of individuals due to equipment and vehicle traffic and the loss of riparian vegetation cover. Indirect effects include degradation of riparian habitat due to accidental spills and/or sedimentation. Construction activities associated with the Proposed Action in suitable bristle snail habitat could potentially result in significant adverse impacts to the Trinity bristle snail and mitigation is required.

Alternative 1

Construction-related impacts to the Trinity bristle snail associated with Alternative 1 would be similar to or less than the Proposed Action.

Mitigation Measures

No-Action Alternative

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A.

Proposed Action; Alternative 1

9a: If identified potential bristle snail habitat is to be disturbed during construction, a minimum of one survey for Trinity bristle snails in these areas shall be conducted a maximum of one week prior to construction. A qualified biologist shall be retained by Reclamation to conduct the survey. If a Trinity bristle snail is detected, the biologist shall relocate it to a suitable location outside of the construction limits.

9b: Mitigation measures presented in **Section 3.5** (Water Quality) for addressing erosion and sedimentation and accidental spills shall be fully implemented to mitigate for the potential indirect impacts to riparian habitat due to sedimentation and accidental spills.

9c: Mitigation measures associated with the disturbance to riparian habitat are discussed previously in this section under impacts to jurisdictional wetlands (Mitigation Measure 3), and will be fully implemented.

Significance after Mitigation: N/A.

Impact 3.7-10: Construction activities associated with the proposed project could result in impacts to the foothill yellow-legged frog. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, no construction-related impacts to the foothill yellow-legged frog would occur.

Proposed Action

The ESL provides suitable habitat for the foothill yellow-legged frog, and this species was observed within the ESL during herpetofauna surveys conducted in 2003. Construction activities associated with the Proposed Action may affect foothill yellow-legged frogs directly and indirectly. Potential direct effects include mortality of individuals due to equipment and vehicle traffic, disturbance of boulders or cobbles that support egg masses, and the loss of riparian vegetation cover. The species may also be indirectly affected if construction activities result in degradation of aquatic habitat and water quality due to erosion and sedimentation, accidental fuel leaks, and spills. Construction activities associated with the Proposed Action could potentially result in significant adverse impacts to foothill yellow-legged frog and mitigation is required.

Alternative 1

Construction-related impacts to foothill yellow-legged frog associated with Alternative 1 would be similar to or less than the Proposed Action.

Mitigation Measures

No-Action Alternative

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A.

Proposed Action; Alternative 1

10a: If any construction within the Trinity River channel will occur prior to August 1st of any construction season, a pre-construction survey for yellow-legged frog larvae and/or eggs shall be conducted by a qualified biologist. This survey would need to be conducted within the construction limits no more than 2 weeks prior to the start of in-stream construction activities. If larvae or eggs are detected, the biologist shall relocate them to a suitable location outside of the construction limits.

10b: In the event that a yellow-legged frog is observed within the construction limits, the contractor shall temporarily halt in-stream construction activities until the frog has been moved to a safe location with suitable habitat outside of the construction limits.

10c: Mitigation measures presented in **Section 3.5** (Water Quality) for addressing erosion and sedimentation and accidental spills shall be fully implemented to mitigate for the potential indirect impacts to potential dispersal habitat due to sedimentation and accidental spills.

10d: Mitigation measures associated with the disturbance to riparian habitat are discussed in this section under impacts to jurisdictional wetlands (Mitigation Measure 3), and will be fully implemented.

Significance after Mitigation: Less than Significant

Impact 3.7-11: Construction activities associated with the proposed project could result in impacts to northwestern pond turtle. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, no construction-related impacts to northwestern pond turtle would occur.

Proposed Action

The ESL provides suitable habitat for northwestern pond turtle, and this species was observed during the 2003 herpetofauna surveys. Construction activities associated with the Proposed Action, could affect pond turtles directly and indirectly. Potential direct effects include mortality of individuals due to equipment and vehicle traffic, disturbance to nests in upland areas, and the loss of riparian vegetation cover. The species may also be indirectly affected if construction activities result in degradation of aquatic habitat and water quality due to erosion and sedimentation, accidental fuel leaks, and spills. Construction activities associated with the Proposed Action could potentially result in significant adverse impacts to northwestern pond turtle and mitigation is required.

Alternative 1

Construction-related impacts to northwestern pond turtle associated with Alternative 1 would be similar to or less than the Proposed Action.

Mitigation Measures

No-Action Alternative

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A.

Proposed Action; Alternative 1

11a: A minimum of one survey for pond turtle nests shall be conducted a maximum of one week prior to construction. A qualified biologist shall be retained by Reclamation to conduct the survey. If a pond turtle nest is found, the biologist shall flag the site and determine whether construction activities can avoid impacting the nest. If the nest cannot be avoided, the nest should be excavated by the biologist and reburied at a suitable location outside of the construction limits.

11b: A biological monitor shall be present on-site during construction to monitor the presence/absence of pond turtles. In the event that a pond turtle is observed within the

construction limits, the contractor shall temporarily halt construction activities until the turtle has been moved to a safe location with suitable habitat outside of the construction limits.

11c: Mitigation measures presented in **Section 3.5** (Water Quality) for addressing erosion and sedimentation and accidental spills shall be fully implemented to mitigate for the potential indirect impacts to potential dispersal habitat due to sedimentation and accidental spills.

11d: Mitigation measures associated with the disturbance to riparian habitat are discussed in this section under impacts to jurisdictional wetlands (Mitigation Measure 3), and will be fully implemented.

Significance after Mitigation: Less than Significant

Impact 3.7-12: Construction activities associated with the proposed project could restrict terrestrial wildlife movement through the ESL. ***No Impact for the No-Action Alternative; Less-than-Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, construction-related restriction of terrestrial wildlife movement through the ESL would not occur.

Proposed Action

The Trinity River corridor provides habitat and travel corridors for such species as Pacific fisher, American marten, black-tailed deer, river otter, beaver, common merganser (*Mergus merganser*), green heron (*Butorides virescens*), black-crowned night heron (*Nycticorax nycticorax*), wood duck (*Aix sponsa*), belted kingfisher (*Ceryle alcyon*), cliff swallow (*Hirundo pyrrhonota*), bank swallow, and raccoon. The riparian vegetation along the Trinity River, in association with adjacent and/or nearby mixed-conifer and montane hardwood-conifer habitat, provides connected habitat within an area that has been fragmented by rural residential development and road building. Black-tailed deer inhabit shrublands, forests, and oak woodlands and use riparian vegetation for cover. Construction noise could temporarily alter foraging patterns of resident wildlife species; however, no long-term impediments to wildlife movement within the ESL are anticipated as a result of implementing the Proposed Action.

Alternative 1

Construction-related impacts to terrestrial wildlife movement associated with Alternative 1 would be similar to or less than the Proposed Action.

Mitigation Measures

No-Action Alternative; Proposed Action; Alternative 1

Since no significant impact was identified for these alternatives, no mitigation is required.

Significance after Mitigation: N/A.

Impact 3.7-13: Construction activities associated with the proposed project could result in the loss of bald eagle, golden eagle, American peregrine falcon, and osprey foraging and perching habitat. ***No Impact for the No-Action Alternative; Less-than-Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, construction-related impacts to bald eagle, golden eagle, American peregrine falcon, and osprey nesting, foraging, and perching habitat would not occur.

Proposed Action

The Trinity River riparian corridor, including the ESL for the proposed project, provides both foraging and perching habitat for bald eagle, golden eagle, American peregrine falcon, and osprey. The ESL does not provide appropriate nesting habitat for these species; however, adjacent and/or nearby mixed-conifer habitat and montane hardwood-conifer habitat provide suitable nesting habitat for three of these species. Cliffs and ledges appropriate for American peregrine falcon nesting are not present in or near the project ESL. The nearest known bald eagle nesting site is a single occurrence located approximately 20 miles upstream on Lewiston Lake. No known golden eagle or osprey nests occur within the ESL. Tree snags suitable for perching are located along the Trinity River. Construction activities associated with the Proposed Action could temporarily alter foraging patterns of these species; however, this impact would be considered less than significant based on the abundance of suitable foraging habitat in the vicinity of the proposed project. No long-term impediments to foraging habitat associated with the proposed project are anticipated. The loss of potential perch trees would not affect the abundance of these species or their use of the Trinity River for foraging habitat.

Alternative 1

Construction-related impacts to bald eagle, golden eagle, American peregrine falcon, and osprey nesting, foraging and perching habitat associated with Alternative 1 would be similar to or less than the Proposed Action.

Mitigation Measures

No-Action Alternative; Proposed Action; Alternative 1

Since no significant impact was identified for these alternatives, no mitigation is required.

Significance after Mitigation: N/A.

Impact 3.7-14: Construction activities associated with the proposed project could result in the loss of roosting and foraging habitat for bat species. ***No Impact for the No-Action Alternative; Less-than-Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, construction-related impacts to bats and bat habitat would not occur.

Proposed Action

The Trinity River riparian corridor, including the ESL for the proposed project, provides roosting and foraging habitat for bat species, including Pale Townsend's big-eared bat, small-footed myotis bat, long-eared myotis bat, fringed myotis bat, long-legged myotis bat, and Yuma myotis bat. Species-specific surveys for bats were not conducted within the ESL; therefore, their presence is assumed. Three of these bat species (small-footed myotis bat, long-legged myotis bat, and long-eared myotis bat) may roost in spaces under tree bark, while the other three bat species (Pale Townsend's big-eared bat, fringed myotis bat, and Yuma myotis bat) prefer to nest in structures such as buildings, caves, mines, and bridges. For the bat species that roost under tree bark, habitat preference is typically woodland and forest habitat. It is unlikely that these bats would roost in the less mature willows and alders typically found immediately along the Trinity River. Areas where bats may roost include portions of R-3, R-5, and R-8. These areas contain a higher quality (i.e., more mature and established growth; larger diversity of trees and shrubs) of riparian habitat. No activities are proposed in these rehabilitation areas; therefore, construction activities from the proposed project will have a less-than-significant impact on roosting habitat for the bat species that roost in trees.

Each of these bat species have the potential to forage in the project ESL. Foraging habitat typically consists of forested habitats in close association with water. Construction activities associated with the Proposed Action could temporarily alter foraging patterns of these species; however, this would be considered less than significant based on the abundance of suitable foraging habitat in the vicinity of the proposed project. No long-term impediments to foraging habitat associated with the proposed project are anticipated.

Alternative 1

Construction-related impacts to bats and bat habitat associated with Alternative 1 would be similar to or less than the Proposed Action.

Mitigation Measures

No-Action Alternative; Proposed Action; Alternative 1

Since no significant impact was identified for these alternatives, no mitigation is required.

Significance after Mitigation: N/A

Impact 3.7-15: Implementation of the proposed project could result in the spread of non-native and invasive plant species. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, the spread of non-native and invasive plant species would not occur as a result of construction activities.

Proposed Action

Implementation of the proposed project could result in the spread of non-native and invasive plant species during disturbance activities. However, further spread of weeds is not anticipated as a result of project implementation should mitigation measures be followed, as described below.

Alternative 1

The spread of non-native and invasive plant species as a result of implementation of Alternative 1 would be similar to or less than the Proposed Action.

Mitigation Measures

No-Action Alternative

Since no significant impact was identified for this alternative, no mitigation is required.

Significance after Mitigation: N/A.

Proposed Action; Alternative 1

The potential for introduction and spread of noxious weeds shall be minimized by:

15a: Using only certified weed-free erosion control materials, mulch, and seed.

15b: Precluding the use of rice straw in riparian areas. \

15c: Limiting any import or export of fill to material not known to be weed free.

15d: Requiring the construction contractor to thoroughly wash all equipment at a commercial wash facility prior to entering the County.

15e: If it is determined that non-native vegetation is out-competing growth of desired planted or colonizing riparian vegetation opportunities to control these non-native species may be considered. Within the first 3-5 post-project potential to mow of remove exotic species by manual methods may be considered if deemed appropriate.

Significance after Mitigation: Less than Significant

SECTION 3.8

Recreation

3.8 Recreation

This section addresses recreational issues related to implementation of the proposed project, including the proposed project's conformance with the federal and state Wild and Scenic Rivers Acts (WSRAs). The following evaluation is based on review of local land use plans and policies specific to recreational uses, and field reconnaissance to identify potential recreational opportunities relative to the proposed project construction activities.

3.8.1 AFFECTED ENVIRONMENT/ENVIRONMENTAL SETTING

Recreation opportunities refer to the availability of a particular type of recreation activity (e.g., the opportunity to float is directly dependent on suitable river flows). Recreational use is a measure of the actual user days for a particular recreational activity, and is often measured in recreational visitor days (RVDs). Recreation benefits measure the monetary value that recreationists would be willing to pay, over and above what they actually pay, to participate in recreation activities.

Regional Setting

There are three major lakes in Trinity County. These are Trinity Lake, Lewiston Lake, and Ruth Lake. The largest is Trinity Lake. It was formed with the completion of the TRD in 1961. When full, Trinity Lake has 145 miles of shoreline, is 16,400 acres in size, has a maximum depth of 465 feet, and is about 20 miles long. Lewiston Lake lies just downstream from Trinity Dam and just north of the town of Lewiston. Lewiston Lake is operated as a re-regulation facility in conjunction with other elements of the CVP. The lake level has minimal fluctuation and encompasses 610 acres (15 miles of shoreline) when full. Ruth Lake lies in the southern portion of Trinity County, with approximately 27 miles of shoreline and 1,100 acres of flat surface. Ruth Lake was formed with the completion of Ruth Dam in 1962 and serves as the water supply for the Humboldt Bay and the Eureka area. The Humboldt Bay Municipal Water District owns and operates the dam and hydroelectric plant, while the Ruth Lake Community Services District manages much of the land bordering the lake.

The Trinity River was designated a National Wild and Scenic River in 1981 by the Secretary of Interior. The designated reach extends from Lewiston Dam downstream to Weitchpec. Two tributaries to the mainstem Trinity River are designated as Wild and Scenic Rivers: New River and North Fork Trinity River. These tributaries enter the Trinity River downstream of Junction City. Three other rivers in Trinity County have been recommended for Wild and Scenic River status: Canyon and Virgin creeks and the upper 11.7 miles of the North Fork Trinity River.

The federal government manages about 72 percent of the land in Trinity County. Between Lewiston Dam and the confluence of the North Fork of the Trinity River, BLM is the primary land manager for public lands. Between the confluence of the North Fork and the confluence with the New River, the Shasta-Trinity National Forest manages federal land. Between New River and the Hoopa Valley Indian Reservation, the federal lands within the basin are managed by the Six Rivers National Forest. Lands within the Hoopa Valley Indian Reservation are managed by the HVT. Portions of the river that cross private land are within the jurisdictions of Trinity and Humboldt counties. The Trinity River basin also

has several wilderness areas managed by the USFS, including the Yolla Bolly, Chanchelulla, and Trinity Alps Wilderness Areas.

During the primary recreation season (Memorial Day to Labor Day, or approximately the last week of May to the end of the first week in September), water-dependent and water-enhanced Trinity River recreation includes boating, kayaking, canoeing, rafting, inner-tubing, fishing, swimming, wading, camping, gold panning, nature study, picnicking, hiking, and sightseeing. In addition, fishing for Chinook salmon, steelhead, and rainbow and brown trout is a major recreational activity on the Trinity River throughout the remainder of the year. With the development and implementation of the TRRP, the type, location, and timing of recreational activities continue to evolve.

Developed recreation areas along the Trinity River consist of private campgrounds, resorts, and lodges; public campgrounds and picnic areas; and fishing access sites. About 34 developed recreation sites are located within 0.5 mile of the Trinity River. More than 200 river access sites were inventoried in 1979 between Lewiston Dam and Weitchpec.

Local Setting

The Hocker Flat area continues to be developed, because of the availability of developable lands, close proximity to SR 299, and a locally recognized mild micro-climate within easy commuting distance of Weaverville. A variety of residential areas and subdivisions are located in the general vicinity of Junction City. Much of the private land in the region was subdivided in the early 1970s and the area has been developed with numerous residences since that time. Factors contributing to this growth have included the availability of private land on relatively level floodplains now protected from flooding by the dams (to a certain extent), County zoning practices, abundant water from the river, and the attractive recreational/environmental setting.

Despite the presence of roads and development, public river access opportunities are limited in the Hocker Flat area. Currently, BLM has four identified river access points between Junction City and Helena (RM 80 to RM 72). the Junction City River Access is immediately upstream of the Dutch Creek Bridge, Junction City Campground is just downstream of Hocker Flat, the Bagdad Boat Launch is immediately upstream of the North Fork Trinity River, and Pigeon Point is downstream at RM 72.5. Junction City Campground, a BLM-developed recreation site, provides facilities for day-use and overnight visitors with river access across SR 299. BLM is the designated manager for the Wild and Scenic River between Lewiston and the North Fork Trinity River.

There are numerous undeveloped recreational access sites on private lands adjacent to the Trinity River between Douglas City and to Helena (RM 70 to 93). These access sites provide local residents and their guests with a variety of recreational activities, including boating, tubing, fishing, swimming, camping, picnicking, hiking, walking, and sightseeing. Recreation opportunities in the immediate vicinity include facilities at the Junction City Elementary School Playground and the Junction City Park.

The BLM has two developed campgrounds on the Trinity River between Douglas City and Helena. BLM also provides a number of dispersed recreation facilities along this reach of the river. Cold waters

released from Lewiston Dam help maintain salmon and steelhead trout habitat throughout the summer. Salmon fishing in large pools at various locations is also popular during the summer and fall. Steiner Flat has two primitive use campgrounds, and there are several undeveloped boat launch sites that are used for river access. Immediately upstream of the North Fork Trinity River at the Bagdad Boat Launch, BLM has recently upgraded recreational access to the river for white-water enthusiasts.

The county owns two park sites upstream of Junction City: the Junction City Park adjacent to SR 299 and an unnamed park site on Sky Ranch Road.

Swimming in the Trinity River becomes more popular throughout the summer as water temperatures warm downstream. However, the State's water quality objective of 60 ºF at the Douglas City Bridge from July 1 through September 15 inhibits extensive swimming activities. The river at both the Douglas City and Junction City Campgrounds receives water-contact use, but the water temperatures are generally too cold for more than a cooling dip in the water. However, they are the major public access sites that are identified along SR 299 and accessible by public roads.

The BLM is responsible for submitting recreation visitor use data yearly to the BLM's Washington Office. Visitation data for the Trinity River Special Recreation Management Area is gleaned from reported use data collected from the BLM campground use receipts, special recreation permits, and USFS visitation records. Based on BLM information, an estimated 67,000 RVDs were spent on the Trinity River in 2002. The most popular recreation activities on the Trinity River are boating, swimming, hiking, and fishing. Based on recent estimates of recreational use of the Trinity River and Trinity Reservoir, it is estimated that approximately $13 million is spent by recreational users in Trinity County, with non-county residents accounting for about 75 percent.

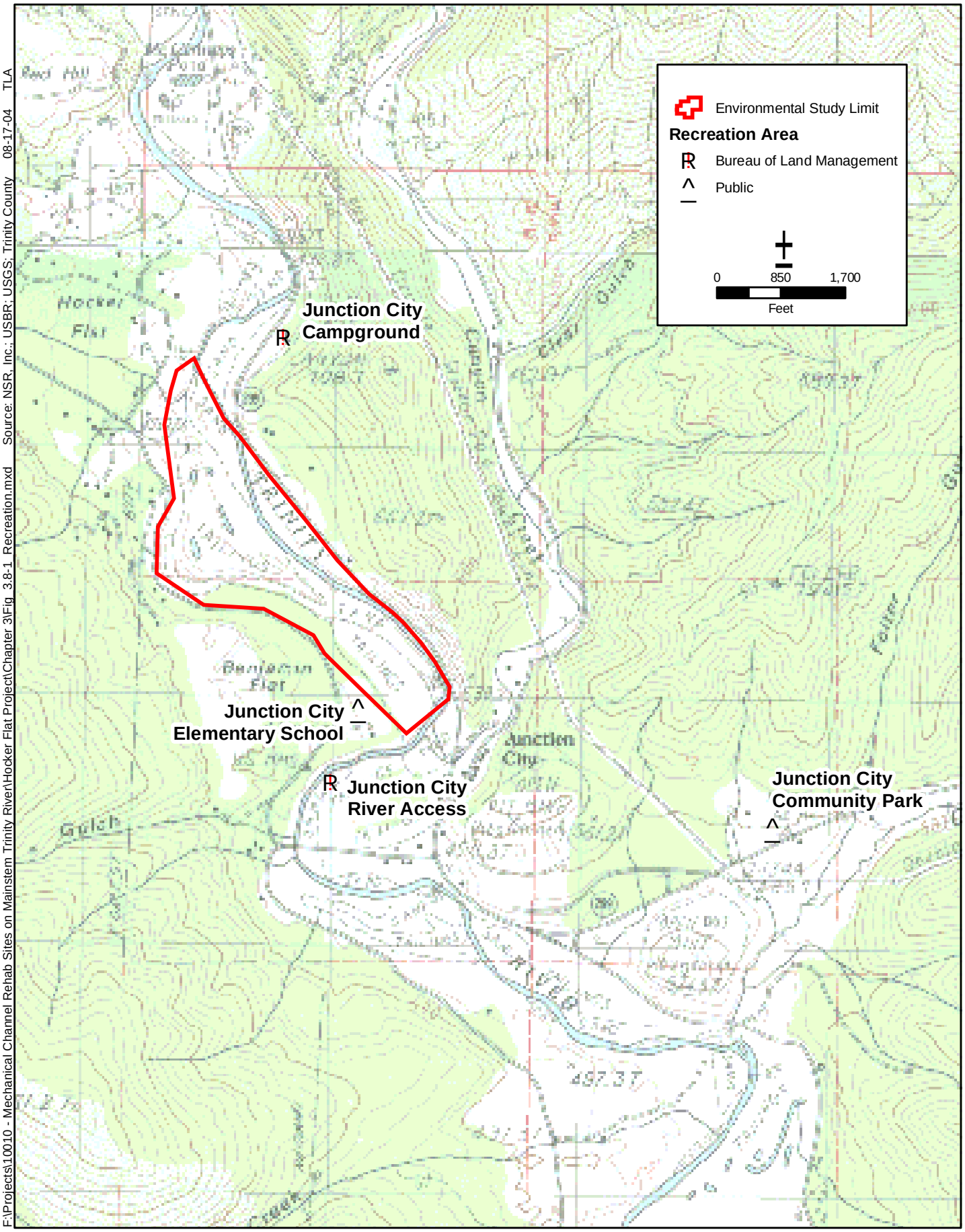
Figure 3.8-1 depicts recreation areas within the general vicinity of the proposed project ESL.

3.8.2 RELEVANT PLANS AND POLICIES

Federal

Wild and Scenic Rivers Act

Congress enacted the National WSRA in 1968 in an effort to protect free-flowing rivers with "outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values." The entire mainstem of the Trinity River was designated a National Wild and Scenic River by the Secretary of the Interior in 1981, primarily because of the river's anadromous fishery. In addition, the reach of the river downstream from Lewiston Dam was classified as having distinctive scenic quality and high peak flow viewer sensitivity (i.e., at peak flows the scenic qualities of the river are enhanced). Approximately 97.5 miles of the river are also classified as recreational under the National WSRA. BLM is the river management agency from Lewiston to Helena (North Fork Trinity River), and the Shasta-Trinity National Forest (STNF) is the river management agency from Helena to the boundary of the Hoopa Valley Indian Reservation.



F:\Projects\10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River\Hocker Flat Project\Chapter 3\Fig. 3.8-1 Recreation.mxd Source: NSR, Inc.; USBR; USGS; Trinity County 08-17-04 TLA

North State Resources, Inc.

Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

Figure 3.8-1
Recreation Areas

The BLM classifies the Trinity River (mainstem) from 100 yards below Lewiston Dam, downstream to Cedar Flat as recreational. The BLM management objectives are to:

- enhance recreation opportunities related to use of the Trinity River including mineral collection;
- maintain scenic quality along the river corridor;
- protect and enhance the anadromous fisheries of the Trinity River; and
- maintain the riparian habitat in Class I or Class II condition.

Trinity County regulates the Trinity River Wild and Scenic River corridor with three zoning districts: an Open Space District, a Scenic Conservation Overlay Zone, and a Flood Hazard Zoning District. These districts cite specific development standards and establish permitted uses within the river corridor.

In addition, the Trinity River has several designations in the Trinity County General Plan, including Intensive Recreation Area, Intensive Recreation Reservoir Site, and Urban Recreation Area. Trinity County's objective is to reserve land for recreational facilities and encourage private recreational development and other open-space uses that are characteristic and beneficial to the local residents while meeting current and future needs.

The federal WSRA designates qualifying free-flowing river segments as wild, scenic, or recreational. The WSRA establishes requirements applicable to water resource projects affecting wild, scenic, or recreational rivers within the National Wild and Scenic Rivers System, as well as rivers designated on the National Rivers Inventory. Under the WSRA, a federal agency may not assist the construction of a water resources project that would have a direct and adverse effect on the free-flowing, scenic, and natural values of a wild or scenic river. If the project would affect the free-flowing characteristics of a designated river or unreasonably diminish the scenic, recreational, and fish and wildlife values present in the area, such activities should be undertaken in a manner that would minimize adverse impacts, and should be developed in consultation with the administering agency. **Appendix E** was prepared to specifically address Section 7 consultation requirements under the federal WSRA. The Trinity River was designated a Wild and Scenic River due in part to its "outstandingly remarkable resource," the fishery (P.L. 90-542).

State

Wild and Scenic Rivers Act

Under the California WSRA, the segment of the Trinity River associated with the proposed project is designated as "scenic" and "recreational." This classification was designated in 1980, a year prior to the federal designation. The Public Resources Code (5093.53[b]) defines "scenic rivers" as being "those rivers or segments of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads." "Recreational rivers" are defined in the Public Resources Code (5093.53[c]) as being "those rivers or segments of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment of division in the past. There are no permits required

specifically under the state WSRA. However, CDFG 1601/1603 Streambed Alteration Agreements on Wild and Scenic Rivers are reviewed by the Resources Agency for consistency with the state WSRA, and additional conditions may be placed on the Agreement for consistency with the WSRA. While there are no separate reporting requirements to address wild and scenic rivers, the environmental document shall discuss the issue, summarize coordination among participating agencies, evaluate impacts to qualities that support the river's designation, and propose suitable mitigation measures as warranted. These may include the Clean Water Act Section 404 Permit, 401 Certification, NPDES Permit, Fish and Game Code Section 1601 Streambed Alteration Agreement, or ESA Section 7 Consultation for endangered species that would be affected.

Local

Trinity County General Plan Goals and Objectives

The Trinity County General Plan contains goals and policies designed to guide the future physical development of the County, based on current conditions. The General Plan contains all the state-required elements, including community development and design, transportation, natural resources, health and safety, noise, housing, recreation, economic development, public facilities and services, and air quality. The following goals and policies, relative to recreation issues associated with the proposed project study area, were taken from the applicable elements of the General Plan (Trinity County 2000), including the Junction City Community Plan (Trinity County 1987).

County Wide Goals and Objectives

General Plan Goals

1. To retain the mountain beauty, the vast wilderness areas and the open character of Trinity County.
2. To provide additional facilities for camping, picnicking, boating, and sightseeing, both public and private.
3. To encourage recreation as the primary resource of the County.

Land Use Element Goals

Cultural

To retain the rural character of Trinity County:

- By encouraging uses that fit with the land
- By considering the "rights" of the individual when making decisions as well as the "rights" of the community
- By seeking information and cooperation from state and federal agencies within Trinity County

Economic

To maintain and enhance a viable economic base for Trinity County:

- By encouraging tourism

Junction City Plan Goals and Objectives

This plan includes the area centered on the Trinity River from Maxwell Creek to slightly downstream of Helena.

Economic Development

Goal: To encourage recreation development as a viable sector of the local economy.

- Develop and service publicly owned access areas to the river to meet the needs of visitors

Parks and Recreation

Goal: To provide access to the Trinity River in a manner that recognizes and respects existing developments.

- Ensure that future access areas or sites are designed and located so as to avoid potential conflicts with private development

Goal: To ensure that recreational uses of the Trinity River do not result in degradation of this valuable resource.

- Continue to monitor recreational use of the river to ensure that additional use or access does not result in degradation of the river environment
- Utilize the BLM quarter mile corridor boundary on the Trinity River to review projects for their potential impact on recreational use of the Trinity River

Trinity County Subdivision Ordinance

The Trinity County Subdivision Ordinance, Section 16.08.130, identifies the Trinity River below Lewiston Dam as a "Public Waterway." This ordinance requires "Reasonable Public Access" for subdivisions on public waterways if no existing reasonable public access exists, as determined by the Planning Commission or Board of Supervisors. Reasonable public access includes access to or along a river, stream, or reservoir by highway, foot trail, bike trail, horse trail, or other means. In determining what constitutes "reasonable public access," many factors are considered, including the type of riverbank, the various appropriate recreational, educational, and scientific uses possible there, the likelihood of trespass on private property, and reasonable means of avoiding such trespass, public safety, and other such information.

The requirement to consider reasonable public access on a public waterway pursuant to the Trinity County Subdivision Ordinance and the California Subdivision Map Acts is not required for the proposed project. However, the concept of "reasonable public access" is being considered because there have been trespass issues identified within the ESL boundary.

Project Consistency with the Trinity County General Plan and Community Plans

This section compares the goals and objectives of the Proposed Action to the relevant local planning policies (i.e., Trinity County General Plan, Junction City Community Plan) to determine if there are any inconsistencies.

As described in Chapter 1, Introduction, the proposed project would:

- increase the diversity and area of habitat for salmonids, particularly habitat suitable for rearing;
- increase rearing habitat for juvenile salmonid, including coho, Chinook and steelhead;
- increase structural and biological complexity of habitat for various species of wildlife associated with riparian habitats;
- increase hydraulic and fluvial geomorphic diversity and complexity;
- provide a pilot project to evaluate the fate and transport of mercury related to rehabilitation/restoration projects;
- demonstrate the ecological response to changes in flow regimes, morphological features, and aquatic, riparian and upland habitats; and
- provide a self-maintaining project independent of any future TRD flows.

The following project objectives apply to the project's lead/responsible agencies for the CEQA purposes:

- Evaluate changes in channel geometry in response to constructing channel and floodplain features designed for the river's current hydrologic regime
- Evaluate the evolution of channel planform features in response to designing and implementing the project at a river segment (1-mile) scale
- Evaluate the biological response (aquatic, riparian, upland) to changes in the physical environment, and incorporate this information into the AEAM Program
- Conduct a preliminary assessment of the fate and transport of mercury in response to restoration activities in a historic mining district
- Locate the project downstream of Canyon Creek to ensure that natural tributary accretion to mainstem flows has a higher likelihood of maintaining the site prior to implementation of the ROD-recommended flow regime
- Provide safe and reasonable access to the site for project planning, implementation, and monitoring
- Develop partnerships with willing participants, and encourage positive landowner interest and involvement.
- Design the project to function with the river's current hydrology estimated at the site
- Integrate known fluvial and ecological theories and relationships with the site's measured physical and biological attributes and evaluate response over a definitive time frame

- Minimize in-stream work to reduce construction-related impacts, maximize the river's ability to rehabilitate itself during high flows, and reduce implementation cost and complexity
- Attempt to preserve unique and valuable geomorphic and biological features wherever practicable (i.e., hydraulic controls, high-quality spawning or adult holding habitat)

The following objectives apply to the project's responsible and trustee agencies, including the HVT, NCRWQCB, SLC, CDFG, and the SWRCB:

- Comply with the Water Code to ensure the highest reasonable quality of waters of the state and allocate those waters to achieve the optimum balance of beneficial uses.
- Protect the public trust assets of the Trinity River watershed.
- Protect, conserve, restore, and manage fish, wildlife, and native plant resources.
- Comply with the Water Quality Control Plan for the Hoopa Valley Indian Reservation to preserve and enhance water quality on the Reservation, and to protect the beneficial uses of water.

These project objectives are consistent with the applicable General Plan goals and policies summarized above.

3.8.3 Environmental Consequences/Impacts and Mitigation Measures

Methodology

The analysis consists of identifying recreational resources (parks and recreation facilities) in or near the proposed project area, and determining whether implementation of the proposed project would have any effect on these resources. This analysis is a qualitative assessment of the effects of the proposed project on potential recreational uses in the general vicinity of Hocker Flat.

In addition to evaluating the effects on recreation opportunities, the proposed project was evaluated for consistency with Trinity County recreation objectives and both State and Federal Wild and Scenic River designations. The WSRA Section 7 Determination for the proposed project is included as **Appendix E**.

Significance Criteria

Impacts associated with recreational uses are considered significant if the proposed project would

- conflict with established or planned recreational uses within the proposed project area;
- substantially affect existing recreational opportunities; and
- result in an increase in the use of the existing neighborhood, regional parks, public lands in general, or other recreational facilities such that substantial deterioration of these facilities would occur or be accelerated.

The following criteria were also used to determine significant impacts to riverine recreation:

- substantial increase in turbidity so as to negatively impact recreation aesthetics

- incompatibility with the Federal or State Wild and Scenic River designation, defined as jeopardizing the river's anadromous fishery resources or scenic and recreational qualities
- non-compliance with Trinity County recreation resource objectives

Impacts and Mitigation Measures

Table 3.8-1 summarizes the potential recreation impacts resulting from implementation of the proposed project.

TABLE 3.8-1
SUMMARY OF RECREATION IMPACTS

HOCKER FLAT

Impact	No-Action Alternative	Proposed Action	Alternative 1	Proposed Action with Mitigation	Alternative 1 with Mitigation
1. Construction associated with the proposed project could disrupt recreation activities in the Trinity River.	NI	LS	LS	N/A[1]	N/A
2. Construction of the proposed project could result in an increased safety risk to recreational users.	NI	LS	LS	N/A	N/A
3. Construction associated with the proposed project could lower the river's aesthetic value for recreationists by increasing turbidity levels in the Trinity River.	NI	S	S	LS	LS
4. Implementation of the proposed project could reduce or eliminate public access to the Trinity River.	NI	LS	LS	N/A	N/A
5. Implementation of the proposed project could affect Wild and Scenic River Values.	NI	LS	LS	N/A	N/A

Notes: LS = Less than Significant S = Significant NI = No Impact N/A = Not Applicable
[1]Because this potential impact is less than significant, no mitigation is required.

Impact 3.8-1: Construction associated with the proposed project could disrupt recreation activities (boating, fishing, and swimming) in the Trinity River. ***No Impact for the No-Action Alternative; Less than Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, no construction-related disruption of boating, fishing, and swimming activities within the Trinity River would occur.

Proposed Action

As previously discussed, the Trinity River within the ESL supports in-stream recreational uses, primarily comprising boating and fishing. These in-stream recreation activities occur throughout the year, but are more prevalent between the months of April and December. Undeveloped access points and trails to the Trinity River are present within the ESL and are used primarily by local recreational users, including anglers, swimmers, boaters, and nature viewers.

During implementation of the Proposed Action there will be construction equipment and activity within the floodplain and immediately adjacent to the river bank. Activities within the rehabilitation areas described in **Chapter 2** may result in short-term interruptions to public access within the ESL. With the exception of the BLM lands in the lower portions of the ESL, no public land access is currently available on the private lands. This impact is considered less than significant because any potential disruptions to recreation activities at the Salt Flat site will be temporary in nature.

Mitigation Measures

No-Action Alternative; Proposed Action; Alternative

Since no significant impact was identified for these alternatives, no mitigation is required.

Significance after Mitigation: N/A.

Impact 3.8-2: Construction of the proposed project could result in an increased safety risk to recreational users. ***No Impact for the No-Action Alternative; Less Than Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, construction-related safety risks to recreational users would not occur.

Proposed Action

During construction of the Proposed Action, there will be heavy equipment activity and construction vehicle traffic within and directly adjacent to the Trinity River. These construction-related activities could distract recreational users (i.e., boaters, anglers, swimmers) within the ESL. However – since all construction will be confined to the shoreline no harm would come to recreational users during construction. This impact would be less than significant.

Alternative 1

Potential safety risks to recreational uses from construction and operation of Alternative 1 are similar to the Proposed Action, although Alternative 1 will require substantially less construction time.

Mitigation Measures

No-Action Alternative; Proposed Action; Alternative 1

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A.

Impact 3.8-3: Construction activities associated with the proposed project could lower the river's aesthetic values for recreationists by increasing turbidity levels in the Trinity River. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, turbidity levels in the Trinity River would not increase because the proposed project would not occur.

Proposed Action

The Proposed Action could increase turbidity in the Trinity River, leading to significant aesthetic impacts to recreationists participating in activities in proximity to the resultant turbid plume. Water quality objectives for the Trinity River specifically prohibit the alteration of suspended sediments and other materials in a way that causes nuisance or adversely affects beneficial uses (i.e., recreation). In addition to water quality objectives, the Basin Plan includes two prohibitions specific to construction, logging, and other associated nonpoint source activities:

- The discharge of soil, silt, bark, sawdust or other organic and earthen material from any logging, construction or associated activity of whatever nature into any stream or watercourse in the basin in quantities deleterious to fish, wildlife or other beneficial uses is prohibited.
- The placing or disposal of soil, silt, bark, slash or sawdust or other organic and earthen material from any logging, construction or associated activity of whatever nature at locations where such material could pass into any stream or watercourse in the basin in quantities deleterious to fish, wildlife or other beneficial uses is prohibited.

Implementing the Proposed Action would increase turbidity and total suspended solids during excavation of the floodplain and removal of the riparian berm. Although no in-river construction will occur, some bank sloughing may occur during these activities and result in some degree of turbidity in and downstream of the ESL. Fine sediments may be suspended in the river for several hours following excavation activities. The extent of downstream sedimentation would be a function of the instream flow velocity and particle size. For example, fine-grained sediments like silts and clays can be carried several thousand feet downstream of the excavation areas, while larger-sized sediments like sands and gravels would tend to drop out of the water column within several feet of the construction limit. Increased turbidity and suspended solids levels would adversely affect water quality (refer to **Section 3.5, Water Quality**) and could also adversely affect anadromous fish species that are known to occur in the Trinity River (refer to **Section 3.6, Fisheries Resources**).

Alternative 1

Potential increases in turbidity levels in the Trinity River associated with construction of Alternative 1 would be less than under the Proposed Action.

Mitigation Measures

No-Action Alternative

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A.

Proposed Action; Alternative 1

3a: Turbidity increases associated with proposed project construction activities shall not exceed the NCRWQCB water quality objectives for turbidity in the Trinity River basin. Turbidity levels are defined in nephelometric turbidity units (NTUs). The current threshold for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (2001), is summarized below.

- Turbidity shall not be increased by more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof.

3b: To ensure that turbidity levels do not exceed the threshold listed above during river's edge project construction activities, Reclamation or their contractor shall monitor turbidity levels 50 feet upstream and 500 feet downstream of the point of river's edge construction activities. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during periods of increased turbidity.

3c: Reclamation or their contractor shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that includes silt fences, sediment filters, dewatering activities, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls and dewatering activities shall be adequate to minimize sediment inputs into the Trinity River until vegetation re-growth occurs. All sediment containment devices and erosion control devices will be inspected daily during the construction period to ensure that the devices are properly functioning. Excavated and stored materials will be kept in upland sites with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland sites. All applicable erosion control standards will be required during stockpiling of materials.

Significance after Mitigation: Less than Significant.

Impact 3.8-4: Construction activities associated with the proposed project could reduce or eliminate public access to the Trinity River. ***No Impact for the No-Action Alternative; Less than Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, public access to the Trinity River would not be reduced or eliminated because the proposed project would not occur.

Proposed Action

Undeveloped access points and trails to the Trinity River are present within the ESL on private lands. These access points and informal trails are used by a various property owners and their guests for activities such as angling, swimming, and nature viewing. During construction of the Proposed Action, staging areas and access corridors for construction equipment (Area U-7, **Figure 2.1**) may temporarily reduce access to the Trinity River for recreational users. This short-term disruption of informal access points and trails is not anticipated to be significant since public access is limited to BLM lands within the ESL.

Alternative 1

Temporary reductions in public access to the Trinity River associated with construction of Alternative 1 would be less than under the Proposed Action. Construction and implementation of Alternative 1 would not eliminate any public access points.

Mitigation Measures

No-Action Alternative; Proposed Action; Alternative 1

Since no significant impact was identified for these alternatives, no mitigation is required.

Significance after Mitigation: N/A.

Impact 3.8-5: Implementation of the proposed project could affect Wild and Scenic River values. ***No Impact for the No-Action Alternative; Less than Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, no adverse impacts to Wild and Scenic River values would occur because the proposed project would not take place.

Proposed Action

Construction and implementation of the Proposed Action would not permanently impact the scenic or recreational value of the Trinity River. The proposed project would not cause a significant scenic impact because the overall form and function that supports the ORV of the Wild and Scenic River will be enhanced. No permanent impacts to recreation will occur as a result of the Proposed Action. Temporary impacts to recreation are discussed under Impacts 3.8-1, 3.8-2, and 3.8-4 in this section; temporary impacts to the scenic quality of the river are discussed under Impact 3.8-3 of this section and in **Section 3.14**, Aesthetics. Additional information on impacts to biological resources is provided in **Section 3.6** (Fisheries) and **Section 3.7** (Vegetation, Wildlife and Wetlands).

Alternative 1

Impacts to Wild and Scenic River values associated with construction of Alternative 1 would be less than Proposed Action.

Mitigation Measures

No-Action Alternative; Proposed Action; Alternative 1

Since no significant impact was identified for these alternatives, no mitigation is required.

Significance after Mitigation: N/A.

SECTION 3.9

Socioeconomics, Population and Housing

3.9 Socioeconomics, Population, and Housing

Pursuant to the NEPA requirements, this section presents regional and local information on socioeconomic conditions and potential impacts of the proposed project. A detailed discussion of poverty rates and population by race and ethnicity is included in **Section 3.13**, Environmental Justice. A large portion of this section has been taken directly from the California State University (Chico) CED publication *Trinity County 2001: Economic and Demographic Profile* (CED 2001). This section addresses CEQA issues only to the extent that potential social or economic effects of the proposed project either directly relate to effects on the *physical* environment or would result in reasonably foreseeable indirect effects on the physical environment. Under the CEQA, "[e]conomic or social effects of a proposed project shall not be treated as significant effects on the environment" (*CEQA Guidelines* Section 15131).

3.9.1 Affected Environment/Environmental Setting

Regional Labor Market

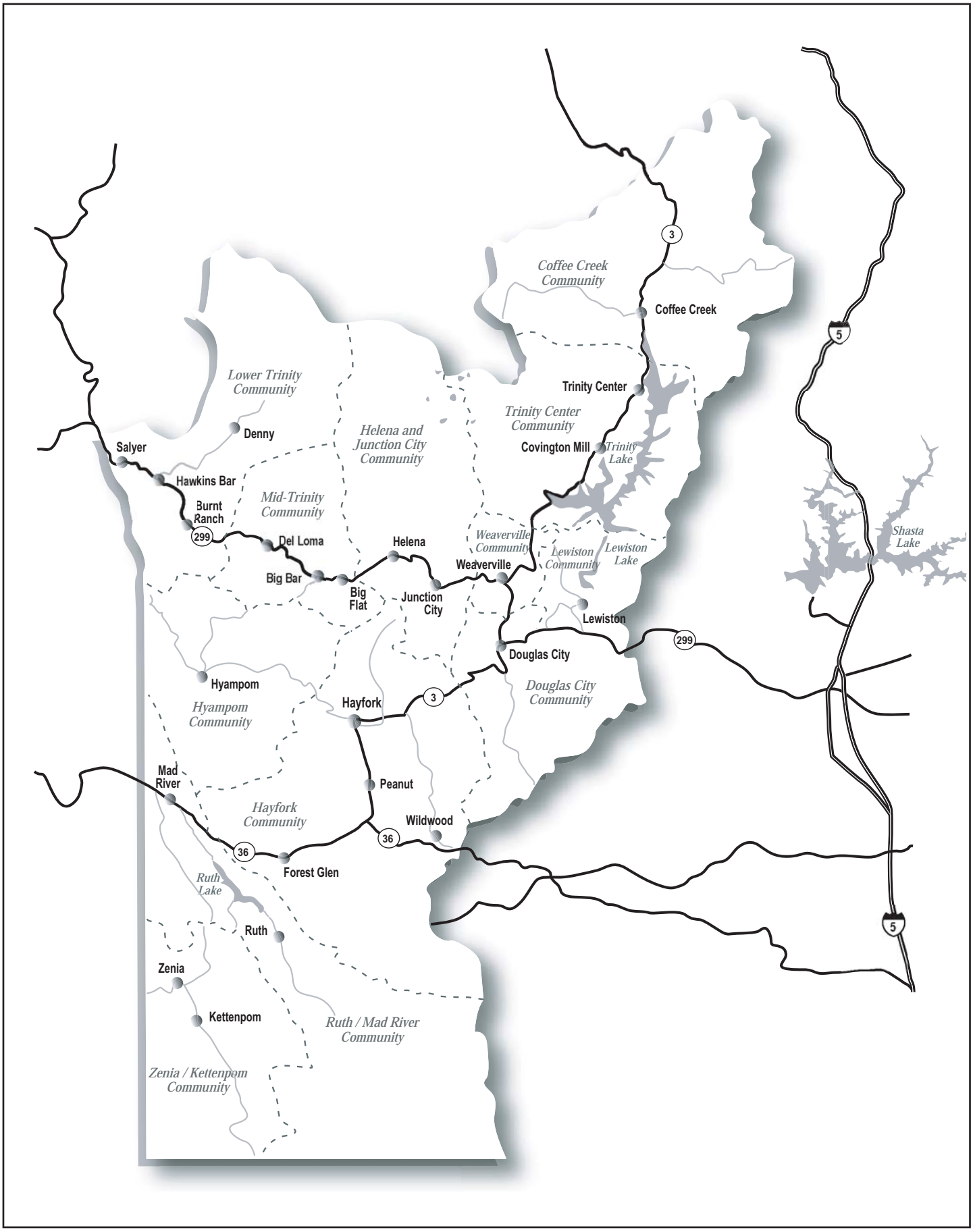
Trinity County is a rural region with substantial amounts of public land. As a result, the region is relatively dependent on natural resources and tourism for its economic base.

Data for labor force, employment, and unemployment were obtained from the California Employment Development Department (EDD), which estimates labor force and employment statistics for all counties in the state. Data for employment by industry were collected from the U.S. Department of Commerce, Bureau of Economic Analysis (BEA) through the Regional Economic Information System (REIS). Differences in calculation methods and differences regarding what is considered employment may account for differences in EDD and REIS employment data (CED 2001).

Economic data for the county were also broken down by community. Based on input from the local advisory group, the county was divided into the following twelve communities: Coffee Creek, Trinity Center, Weaverville, Lewiston, Douglas City, Lower Trinity, Mid-Trinity, Helena and Junction City, Hyampom, Hayfork, Ruth/Mad River, and Zenia/Kettenpom (see **Figure 3.9-1**) (CED 2001).

Labor Force

The total labor force in the county during the 1990-1999 period is presented in **Table 3.9-1**. Labor force refers to the total civilian labor force and is the number of non-institutionalized people age 16 and older who are working or looking for work, and who are not in the military. Total labor force includes wage and salary workers, proprietors, and household workers. Labor force figures from the EDD are based upon place of residence. Annual average labor force is the twelve-month average labor force for a given year. The annual average labor force in the county for the 1990-99 period dropped 18.5 percent.



F:Projects\10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River/Hocker Flat Project\Graphics\Chapter 3\Fig_3.9-1_Communities.pdf Source: Trinity River Flow Evaluation Report, 1999 06/30/04 TLA

Figure 3.9-1
Trinity County Communities

TABLE 3.9-1
TRINITY COUNTY LABOR FORCE

Year	Labor Force	Percent Change
1990	6,000	N/a
1991	5,730	-4.5%
1992	5,900	3.0%
1993	5,270	-10.7%
1994	5,560	5.5%
1995	5,320	-4.3%
1996	5,160	-3.0%
1997	5,180	0.4%
1998	5,020	-3.1%
1999	4,890	-2.6%

Source: Adapted from Center for Economic Development 2001

Table 3.9-2 shows the 1990 labor force for each community in the county.

TABLE 3.9-2
LABOR FORCE, 1990

Community	Total Labor Force
Coffee Creek	131
Trinity Center	184
Weaverville	1,552
Lewiston	459
Douglas City	458
Lower Trinity	429
Mid Trinity	97
Helena and Junction City	244
Hyampom	75
Hayfork Area	923
Ruth/Mad River	289
Zenia/Kettenpom	110
Trinity County	4,951

Source: Adapted from Center for Economic Development 2001

Weaverville and Hayfork contain almost 50 percent of the county's total labor force: 31.3 percent in Weaverville and 18.8 percent in Hayfork.

Employment

Employment refers to total civilian employment as calculated by the EDD. Total civilian employment is the number of people employed in both the private sector and the non-military public sector.

Employment includes wage and salary workers, proprietors, and household workers. **Table 3.9-3** depicts total employment in the county and communities during 1990.

TABLE 3.9-3
COMMUNITY EMPLOYMENT IN TRINITY COUNTY, 1990

Community	Total Employment
Coffee Creek	131
Trinity Center	176
Weaverville	1476
Lewiston	426
Douglas City	421
Lower Trinity	376
Mid Trinity	97
Helena and Junction City	234
Hyampom	66
Hayfork Area	832
Ruth/Mad River	217
Zenia/Kettenpom	95
Trinity County	4,547

Source: Adapted from Center for Economic Development 2001

Weaverville and Hayfork are the county's largest employment centers (32.5 percent of total employment in Weaverville and 18.5 percent in the Hayfork Area). Only 5 percent of employees can be found in the Helena and Junction City communities.

Unemployment

Unemployment refers to the annual average civilian unemployment rate and represents the percentage of the total civilian labor force that is not employed. According to the California Department of Finance, unemployment in the county declined slightly throughout the period of 1992-1999. The annual average unemployment rate in the county generally remains far above the unemployment rate for California. For example, the county registered an average unemployment rate in 1999 of 11.6 percent, while the 1999 annual average unemployment rate for the state was 5.2 percent.

The county’s labor market depends on such factors as distance to 299 and distance to Weaverville, the county's business center. Ruth/Mad River, Hayfork, Zenia/Kettenpom, and Hyampom are rural communities without good access to the highway. These communities have fewer job opportunities and a larger unemployment rate. In contrast, SR 299 connects the communities of Helena, Junction City and Douglas City with Weaverville. As the County seat, Weaverville is the most developed community in the county with the largest labor market. Therefore, it has more job opportunities and smaller unemployment rates. **Table 3.9-4** shows total unemployment and the unemployment rate in the county and by community.

TABLE 3.9-4
TOTAL UNEMPLOYMENT AND 1990 UNEMPLOYMENT RATES BY COMMUNITY, TRINITY COUNTY

Community	Total Unemployment	Unemployment Rate, 1990
Coffee Creek	0	0.00%
Trinity Center	8	4.35%
Weaverville	76	4.90%
Lewiston	33	7.19%
Douglas City	37	8.08%
Lower Trinity	53	12.35%
Mid Trinity	0	0.00%
Helena and Junction City	10	4.10%
Hyampom	9	12.00%
Hayfork Area	91	11.03%
Ruth/Mad River	72	24.91%
Zenia/Kettenpom	15	13.64%
Trinity County	404	8.16%

Source: Adapted from Center for Economic Development 2001

The community with the highest unemployment rate in the county according to the 1990 Census was Ruth/Mad River at 24.9 percent. The situation tends to be better in Helena and Junction City, which has a 4.1 percent unemployment rate, and Weaverville with 4.9 percent unemployment. Since 1990, unemployment within the county has been high, averaging 13.9 percent compared to the statewide average of 7.5 percent.

Employment by Industry

In this section, industries are defined using the *Standard Industrial Classification Manual*, published by the Executive Office of the President, U.S. Office of Management and Budget (OMB 1987). Unlike civilian labor force, employment by industry is based upon place of work and is the annual average number of jobs for a given industry in a particular year. Employment by industry is calculated using employment figures for both full-time and part-time workers.

The industrial employment trend in the county reflects upon the recreational location of the county and its dependence upon tourism. Trinity County has experienced most of its growth through the 1990-1998 period in the services industry. The services industry for the county includes the following:

- Hotels and other lodging places
- Amusement and recreation services
- Museums, botanical, zoological gardens
- Personal services
- Business services
- Auto repair, services, and parking
- Health services
- Legal services
- Engineering and management service

A total of 29.0 percent of the county's total employment provides the different types of services mentioned above.

Regional Income

When compared to the state, Trinity County has a much lower per capita income, a much lower median household income, and higher poverty rates. The industry with the highest earnings is government and public administration.

Per Capita Income

Data from the U.S. Bureau of the Census (Census) and the BEA shows that per capita income levels in Trinity County tend to be significantly below state levels. Per capita income is the average income computed for every man, woman, and child in a particular group. The Census derives per capita income by dividing the total income of a particular group by the total population in that group (excluding patients or inmates in institutional quarters). Per capita income data for Trinity County and California are depicted in **Table 3.9-5**.

TABLE 3.9-5
PER CAPITA INCOME, TRINITY COUNTY AND CALIFORNIA

Year	Trinity County	California
1990	$13,930	$21,393
1991	$14,191	$21,540
1992	$15,005	$22,246
1993	$15,289	$22,532
1994	$15,186	$22,953
1995	$15,858	$23,983
1996	$16,499	$25,142
1997	$16,916	$26,314
1998	$18,704	$27,503

Source: Adapted from Center for Economic Development 2001

The above data from the Census and the California Department of Finance shows that while the per capita income of Trinity County and the state are both increasing. Trinity County continues to lag farther behind the state. This is also true in the individual communities within the county.

While still below the state, the community in Trinity County that has a per capita income closest to that of the state is Coffee Creek. In 1989, Coffee Creek had a per capita income that was $2,261 less than the state. By 1998 this gap had widened to a difference of $3,581. The community in the county with the greatest disparity from the state is Mid Trinity. In 1989, the total per capita income in Mid Trinity was $9,080 less than the total per capita income of the state. By 1998 this gap had widened to a difference of $12,582. In comparing the per capita income of each community to the per capita income for the entire county, Coffee Creek had a per capita income $3,367 higher than that of the county followed by Weaverville which was $1,940 higher. Mid Trinity was the community with the lowest per capita income with $3,452 less than the total personal income per capita income of the county.

Median Household Income

Median household income indicates the midpoint of the distribution of household incomes. Half of all households have incomes above this level, and half have incomes below this level. Median household income in the county, though increasing, is still less than the state median household income. From 1989 to 1998, growth in median household income has been substantial, outpacing personal income growth in the county and growth in median household income for the state. Median household income for the county and its component communities is shown in **Table 3.9-6**.

The median household income for Trinity County remains well below that of the state. In 1990, the median household income for the county was 57.2 percent of the state's median household income. This represents $15,304 less money available for each household in the county than for each household in the rest of the state. By 1995 the median household income for the county had increased to 68.5 percent of the state's median household income, meaning $11,954 less for each household in the county than for households in the rest of the state.

The median household income for individual communities within the county in 1989 ranged from 45.4 percent of the state median household income to 101.4 percent of the state median household income. Estimates for 1998 show the median household income for individual communities in the county ranging from 41.8 percent to 93.4 percent of the state median. Of the individual communities in the county, Coffee Creek has the highest median household income. The community with the lowest median household income was Mid Trinity. Trinity County poverty rates are discussed in **Section 3.13**, Environmental Justice.

TABLE 3.9-6
MEDIAN HOUSEHOLD INCOME, TRINITY COUNTY

Community	1989	1998
Coffee Creek	$36,310	$45,342
Trinity Center	$27,083	$33,820
Weaverville	$25,700	$32,093
Lewiston	$21,250	$26,536
Douglas City	$19,885	$24,831
Lower Trinity	$20,721	$25,875
Mid Trinity	$16,250	$20,292
Helena and Junction City	$18,933	$23,642
Hyampom	$17,875	$22,321
Hayfork Area	$16,511	$20,619
Ruth/Mad River	$27,901	$34,841
Zenia/Kettenpom	$18,090	$22,590
Trinity County	$20,494	$27,064
California	$35,798	$48,552

Source: Adapted from Center for Economic Development 2001

Regional Population

The population of Trinity County is generally characterized by stagnant population growth with higher proportions of white and retirement-age persons and lower proportions of Hispanic and young working-age persons. Approximately 80 percent of the county is owned by the government and 10 percent is in industrial timber production, much of which is restricted for development by Timber Production Zone zoning. Thus, only 10 percent of the county is private land usable for development purposes. The county's rugged terrain and remote location influences its demographics to a great extent, limiting the number of people who visit the county and further limiting where residents can live. Education levels of residents are typical of most of rural Northern California, with a greater proportion of high school graduates and a smaller proportion of college graduates.

Total Population/Population Density

The population estimates shown in **Table 3.9-7** represent total population, which is the estimated number of people who were residing within the county boundaries, either permanently or temporarily, on January 1 of the given year. Total population includes foreign and domestic migrant workers. Trinity County's population grew at a considerably lower rate than California on average during the 1990s. Between 1990 and 1999, the county experienced an average annual growth rate of 0.04 percent compared to California's 1.49 percent average annual growth rate during the same period. The county has been experiencing a net decrease in population since 1995. The decline in the timber industry and attendant loss of jobs is viewed as one reason for the decline in population. The natural increase component of population growth tends to remain relatively constant, while net migration tends to show large variations from year to year.

TABLE 3.9-7
TRINITY COUNTY POPULATION

Year	Population	Percent Change
1990	13,050	0.4%
1991	13,050	0.0%
1992	13,100	0.4%
1993	13,200	0.8%
1994	13,350	1.1%
1995	13,400	0.4%
1996	13,400	0.0%
1997	13,300	-0.7%
1998	13,200	-0.8%
1999	13,100	-0.8%
2000	13,022	-0.3%
2001 (estimate)	13,116	0.7%

Source: Adapted from Center for Economic Development 2001

Table 3.9-8 depicts population data for each of the twelve communities in the county. Among these communities, Weaverville and Hayfork are the largest communities according to the number of residents. Weaverville contains 28.3 percent and Hayfork contains 21.7 percent of the county's total population.

TABLE 3.9-8
COMMUNITY POPULATION DATA, 1990

Area	Total Population	Population Density (per mi^2)
Coffee Creek	224	0.6
Trinity Center	588	2.2
Weaverville	3,695	72.8
Lewiston	1,352	15.8
Douglas City	997	5.0
Lower Trinity	1,252	3.8
Mid Trinity	301	2.1
Helena and Junction City	675	2.4
Hyampom	301	1.3
Hayfork	2,838	5.4
Ruth/Mad River	612	1.4
Zenia/Kettenpom	228	0.9
Trinity County	13,063	4.1
California	29,805,968	189.8

Source: Adapted from Center for Economic Development 2001

As depicted in **Table 3.9-8**, most of the population of Trinity County is concentrated in Weaverville and Lewiston. The communities with the lowest concentration of the county's population, or the most remote areas of the county, are Coffee Creek and Zenia/Kettenpom.

Trinity County has a population density well below the population density of California as a whole. The population density of the county for January 1, 1990, is estimated at 4.11 persons per square mile, while the population density of California is estimated at 189.83 persons per square mile (Center for Economic Development 2001).

Trinity County population by race and ethnicity is discussed in detail in **Section 3.13**, Environmental Justice.

Regional Housing

Each year, the California Department of Finance, Demographic Research Unit estimates the number of housing units located in each county and incorporated place, as well as California as a whole. Housing units are estimated by adding new construction and units included in annexations and subtracting demolitions from the census benchmark.

Local

Junction City offers limited services, including several commercial enterprises, a Forest Service work station, U.S. Post Office and Junction City Elementary School. Several commercial sand and gravel operations provide economic benefits to local community and the county. There is an active sand and gravel mine within the ESL that has been operating on an intermittent basis since 1995. The community is primarily residential and does not provide significant socioeconomic benefit to Trinity County beyond property tax revenues and mining operations. Existing land uses are primarily rural residential; although there are no dwelling or structures within the ESL. The majority of existing parcels have been subdivided to their fullest extent and therefore present no potential for development. In addition, many of the existing parcels fall into Flood Hazard, Scenic Conservation Overlay, or Open Space zoning districts, making further development difficult. The private timberland located on the slopes above Red Hill Road is zoned for Timberland Production. Additional information on land use is provided in **Section 3.2**.

Planned Developments for Hocker Flat

Due to the nature of the zoning restrictions within the ESL, the primary development that could occur would be an expansion of the current sand and gravel extraction and processing operations. Some residential development could occur on parcels along the western boundary of the ESL, but not in the foreseeable future.

3.9.2 RELEVANT PLANS AND POLICIES

Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970

Persons and businesses displaced as a result of construction and/or operation of the proposed project are protected under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended April 2, 1987. This law was designed to mitigate adverse impacts experienced by private property owners in the public taking of land. Under this Act, persons or businesses displaced would receive compensation from the public entity that funds the proposed project. Listed below are some of the major costs a public entity must compensate a displaced person for as part of the cost of acquisition of real property for a public use. A public entity is required by law to provide these and other compensations as outlines in the relocation assistance guidelines:

- actual and reasonable expense in moving him/herself, a family, a business, or a farm operation, including expense in moving personal property;
- actual direct losses of tangible personal property as a result of moving or discontinuing a business or farm operation;
- actual and reasonable expenses in searching for a replacement business or farm; and
- a fixed or in-lieu payment to compensate eligible displaced businesses for a substantial loss of existing patronage.

The act also stipulates that a public entity shall not participate in a project that will displace individuals from their homes unless comparable replacement dwellings will be available within a reasonable period before displacement.

A comparable replacement is defined as one that is

- decent, safe, and sanitary;
- functionally equivalent to the displaced dwelling;
- an adequate size to accommodate the family being relocated;
- in an area not subject to unreasonable adverse environmental conditions;
- in a located generally not less desirable than the location of the displacement dwelling with respect to accessibility to public utilities, commercial and public facilities, and place of employment; and
- on a site that is typical in size for residential development with normal size improvements (Caltrans 1989).

Trinity County General Plan Goals

The following general plan goals have been established by the County:

1. To provide more diverse sources of income and stabilize the economy.
2. To provide higher average in income levels.

Land Use Element Goals and Objectives

Cultural

Goal: To retain the rural character of Trinity County:

- By limiting dwelling density based on retention of rural character and conservation of important resources, including historic sites and structures, and wildlife.
- By considering the “rights” of the individual when making decisions as well as the “rights” of the community.

Goal: To encourage adequate housing and residential space to keep pace with a moderate population growth:

- By clearly designating those areas in which additional housing is necessary and desirable.
- By minimizing the “bureaucratic machinery” a landowner faces when attempting to develop housing that is consistent with this plan.
- Avoid the need for increased public services.
- By keeping density, and thus demand, as low as possible in the most rural areas.
- By determining “threshold” densities that require expensive public services.
- By exploring outside funding possibilities available to the County when new or improved services must be provided.

Economic

Goal: To maintain and enhance a viable economic base for Trinity County:

- By maintaining as many privately owned prime timber, agricultural, mineral, sport and commercial fishery, and animal-producing lands as possible.
- By encouraging tourism.
- By implementing the General Plan so that it is applied fairly and consistently and by stabilizing land-use regulations.

Junction City Community Plan Goals

Economic Development

Goal: To recognize and encourage, as apriority, the small business activities found in the Plan area.

- Encourage the development of a single County development permit processing center.
- Insure that State, Federal, or County projects provide every opportunity for small local contractors to favorably compete with large contractors.

Goal: To ensure that resource production lands continue to be utilized for such purposes.

- Protect resource areas from encroachment by incompatible uses.

Trinity County Housing Policies

In order to provide an adequate supply of housing, the County has established the following policies:

1. Encourage the overall production of housing.
2. Encourage the production of housing opportunities for all income groups.
3. Work towards improving infrastructure capacity.
4. Encourage the production of housing for persons with special housing needs.
5. Encourage the repair and rehabilitation of existing housing stock.
6. Ensure that there are adequate sites available to support future housing needs.
7. Prevent discrimination in housing.
8. Encourage citizen participation during the preparation of the housing element and other general and community plan documents.

Project Consistency with the Trinity County General Plan and Community Plans

This section compares the goals and objectives of the Proposed Action to the relevant local planning policies (i.e., Trinity County General Plan, Junction City Community Plan) to determine if there are any inconsistencies.

As described in **Chapter 1**, Introduction, the proposed project would:

- increase the diversity and area of habitat for salmonids, particularly habitat suitable for rearing;
- increase rearing habitat for juvenile salmonids, including coho, Chinook and steelhead;
- increase structural and biological complexity of habitat for various species of wildlife associated with riparian habitats;
- increase hydraulic and fluvial geomorphic diversity and complexity;
- provide a demonstration project to evaluate the fate and transport of mercury related to rehabilitation/restoration projects;
- demonstrate the ecological response to changes in flow regimes, morphological features, and aquatic, riparian and upland habitats; and
- provide a self-maintaining project independent of any future TRD flows.

The following project objectives apply to the project's lead/responsible agencies for the CEQA purposes:

- Evaluate changes in channel geometry in response to constructing channel and floodplain features designed for the river's current hydrologic regime
- Evaluate the evolution of channel planform features in response to designing and implementing the project at a river segment (1-mile) scale
- Evaluate the biological response (aquatic, riparian, upland) to changes in the physical environment, and incorporate this information into the AEAM Program
- Conduct a preliminary assessment of the fate and transport of mercury in response to restoration activities in a historic mining district
- Locate the project downstream of Canyon Creek to ensure that natural tributary accretion to mainstem flows has a higher likelihood of maintaining the site prior to implementation of the ROD-recommended flow regime
- Provide safe and reasonable access to the site for project planning, implementation, and monitoring
- Develop partnerships with willing participants, and encourage positive landowner interest and involvement.
- Design the project to function with the river's current hydrology estimated at the site
- Integrate known fluvial and ecological theories and relationships with the site's measured physical and biological attributes and evaluate response over a definitive time frame
- Minimize in-stream work to reduce construction-related impacts, maximize the river's ability to rehabilitate itself during high flows, and reduce implementation cost and complexity
- Attempt to preserve unique and valuable geomorphic and biological features wherever practicable (i.e., hydraulic controls, high-quality spawning or adult holding habitat)

The following objectives apply to the project's responsible and trustee agencies, including the HVT, NCRWQCB, SLC, CDFG, and the SWRCB:

- Comply with the Water Code to ensure the highest reasonable quality of waters of the state and allocate those waters to achieve the optimum balance of beneficial uses.
- Protect the public trust assets of the Trinity River watershed.
- Protect, conserve, restore, and manage fish, wildlife, and native plant resources.
- Comply with the Water Quality Control Plan for the Hoopa Valley Indian Reservation to preserve and enhance water quality on the Reservation, and to protect the beneficial uses of water.

These project objectives are consistent with the applicable General Plan goals and policies summarized above.

3.9.3 Environmental Consequences/Impacts and Mitigation Measures

Methodology

The following section provides a brief overview of the analytic methodologies utilized to assess potential socioeconomic impacts of the proposed project. These methodologies included qualitative assessments of potential proposed project effects associated with employment and income, as well as any potential plan conflict, population growth, displacement, and community disruption impacts. Trinity County was determined to be the area of potential socioeconomic effect due to the proposed project's overall size and its location within the county.

Employment generation results in social benefits even if the employment is short-lived. The proposed project would generate new, temporary employment opportunities for Trinity County residents associated with the construction of the proposed project. Income generation is one measure of economic activity in a community. Income growth spurs secondary economic effects that ultimately result in increased employment activities. The proposed project could directly generate income growth through the payment of wages and salaries. The duration of income growth, however, is an important consideration in determining the significance of an income change. Short-term income growth, unless substantial, may result in little increased long-term economic activity.

Significant increases in population concentration or growth can result in negative socioeconomic effects, such as lack of affordable housing, or can result in socioeconomic benefits, such as increased local revenues. The potential for the proposed project to result in an increase in population concentration or an increase in population growth is qualitatively analyzed.

The displacement of people (through loss of residences or places of employment) generally results in negative socioeconomic effects, such as a decrease in the local work force and loss of employment opportunities, in addition to the direct impact to the people concerned. The potential for the proposed project to result in the displacement of people is qualitatively analyzed.

Significance Criteria

For NEPA purposes, a threshold of ten percent was used to determine employment and income changes, because changes exceeding ten percent may have a regional effect.

Changes in employment opportunities would be considered significant under NEPA if the proposed project resulted in increased or decreased employment opportunities for the population within Trinity County by at least 10 percent. Similarly, changes in income generation would be considered significant under NEPA if the proposed project resulted in a permanent change in income generation in Trinity County by at least 10 percent. Other criteria used in the analysis and relevant under NEPA include:

- The project resulted in the displacement of an existing business;
- The project induced substantial growth or concentration of population; or
- The project displaced a large number of people.

For purposes of the CEQA, under which "[e]conomic or social effects of a project shall not be treated as significant effects on the environment," project effects on population and housing are relevant only if they either (i) directly relate to an effect on the physical environment, in which case a lead agency may, but need not, consider economic or social effects in determining whether such physical effects are significant, or (ii) would result in a reasonably foreseeable indirect effect on the physical environment (See *CEQA Guidelines*, § 15131). Thus, under the CEQA, the proposed project would have a significant impact on population and housing if it:

- induces substantial growth in an area, either directly or indirectly;
- displaces substantial numbers of existing housing necessitating the construction of replacement housing elsewhere; and/or
- displaces substantial numbers of people, necessitating the construction of replacement housing elsewhere.

Impacts and Mitigation Measures

Table 3.9-9 summarizes the potential socioeconomic impacts resulting from construction and operation of the proposed project.

TABLE 3.9-9
SUMMARY OF SOCIOECONOMIC IMPACTS
HOCKER FLAT

Impact	No-Action Alternative	Proposed Action	Alternative 1	Proposed Action with Mitigation	Alternative 1 with Mitigation
1. Construction of the proposed project would provide temporary employment opportunities for construction workers in Trinity County.	NI	B	B	B	B
2. Implementation of the proposed project could result in the disruption or displacement of local businesses.	NI	NI	NI	N/A[1]	N/A
3. Implementation of the proposed project would result in an increased demand for housing during construction.	NI	LS	LS	N/A	N/A

Notes:

LS = Less than Significant NI = No Impact N/A = Not Applicable B = Beneficial

[1]Because this potential impact is less than significant, no mitigation is required.

Impact 3.9-1: Construction of the proposed project would provide temporary employment opportunities for construction workers in Trinity County. ***No Impact for No-Action Alternative; Beneficial Impact for Proposed Action and, Alternative 1***

No-Action Alternative

Under the No-Action Alternative, no employment opportunities would be created because construction would not occur.

Proposed Action

Construction at the Hocker Flat would generate temporary construction-related employment in Trinity County. The number of design, construction, and clerical positions required to complete the proposed project is undetermined, but is expected to add a small percentage to existing local jobs. However, employment would only last during the estimated 140 day construction period. In addition, the proposed project would provide direct local employment opportunities only if workers are hired from the local labor force.

Alternative 1

Effects associated with temporary employment opportunities under Alternative 1 are similar to the Proposed Action, however the construction period would be reduced to some degree.

Mitigation Measures

No-Action Alternative; Proposed Action; Alternative 1

Since no significant impact was identified for these alternatives, no mitigation is required.

Significance after Mitigation: N/A.

Impact 3.9-2: Implementation of the proposed project could result in the disruption or displacement of local businesses. ***No Impact for No-Action Alternative, Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, no disruption or displacement of local businesses would take place because the proposed project would not occur.

Proposed Action

The only local business that could be disrupted by the Proposed Action is a sand and gravel mine that operates within the ESL of the proposed project. Disruptions will be short-term in nature, and the project will ultimately increase the availability of mineral resources available to this business. Implementation of the Proposed Action would not result in the significant disruption or displacement of local businesses.

Alternative 1

Alternative 1 impacts that temporarily disrupt local businesses associated with are less than or similar to the Proposed Action.

Mitigation Measures

No-Action Alternative; Proposed Action; Alternative 1

Since no significant impact was identified for these alternatives, no mitigation is required.

Significance after Mitigation: N/A.

Impact 3.9-3: Implementation of the proposed project would result in an increased demand for housing during construction. ***No Impact for No-Action Alternative; Less than Significant Impact for Proposed Action and, Alternative 1***

No-Action Alternative

Under the No-Action Alternative, no increased demand for housing during construction would take place because the proposed project would not occur.

Proposed Action

The area surrounding the community of Junction City is a rural residential area. Few rental opportunities exist within the Junction City Community Plan area. What rental property does occur in adjacent rural residential areas is typically seasonal rental property available for recreational pursuits. More affordable and more readily available short-term rentals are concentrated in the nearby community of Weaverville. A short-term increase in the demand for housing in Weaverville could occur as a result of construction workers seeking lodging during the construction period. This would be a less than significant impact due to the short time during which the housing demand would potentially increase.

Alternative 1

Temporary increases in the demand for housing during construction associated with Alternative 1 would be less than or similar to the Proposed Action.

Mitigation Measures

No-Action Alternative; Proposed Action; Alternative 1

Since no significant impact was identified for these alternatives, no mitigation is required.

Significance after Mitigation: N/A.

SECTION 3.10

Tribal Trust

3.10 Tribal Trust

Definition

The United States has a trust responsibility to protect and maintain rights reserved by, or granted to, federally recognized tribes and individual Indians, by treaties, statutes, and executive orders. These rights are sometimes further interpreted through court decisions and regulations. The trust responsibility requires that all federal agencies, including Reclamation, take all actions reasonably necessary to protect Indian trust assets.

Indian trust assets are legal interests in property held in trust by the federal government for federally recognized Indian tribes or individual Indians. "Assets" are anything owned that has monetary value. "Legal interest" means there is a property interest for which there is a legal remedy, such as compensation or injunction if there is improper interference. Indian trust assets do not include things in which a tribe or individual Indians have no legal interest.

Indian trust assets can be real property, physical assets or intangible property rights, such as a lease, or a right to use something. Indian Trust Assets cannot be sold, leased, or otherwise alienated without United States' approval. While most Indian trust assets are located on-reservation, they can also be located off-reservation. Examples of things that can be Indian trust assets are land, minerals, hunting and fishing rights, water rights, and instream flows.

3.10.1 Affected Environment/Environmental Setting

The need to restore and maintain the natural production of anadromous fish in the Trinity River mainstem originates partly from the federal government's trust responsibility to protect the fishery resources of the region's Indian tribes. The Trinity River Basin Fish and Wildlife Restoration Act of 1984 (Public Law 98-541) expressly acknowledges the tribal interest in the basin's fishery resources by declaring that the measure of successful restoration of the Trinity River fishery includes the "ability of dependent tribal…fisheries" to participate fully, through enhanced in-river "harvest opportunities, in the benefits of restoration." In addition, the 1992 CVPIA specifically recognizes the federal trust responsibility in regard to the Trinity River fishery. The proposed project could potentially impact anadromous fish, non-anadromous fish, water, wildlife, vegetation, and overall riverine health. These impacts could consequently affect the sociocultures and economies of the tribes.

This section focuses principally on the interests of the Hoopa Valley and Yurok Tribes since, of the Indian tribes of the Klamath/Trinity Region, their interests could be the most directly affected by the proposed project. It should be understood, however, that potential project impacts are pertinent to the Karuk and Klamath people as well since they share a common regional heritage.

Regional Setting

The United States' recognition of the importance of rivers and fish to the Indian people of the Klamath/ Trinity Region is exemplified by the very shape and location of the lands first set aside for their reservations. The Secretary's own instructions at the time were, "to select these reservations from such

'tracts of land adapted as to soil, climate, water privileges, and timber, to the comfortable and permanent accommodation of the Indians'" (U.S. Fish and Wildlife Service et al. 2000a). In 1855, Indian Agent S. Whipple, when speaking of the Yurok, noted that, "The river is abundantly supplied with Salmon. A fine large fish quite easily taken by the Indians and which is very properly regarded by the Indian as his staff of life" (U.S. Fish and Wildlife Service et al. 2000a).

In that same year, President Pierce established the Klamath River Reservation. The reservation (not to be confused with the Klamath Reservation in Oregon) was designated as a strip of territory commencing at the Pacific Ocean and extending one mile in width on each side of the Klamath River for a distance of approximately 20 miles. This reservation was created entirely within the aboriginal territory of the Yurok. Although the federal government's intent was to eventually move all the region's Indians onto the Klamath River Reservation, only some Yurok and Tolowa were moved. Flooding along the Klamath River in 1862 led to the closing of the area's Indian Bureau office and contributed to the erroneous belief that the reservation had been abandoned, though it was still occupied by the Yurok (U.S. Fish and Wildlife Service et al. 2000a).

On August 21, 1864, the DOI issued a proclamation and instructions that established the Hoopa Valley Reservation on the Trinity River pursuant to legislation enacted by Congress that same year. The reservation is 12 miles square and bisected by 15 miles of the river (it has often been called the Square or the 12-mile Square). In 1876 President Grant issued an Executive Order formally establishing the boundaries of the Hoopa Valley Reservation, and provided that the land contained within those boundaries, "be withdrawn from public sale, and set apart in California by act of Congress approved April 8, 1864" (U.S. Fish and Wildlife Service et al. 2000a).

Efforts soon began to provide a single contiguous homeland for the region's Indian people by connecting the Klamath River Reservation to the Hoopa Valley Reservation. Paris Folsom, a Special Agent for the DOI, proposed that the two reservations be connected in his "Report of Special Agent on Conditions and Needs of Non-Reservation Klamath Indians," sent to the Commissioner of Indian Affairs in 1885.

In 1891, President Harrison extended the Hoopa Valley Reservation from the mouth of the Trinity River to the ocean, thereby encompassing and including the Hoopa Valley Reservation, the original Klamath River Reservation, and the connecting strip between. By that time, as a result of the Dawes Act of 1887, much of the Klamath River Reservation and extension lands (the 20-mile strip that connected the two reservations is commonly referred to as the "Connecting Strip" or "Extension") not already claimed as allotments by resident Indians had been opened up to non-Indian settlement.

This led to checkerboard ownership of the Yurok portions of both the Extension and former Klamath River Reservation. Through various means, several timber companies quickly consolidated and heavily logged much of this land.

From 1891 through 1988, the Hoopa Valley Reservation was comprised of the Hoopa Valley Square, the Extension, and the original Klamath River Reservation. In 1988, Congress, under the Hoopa-Yurok Settlement Act, separated the Hoopa Valley Reservation into the present Yurok Reservation (a

combination of the original Klamath River Reservation and Extension) and Hoopa Valley Reservation. **Figure 3.10-1** shows the current reservation boundaries.

Indian Federally Reserved Rights

By first creating reservations "for Indian purposes," the United States sought to provide the Hoopa Valley and Yurok Tribes with the opportunity to remain mostly self-sufficient, exercise their rights as sovereigns, and maintain their traditional ways of life (USFWS et al. 2000a). Implicit in this objective was an expectation that the federal government would protect the tribes and their resources (a protection that extended beyond reservation borders).

The Unites States has a trust responsibility to protect tribal trust resources. In general, this tribal trust responsibility requires that the United States protect tribal fishing and water rights, which are held in trust for the benefit of the tribes (DOI 1995). This trust responsibility is one held by all federal agencies. For the proposed project, Reclamation is obligated to ensure that project operations do not interfere with the Tribes' senior water rights. Pursuant to its trust responsibility and consistent with its other legal obligations, Reclamation must also prevent activities under its control that would adversely affect Tribal fishing rights, even when those activities take place off-reservation.

Federally Reserved Indian Fishing Rights

Salmon, steelhead, sturgeon, and lamprey that spawn in the Trinity River pass through the Hoopa Valley and Yurok Reservations and are harvested in tribal fisheries. The fishing traditions of these tribes stem from practices that far pre-date the arrival of non-Indians. Accordingly, when the federal government established what are today the Hoopa Valley and Yurok Indian Reservations on the Trinity and lower Klamath Rivers, it reserved for the benefit of the Indian tribes of those reservations a right to the fish resources in the rivers running through them. The Yurok and Hoopa Valley Tribes' federally reserved fishing rights entitle them to take fish, for ceremonial, subsistence, and commercial purposes. The United States has long recognized the rights of the tribes Hoopa Valley and Yurok Tribes of the Klamath/Trinity River basin, to fish. The federal government, as trustee, has an affirmative obligation to manage federally reserved Indian rights for the benefit of federally recognized Indian tribes. Federally reserved Indian fishing rights are vested property rights held in trust by the United States for the benefit of the Indians. These rights have been acknowledged and confirmed by the executive, legislative, and judiciary branches of the federal government in a number of authorities including: (1) Secretarial Issue Document on Trinity River Fishery Mitigation, issued January 14, 1981; (2) Opinion of the Solicitor of the DOI re: Fishing Rights of the Yurok and Hoopa Valley Tribes (M-36979: October 4, 1993); (3) the CVPIA (3406 (b) (23)); and (4) *Parravano v. Babbitt*, 837 F. Supp. 1034 (N.D. Calif. 1993), 861 F. Supp. 914 (N.D. Calif. 1994), affirmed 70 F.3d 539 (9th Cir. 1995), cert. denied, 518 U.S. 1016 (1996).

In most cases, federally reserved Indian fishing rights cannot be supplanted by state or federal regulation. The above referenced 1993 solicitor's opinion: (1) reaffirms the historic and legal basis of the federally reserved fishing rights of the Hoopa Valley and Yurok Tribes; (2) acknowledges the federal government's cognizance of the importance of fish to these Indians at the time it first established reservations on their behalf; (3) concludes that the tribes' federally reserved fishing rights entitle them to harvest quantities of fish on their reservations sufficient to support a moderate standard of living, or 50 percent of the harvestable share of the Klamath-Trinity basin fishery, whichever is less; (4) recognizes that under the

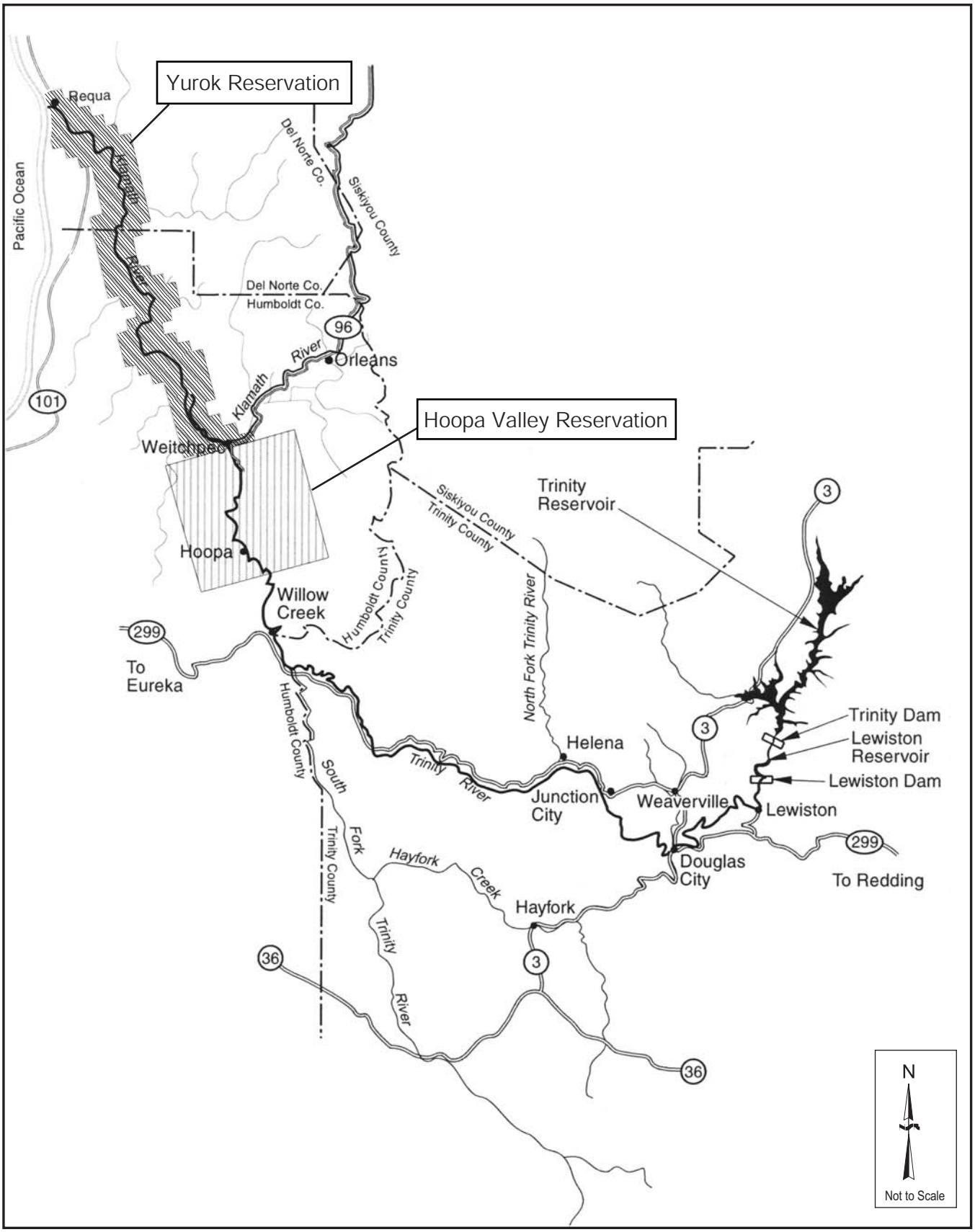
current depleted condition of the fishery, a 50 percent allocation does not adequately meet the tribes' needs: and (5) argues that it was the degree of the Hoopa Valley and Yurok Tribes' dependence on fisheries at the time their reservations were first created or expanded, and not the tribes' specific uses of the fish, that is relevant in quantifying their federally reserved fishing rights.

Today, the reserved fishing right includes the right to harvest quantities of fish that the Indians require to maintain a moderate standard of living, unless limited by the 50 percent allocation. Specifically, the tribes have a right to harvest all trust species of Klamath and Trinity River fish for their subsistence, ceremonial, and commercial needs. Tribal harvest of these species is guided by conservation requirements outlined in carefully developed tribal harvest management plans.

Water Rights

In addition to fish, the tribes have reserved rights to water. The concept of reserved rights in general, and Indian reserved water rights specifically, originated just after the start of the 20th century with *Winters v. United State*s, 207 U.S. 564 (1908). The ruling in this case, commonly referred to as the Winters Doctrine, states that when the federal government established a reservation, it implicitly reserved a quantity of water necessary to fulfill the purposes of said reservation. Generally, all original documents related to the establishment of reservations—treaty, executive order, or statute— indicate, at a minimum, that the purpose of the reservations is to provide a permanent home for the tribe(s) in question. In cases where reservations have been created with specific language stating or implying reserved fishing, hunting, gathering, or other rights, the *Winters* Doctrine has been interpreted to mean that adequate water supplies for these purposes have been reserved (even in addition to more general uses - see *U.S. v. Adair*, 723 F.2d 1410 [9th Cir. 1983]).

The DOI solicitor's office reaffirmed these rights with respect to Reclamation's activities, stating that: "Reclamation is obligated to ensure that proposed project operations not interfere with the Tribes' senior water rights. This is dictated by the doctrine of prior appropriations as well as Reclamation's trust responsibility to protect tribal trust resources" (DOI 1995). Furthermore, the solicitor's office notes that the Secretary, "through Reclamation, must operate reclamation projects consistent with vested, fairly implied senior Indian water rights" (DOI 1997). Further, absent a "completed adjudication or other determination of the senior water rights," projects must be "operated based on the best available information."



F:Projects\10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River/Hocker Flat Project\Graphics\Chapter 3\Fig_3.10-1_Reservations.pdf Source: Trinity River Draft EIR 06/30/04 TLA

Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

North State Resources, Inc.

Figure 3.10-1
Trinity Basin Reservations

Rights to Wildlife and Vegetation Resource

While the focus of the legal history surrounding Indian rights to resources has concentrated on water and fisheries, it is important to recognize that other resources such as wildlife and vegetation are extremely important to the tribes, and the tribes have assessed that these are no less reserved. In the case of the Hoopa Valley and Yurok Tribes, the decline in the health of the region's rivers has limited the availability of grasses and other plants important to traditional basketry, art, and medicine. Thus, while anadromous fish are the focus of the TRRP, other trust assets such as vegetation are embodied in the federal government's trust responsibility and, accordingly, need to be considered in the decision-making process.

Potentially Impacted Indian Trust Assets

Indian tribes of the Klamath/Trinity Region have firmly established federally protected rights to numerous natural resources. These general resource groupings represent culturally important Indian trust assets. A partial list of trust assets is presented in **Table 3.10-1**. While each tribe has its own uses for the species/resources presented, the table provides a general summary of what these uses are.

TABLE 3.10-1
PARTIAL LIST OF TRIBAL ASSETS

Asset	Primary Uses by Tribes
Fish[a]	
Fall Chinook salmon	Subsistence, ceremonial, commercial
Spring Chinook salmon	Subsistence, ceremonial, commercial
Summer steelhead	Subsistence, ceremonial, commercial
Fall steelhead	Subsistence, ceremonial, commercial
Winter steelhead	Subsistence, ceremonial, commercial
Coho salmon	Subsistence, ceremonial, commercial
Pacific lamprey	Subsistence, ceremonial, commercial
Sturgeon	Subsistence, ceremonial, commercial
Eulachon	Subsistence, ceremonial, commercial
Vegetation	
Willow shoots	Basketry, ceremonial
Cottonwood	Basketry
Wild grape	Basketry
Bulrush	Basketry
Hazel sticks	Basketry and weaving, ceremonial
Tules	Medicine
Spearmint	Medicine, subsistence
Blackberries	Subsistence
Water	Subsistence, ceremonial, commercial, medicine

Asset	Primary Uses by Tribes
Wildlife	
Bear	Subsistence
Bald eagle	Ceremonial
Blue heron	Ceremonial
Mallard	Ceremonial

[a] While many of the fish listed are not currently commercially harvested by the tribes of the region, historically, all these trust species were used for commercial purposes, and the tribes continue to have the right for commercial harvest.

Cultural Environment

Native uses of natural resources, and the cultural significance of those resources, developed over many centuries. Since time immemorial, native people have lived in the heavily forested drainages of the Klamath and Trinity Rivers and adjacent streams in Northwestern California. Over the centuries, they learned to efficiently utilize the natural bounty of their territories; hunting, fishing, and gathering were the foundation of their societies. Tribes in the area included: the Chilula, Hoopa Valley, Nongatl, Tsnungwe, and Whilkut speaking Athabascan languages; the Chimariko, Karuk, and Shasta speaking Hokan languages; the Wintun speaking a Penutian language, and the Wiyot and Yurok speaking Algonkian languages.

Some of these tribes, such as the Chilula, no longer exist. Others, including the Chimariko and Wintu, have never been officially recognized by the United States as a distinct and sovereign people. In fact, amongst the Indian peoples still present within the region, only the Hoopa Valley, Karuk, Klamath, and Yurok Tribes have received this recognition.

The aboriginal lands of the Hupa people are centered on the drainages of the Hoopa Valley of the Trinity River. The aboriginal lands of the Yurok were generally centered on the Klamath River drainage from the mouth of the river at the Pacific Ocean up to and including Slate Creek Drainage. Yurok ancestral territory also extends up the Trinity River to Tank Creek and includes the village of Oslegoits, six miles from the Trinity's confluence with the Klamath.

There have always been strong social, cultural, and economic ties among the tribes of the Klamath/Trinity basin; ties based in large part on a shared reliance on the region's rivers and associated resources, particularly salmon. This reliance extends well beyond subsistence and commerce to the cultural and social fabric of their societies; as evidenced by their traditional, ceremonial, and spiritual ways of life that focus and center on the rivers and the fish, wildlife, and vegetation they support. For Indians of the Klamath/Trinity Region, the interaction and identification with the natural environment so defines their cultures, lifestyles, and religions, that its degradation has had a profoundly devastating impact.

Local Setting

Based on consultation with the Tribes and Reclamation, the proposed project ESL contains Trust resources, including fish, vegetation and wildlife. While no specific use of this site has been identified, the Trinity River provides a valuable corridor that connects these resources to the Hoopa Valley and Yurok Tribes.

3.10.2 ENVIRONMENTAL CONSEQUENCES/IMPACTS AND MITIGATION MEASURES

The purpose of this section is to evaluate the potential impacts of the alternatives on tribal trust assets, and the subsequent effects those impacts may have on the Indian tribes of the Klamath/Trinity basin.

Methodology

While the proposed project is aimed at improving the river's anadromous fisheries, an assessment of how proposed project construction may actually impact the Indian trust assets of the Hoopa Valley and Yurok Tribes must be performed as directed in the DOI *Departmental Manual Part 512, Chapter 2*, and Reclamation's Indian Trust Asset Policy. Towards this end, the Indian trust asset impact evaluation focuses on the potential effect of the proposed project on the health of the Trinity River, as the river's overall health is a primary factor determining the availability of fish, and therefore the ability of the Hoopa Valley and Yurok Tribes to exercise their federally reserved fishing rights. Thus, increased numbers of Chinook salmon and Pacific lamprey, and the rejuvenation of other trust assets, represents an expected beneficial by-product of improved riverine health. The potential tribal trust impacts were not evaluated on a trust asset by trust asset basis.

Significance Criteria

No specific significance criteria were applied in the evaluation of potential tribal trust consequences, although any modification or change in the quantity or quality of downstream tribal trust assets was evaluated. Notably, nothing in CEQA expressly requires lead agencies to consider projects' impacts on Tribal Trust Resources as a distinct category of impacts. Instead, with its focus on the physical environment, the CEQA requires agencies to focus on impacts to specific natural or environmental resources, some of which, such as fish and wildlife and water quality, might be indirectly related to Tribal Trust values.

Although CEQA does not expressly require the application of specific significance criteria for potential impacts to Indian trust assets, NEPA requires the evaluation of potential impacts to Indian trust assets as a distinct category. This evaluation assessed the impacts of the proposed project relative to the modification or change in the value, use, quantity, quality or enjoyment of downstream Indian trust assets.

Impacts and Mitigation Measures

Table 3.10-2 summarizes the potential Indian trust asset impacts resulting from implementation of the proposed project.

TABLE 3.10-2
SUMMARY OF INDIAN TRUST IMPACTS FROM THE PROPOSED PROJECT

HOCKER FLAT

Impact	No-Action Alternative	Proposed Action	Alternative 1	Proposed Action with Mitigation	Alternative 1 with Mitigation
1. Implementation of the proposed project may reduce the quantity or quality of trust assets.	NI	LS	LS	N/A[1]	N/A

Notes:
LS = Less than Significant NI = No Impact N/A = Not Applicable

[1]Because this potential impact is less than significant, no mitigation is required.

Impact 3.10-1: Implementation of the proposed project may reduce the quantity or quality of Indian trust assets. ***No Impact for No-Action Alternative, Less than Significant Impact for Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative the proposed project would not be implemented and no impacts to a Tribal Trust Asset would occur.

Proposed Action; Alternative 1

Under either alternative, the Trinity River will continue to support Tribal Trust Assets within the ESL of the proposed project. Short-term impacts described in **Section 3.3** (Geology, Fluvial Geomorphology and Soils); **Section 3.5** (Water Quality); S**ection 3.6** (Fishery Resources); and **Section 3.7** (Vegetation Wildlife and Wetlands) will occur in conjunction with implementation of the proposed project. These impacts are expected to be short-term and outweighed by the overall benefits to these Tribal Trust Assets through implementation of the TRRP.

Mitigation Measures

No-Action Alternative, Proposed Action; Alternative 1

Since no significant impact was identified for these alternatives, no mitigation is required.

Significance after Mitigation: N/A

SECTION 3.11

Cultural Resources

3.11 Cultural Resources

This section describes the prehistory, ethnography, and history of the Trinity River Region and reports the results of a cultural resources records search and cultural resources report prepared by Reclamation. This information provides a general context for understanding the importance, origin, and types of cultural resources that are located within the proposed project ESL. Specific tribal trust assets are evaluated in **Section 3.10**, Tribal Trust. The Trinity River basin is the focus of this section because the proposed project is not expected to affect cultural resources in out-of-basin or coastal areas.

3.11.1 AFFECTED ENVIRONMENT/ENVIRONMENTAL SETTING

Regional Ethnography

Five periods of prehistory have been described for the region encompassing the general area that encompasses the proposed project (i.e., the northwest coastal region of California): the Paleo-Indian (10,000-6000 B.C.), Lower Archaic (6000-3000 B.C.), Middle Archaic (3000-1000 B.C.), Upper Archaic (1000 B.C.-A.D. 500), and Emergent Periods (A.D. 500-1800). These periods are characterized by their "pattern," a term that refers to a culture's technology as revealed by the type and sophistication of its tools. These tools include projectile points, which are made of stone or bone and used as weapons for hunting, warfare, or fishing, and stone metates and manos used to grind seeds, and mortars and pestles used to grind acorns.

The Chimariko, Hupa, Tsnungwe, Wintu, and Yurok Indians inhabited the Trinity Reservoir/Trinity River region (to the Klamath River confluence) at the time of Euro-American contact (refer to **Section 3.10**, Tribal Trust). The Chimariko and Wintu are thought to have inhabited the ESL.

Chimariko

The Chimariko lived in a 20-mile-long reach of the Trinity River extending from approximately Big Bar to the confluence with the South Fork. Although the Chimariko language is now extinct, early ethnographers recorded some words and the language is thought to be of Hokan stock. Sources for ethnographic information about the Chimariko are fully described in the FEIS (U.S. Fish and Wildlife Service et al. 2000). The following discussion summarizes information available in the FEIS.

The Chimariko lived in an area with abundant natural resources. The staples of their diet were salmon and acorns, but deer, elk, bear, pine nuts, seeds, berries, roots, and small mammals were also important food sources. Little is known of Chimariko social organization because their culture was destroyed at an early date. The largest social unit was the village. Each village had a headman, which was a hereditary, lifelong position passed through the male line. Status in Chimariko society was attained through wealth or a combination of wealth and birth. Only fragmentary data on Chimariko religion and myths exist.

Hupa

The Hupa inhabited the area surrounding the lower reaches of the Trinity River from an area near Salyer to within 6 miles of the confluence with the Klamath River. The Hupa relied heavily on salmon and acorns as food sources, but also used other fish, nuts, seeds, roots, deer, elk, rodents, and fowl. No insects, amphibians, or reptiles (except turtles) were eaten.

As with many native groups of northwest California, the Hupa had no formal chief or ruling council, but were ruled by individuals with prestige based on wealth. Wealth was defined in terms of the possession of nonsubsistence goods (usually imported items) gained by such means as trade, gambling, and indemnities. Like most California groups, the highest political entity was the village. The Hupa excelled in woodworking and basket making (twined basketry). They also made plank houses and sweathouses, wooden chests, bowls, seats, and other objects. Wooden platforms, weirs, or harpoons were used for fishing. The Hupa used redwood canoes that they procured in trading with the Yurok.

Wintu

At the time of Euro-American contact, most of the western side of the Sacramento Valley north of about Suisun Bay was inhabited by Wintun-speaking people. Early in the anthropological study of the region, Powers (1976) had recognized a linguistic and cultural distinction between the southern membership of this large group (i.e., the Patwin) and the people occupying the northern half of the western valley. Subsequent linguistic analyses resulted in the present division of Wintuan into a southern Patwin group, a central (Nomlaki) group, and a northern (Wintu) Wintuan stock. Clearly, however, the central and northern Wintus were very closely related and shared numerous cultural traits and attributes.

The Wintu were divided into nine subgroups distributed from Cottonwood Creek in the south, northward through Shasta County and into portions of Trinity and Siskiyou counties, and westward into portions of southern Trinity and northern Tehama counties. Within the general vicinity of the proposed project, the Wintu inhabited all areas east of approximately Junction City, including the area of what is now Trinity Reservoir. Wintu subsistence was based on three main staples: deer, acorns, and salmon. All three were abundant along the mainstem Trinity River and its primary tributaries, although acorns and deer were available only seasonally. These staples were supplemented with an immense array of less abundant resources, some seasonally available and some procurable year round.

The available ethnographic information documents a complex pattern of land use, settlement, and subsistence orientation. The salmon runs, the locations of seasonally available big game (especially deer), and the distribution of acorn-yielding oak trees required major forays from the home base because all three were concentrated in different areas. Moreover, long and arduous trips were often required to collect non-native raw materials, such as obsidian and certain other utilitarian materials that could not be obtained through trade.

Yurok

The Yurok inhabited California's northwestern coastline from Little River to Damnation Creek, although their ancestral territory included the Klamath River corridor from the estuary upstream to Slate Creek, upstream of the Trinity River. Yurok territory extended 6 miles up the Trinity River. Traditional subsistence animal species include salmon, ocean fish, sturgeon, sea lion, whale, elk, deer, and duck. Acorns, berries, bulbs, and grass seed are staple plant foods.

Yurok life is defined by extended families affiliated with villages and represented by head spokespersons. Ceremonial wealth and rights to subsistence resource areas determine familial standing within Yurok social structure. Yurok are recognized for their highly stylized art forms and their skills in making

redwood canoes, weaving fine baskets, hunting, and, especially, riverine salmon fishing. Many ancient traditions are continued through contemporary times.

History

Regional History

In 1828, Jedediah Smith and his party of explorers were apparently the first white men to visit the Trinity River basin (earlier excursions by Europeans had been made to the coast and Klamath Basin). At first, trappers used the area extensively, but by the late 1840s, gold mining was a major activity along the Trinity River. SR 299 follows the trail used by trappers and gold miners traveling from Redding to Weaverville on their way to the Trinity River gold fields. Trinity County was one of the original 27 counties created in 1850 and owes its name to Major Reading, who crossed the Trinity Mountains in 1849 and was the man who discovered gold in the county in 1848. Weaverville became a center of gold mining activity after 1849, but numerous mining camps and settlements were established all along the river. Many of the earliest miners were German immigrants, but Chinese immigrants moved into the area in large numbers beginning in 1853. Much of the Trinity River continued to be used for mining throughout the first half of the 20th century. Large-scale dragline and bucket dredging operations occurred along many stretches of the Trinity River and a number of its tributaries beginning in 1936 and, along with other mining activities, continued into the 1960s. Logging has occurred throughout the historic period.

Local History

Junction City has been subjected to many changes since the discovery of gold in the 1850s. Most of these changes focus on the Trinity River corridor and the use of the corridor as a transportation route. Through the Emergent Period, the Trinity River served as a principal access route for trade and travel between the Sacramento Valley and the Klamath River. With the advent of the gold rush, and until the 1930s, the river corridor provided access between Douglas City and Junction City (gateway to the mines of Canyon Creek and Helena). A ferry operated by John Hocker at the mouth of Canyon Creek served travelers for many years. The Hocker Ranch had a trading post and facilities for overnight guests. In a few short years, the advent of the automobile and the construction of SR 299 changed the character of Junction City as much as the catastrophic fires and floods that occurred during the first 75 years of the community.

In the 1940s, the dredging operation of the Madrona Dredging Company used bucket-line dredges to mine the alluvial features from Hocker Flat to Chapman's Ranch along the Trinity River. **Figure 3.3-5** illustrates the extent of this activity and the changes to the landscapes associated with Hocker Flat. World War II curtailed this type of mining activity, and large-scale mining operations were shut down permanently. Although numerous small placer mines still operate on an intermittent basis in the vicinity of Junction City, the only mineral activity within the ESL of the proposed project is a sand and gravel mine. This mine processes the byproducts of the bucket-line dredge.

Present Environment

Regional Setting

The Trinity River flows in a northwesterly direction through the ESL established for the proposed project, and elevations range between 1,650 and 1,750 feet msl. Dominant vegetation communities within the region include Klamath mixed conifer, montane hardwood-conifer, montane riparian, and riverine (Mayer and Laudenslayer 1988). Land use within the Trinity River basin varies greatly due to the differences in population, economy, and environment. Land use is greatly influenced by the large amount of public and Indian lands, much of which is used for timber production and other natural resource related uses. Private uses are generally limited to scattered residential development.

Local Setting

The area known as Hocker Flat is bisected by the Trinity River, immediately downstream of Junction City California. Most of the proposed project ESL is located on the left side of the river. The right-of-way for SR 299 is adjacent to the right side of the proposed project, and Red Hill Road serves as the ESL boundary on the left side of the river. Three plant community types occur within the ESL established for the proposed project: montane hardwood-conifer, montane riparian, and annual grassland habitats (Mayer and Laudenslayer 1988). Within the Area of Potential Effect (APE), riparian berms and populations of exotic and invasive plant species are the result of disturbance and historical land use patterns. Rural residential development that occurs north and west of the APE is almost completely obscured by natural vegetation (hardwood and conifer).

Area of Potential Effect

A Programmatic Agreement (PA) was developed in consultation with the California State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (ACHP) regarding implementation of the Trinity River Mainstem Fishery Restoration (U.S. Fish and Wildlife Service et al. 2002b), included as **Appendix K**. The APE is delineated in the PA for compliance with the National Historic Preservation Act (NHPA). By design, the programmatic APE is general in nature and encompasses a larger area than the ESL. The project APE encompasses the limits of the proposed project, including the area needed for access and staging of equipment.

Archaeological and Historical Information Sources

A records search for the APE was conducted according to the PA. No previously recorded cultural resources were identified within the APE for the proposed project. No sites of cultural or religious significance were recorded in the California Native American Heritage Commission's Sacred Lands File (Letter of May 24, 2004).

Field Inventory and Evaluation

Cultural Resources & Historical Properties

An on-the-ground inventory within the APE for the proposed project was conducted by Reclamation archaeologists for cultural resources on May 26-28, 2004. No cultural resources or historic properties were located within the APE. The entire APE has been dredged and later disturbed by floods and gravel

mining. None of the dredger piles are considered historically significant since they are relatively recent and do not retain their integrity.

Native American Consultation

No Native American cultural resources were identified within the APE for the proposed project. Consistent with the PA, consultation occurred with those tribes of the Klamath/Trinity Region that are officially recognized by the United States (Pevar 1992), consistent with DOI policy. These tribes include the Hoopa Valley, Karuk, Klamath, and Yurok. Local unrecognized tribes include the Nor-Rel-Muk Nation (Wintu, eastern Trinity County), the Tsnungwe Tribe (western Trinity County) and individuals identified by the California State Native American Heritage Commission .

3.11.2 REGULATORY SETTING

Federal

Section 106 of the National Historic Preservation Act

Section 106 of the NHPA requires federal agencies to evaluate the effects of federal undertakings on historical, archaeological, and cultural resources. Agencies are required, within the vicinity of proposed projects, to identify historical or archeological properties, including properties on the NHPA, and those that the agency and the SHPO agree are eligible for listing in the National Register of Historic Places (NRHP). If the federal project is determined to have an adverse effect on National Register properties or those eligible for listing in the National Register, the agency is required to consult with the SHPO and the ACHP to develop alternatives or mitigation measures to allow the project to proceed.

State

Office of Historic Preservation; California Environmental Quality Act

California Register of Historical Resources

Under CEQA, public agencies must consider the effects of their actions on both "historical resources" and "unique archaeological resources." Pursuant to *California Public Resources Code* Section 21084.1, a "project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." Section 21083.2 requires agencies to determine whether proposed projects would have effects on "unique archaeological resources."

"Historical resource" is a term of art with a defined statutory meaning. (See *Cal. Pub. Resources Code*, Section 21084.1; *CEQA Guidelines* Section 15064.5, subds. (a), (b).) The term embraces any resource listed in or determined to be eligible for listing in the California Register of Historical Resources (CRHR). The CRHR includes resources listed in or formally determined eligible for listing in the National Register of Historic Places (NRHP), as well as some California State Landmarks and Points of Historical Interest.

Properties of local significance that have been designated under a local preservation ordinance (local landmarks or landmark districts) or that have been identified in a local historical resources inventory may be eligible for listing in the CRHR and are presumed to be "historical resources" for purposes of CEQA,

unless a preponderance of evidence indicates otherwise (*Pub. Resources Code*, Section 5024.1; *Cal. Code Regs*., tit. 14, Section 4850). Unless a resource listed in a survey has been demolished or lost substantial integrity, or there is a preponderance of evidence indicating that it is otherwise not eligible for listing, a lead agency should consider the resource to be potentially eligible for the CRHR.

In addition to assessing whether historical resources potentially affected by a proposed project are listed or have been identified in a survey process, lead agencies have a responsibility to evaluate them against the CRHR criteria prior to making a finding as to a proposed project's impacts to historical resources (*Pub. Resources Code*, Section 21084.1; *CEQA Guidelines*, Section 15064.5, subd. (a)(3)). In general, an historical resource, under this approach, is defined as any object, building, structure, site, area, place, record, or manuscript that

(a) is historically or archeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political or cultural annals of California; and

(b) meets any of the following criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

2. Is associated with the lives of persons important in our past;

3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

4. Has yielded, or may be likely to yield, information important in prehistory or history. (*CEQA Guidelines*, Section 15064.5, subd. (a)(3))

Additionally, *California Public Resources Code* 5024 requires consultation with the Office of Historic Preservation (OHP) when a project may affect historical resources located on state-owned land.

As noted above, CEQA also requires lead agencies to consider whether projects will affect "unique archaeological resources." *Public Resources Code* Section 21083.2, subdivision (g), states that "'unique archaeological resource' means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

2 Has a special and particular quality such as being the oldest of its type or the best available example of its type.

3. Is directly associated with a scientifically recognized important prehistoric or historic event or person."
(*Public. Resources Code*, Section 21083.2, subd. [g])

Local

Trinity County General Plan Goals and Objectives

The Trinity County General Plan contains goals and policies designed to guide the future physical development of the county, based on current conditions (Trinity County 2001). The General Plan contains all the state-required elements, including community development and design, transportation, natural resources, health and safety, noise, housing, recreation, economic development, public facilities and services, and air quality. The following goals and policies, relative to cultural resource issues associated with the proposed project, were taken from the applicable elements of the General Plan (Trinity County 2001), including the Junction City Community Plan (Trinity County 1987).

Junction City Community Plan Goals and Objectives

This plan includes the area centered on the Trinity River from Maxwell Creek to slightly downstream of Helena.

Community Design

Goal: To encourage the preservation of historical structures within the Plan Area.

- Extend the review and protection of Historic resources beyond structures to other physical features as well.

Project Consistency with the Trinity County General Plan and Community Plans

This section compares the goals and objectives of the Proposed Action to the relevant local planning policies (i.e., Trinity County General Plan, Junction City Community Plan) to determine if there are any inconsistencies.

As described in **Chapter 1**, Introduction, the proposed project would:

- increase the diversity and area of habitat for salmonids, particularly habitat suitable for rearing;
- increase rearing habitat for juvenile salmonids, including coho, chinook and steelhead;
- increase structural and biological complexity of habitat for various species of wildlife associated with riparian habitats;
- increase hydraulic and fluvial geomorphic diversity and complexity;
- provide a pilot project to evaluate the fate and transport of mercury related to rehabilitation/restoration projects;

- measure/demonstrate the ecological response to changes in flow regimes, morphological features, and aquatic, riparian, and upland habitats; and
- provide a self-maintaining project independent of any future TRD flows.

The following project objectives apply to the proposed project's lead/responsible agencies for CEQA purposes:

- Evaluate changes in channel geometry in response to constructing channel and floodplain features designed for the river's current hydrologic regime
- Evaluate the evolution of channel planform features in response to designing and implementing the project at a river segment (1-mile) scale
- Evaluate the biological response (aquatic, riparian, upland) to changes in the physical environment, and incorporate this information into the AEAM Program
- Conduct a preliminary assessment of the fate and transport of mercury in response to restoration activities in a historic mining district
- Locate the project downstream of Canyon Creek to ensure that natural tributary accretion to mainstem flows has a higher likelihood of maintaining the site prior to implementation of the ROD-recommended flow regime
- Provide safe and reasonable access to the site for project planning, implementation, and monitoring
- Develop partnerships with willing participants, and encourage positive landowner interest and involvement
- Design the project to function with the river's current hydrology estimated at the site
- Integrate known fluvial and ecological theories and relationships with the site's measured physical and biological attributes and evaluate response over a definitive time frame
- Minimize in-stream work to reduce construction-related impacts, maximize the river's ability to rehabilitate itself during high flows, and reduce implementation cost and complexity
- Attempt to preserve unique and valuable geomorphic and biological features wherever practicable (i.e., hydraulic controls, high-quality spawning or adult holding habitat)

The following objectives apply to the responsible and trustee agencies for the proposed project, including the HVT, NCRWQCB, SLC, CDFG, and SWRCB:

- compliance with the California Water Code to ensure the highest reasonable quality of waters of the state and allocate those waters to achieve the optimum balance of beneficial uses.
- protection of the public trust assets of the Trinity River watershed.
- conservation, restoration, and management of fish, wildlife, and native plant resources; and
- compliance with the Water Quality Control Plan for the Hoopa Valley Indian Reservation to preserve and enhance water quality on the Reservation, and to protect the beneficial uses of water.

The proposed project objectives are consistent with the applicable general plan goals and policies summarized above.

3.11.3 Environmental Consequences/Impacts and Mitigation Measures

Methodology

An APE for the cultural resource inventory and evaluation was established by Reclamation as defined in the PA. A field survey of the APE to determine if any unknown cultural resources are present within the ESL for the proposed project was performed by Reclamation archeologists on May, 26-28, 2004. The inventory was to identify and subsequently evaluate any cultural resources eligible for listing as a historic property by the NRHP.

Significance Criteria/Determination of Effect

Activities proposed to occur within the ESL of the proposed project were evaluated to determine how cultural resources within the Trinity River basin might be affected. Impacts on cultural resources are considered significant if implementation of the proposed project would potentially disturb unique cultural resources or properties on or eligible for the NRHP.

"For historical resources, the lead agencies have reviewed both the federal NHPA and CEQA in order to determine thresholds of significance. As noted above, CEQA provides that a project may cause a significant environmental effect if the project "may cause a *substantial adverse change in the significance of an historical resource*" (*Pub. Resources Code*, Section 21084.1 (emphasis added)). *CEQA Guidelines* Section 15064.5 defines a "substantial adverse change in the significance of an historical resource to mean "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be *materially impaired*" (*CEQA Guidelines*, Section 15064.5, subd. (b)(1) (emphasis added)).

CEQA Guidelines, Section 15064.5, subdivision (b)(2), defines "materially impaired" for purposes of the definition of "substantial adverse change . . ." as follows:

> "The significance of an historical resource is materially impaired when a project:
>
> (A) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the CRHR; or
> (B) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the *Public Resources Code* or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the *Public Resources Code*, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
> (C) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and

> that justify its eligibility for inclusion in the CRHR as determined by a lead agency for purposes of CEQA."
> (*CEQA Guidelines*, Section 15064.5, subd. (b)(2))

With these definitions in mind, the lead agencies consider impacts on historical resources eligible for the NRHP or CRHR to be significant if the proposed project would alter their eligibility for the NRHP or CRHR by

- physically destroying or materially altering the characteristics of the historical resource that convey its historical significance and justify its eligibility for listing in the NRHP or CRHR;
- introducing visual, audible, or atmospheric elements out of character with the historical resource and its setting in such a way as to demolish or materially alter the characteristics that convey its historical significance and justify its eligibility for listing in the NRHP or CRHR;
- causing the historical resource to be subject to neglect to such a degree that the characteristics that convey its historical significance and justify its eligibility for listing in the NRHP or CRHR will be materially impaired; or
- resulting in the historical resource being transferred, leased, or sold, with the probability that the characteristics that convey its historical significance and justify its eligibility for listing in the NRHP or CRHR will be materially impaired.

In addition, based on *CEQA Guidelines* Section 15064.5 and Appendix G of the *CEQA Guidelines*, the proposed project would have significant effects if it would

- cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5;
- cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5;
- directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or
- disturb any human remains, including those interred outside of formal cemeteries.

Impacts and Mitigation Measures

Table 3.11-1 summarizes the potential cultural resource impacts resulting from construction and operation of the proposed project.

TABLE 3.11-1
SUMMARY OF CULTURAL RESOURCE IMPACTS FROM THE PROPOSED PROJECT
HOCKER FLAT

Impact	No-Action Alternative	Proposed Action	Alternative 1	Proposed Action with Mitigation	Alternative 1 with Mitigation
1. Implementation of the proposed project could potentially result in disturbance of undiscovered prehistoric or historic resources.	NI	S	S	LS	LS

Notes:

LS = Less than Significant S = Significant NI = No Impact

Impact 3.11-1: Implementation of the proposed project could potentially result in disturbance of undiscovered prehistoric or historic resources. ***No Impact for No-Action Alternative; Significant Impact for Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, there would be no disturbance to potentially significant cultural resources because the proposed project would not occur.

Proposed Action

The records search conducted for the proposed project indicates the presence of historic and prehistoric cultural resource sites along the Trinity River. No cultural resources, other than dredger tailings, were identified within the APE of the proposed project; any unrecorded cultural resources are assumed to have been previously inundated, destroyed, or substantially damaged. Prehistoric resources have not been observed or recorded within the APE. Although unlikely considering the level of disturbance, buried archaeological resources that have not been previously recorded may, however, be uncovered during construction. Due to the proximity to the Trinity River, unrecorded prehistoric cultural resources associated with habitation by Native Americans may be present. Ground-disturbing activities associated with construction could disrupt or adversely affect unknown subsurface archaeological resources. This would be an unlikely but significant impact.

Alternative 1

Similar to the Proposed Action, construction activities associated with Alternative 1 could result in uncovering of previously unrecorded archaeological resources. Ground-disturbing activities associated with construction could disrupt or adversely affect unknown subsurface archaeological resources. This would be an unlikely but significant impact.

Mitigation Measures

No-Action Alternative

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A.

Proposed Action; Alternative 1

1a: Prior to initiation of construction or ground-disturbing activities, all construction workers shall be alerted to the possibility of buried cultural remains. This would include prehistoric and/or historic resources. Personnel shall be instructed that upon discovery of buried cultural materials, work within 50 feet of the find shall be halted and Reclamation's designated archaeologist consulted. Once the find has been identified, then Reclamation will make the necessary plans for treatment of the finds(s) and for the evaluation and mitigation of impacts if the find(s) are found to be significant as defined in the PA.

1b: If buried human remains are encountered on non-federal lands during construction, work in that area must be halted, and the Trinity County Coroner's Office ([530] 623-4154) shall be immediately contacted. If the remains are determined to be of Native American origin, then the Native American Heritage Commission (NAHC) will be notified within 24 hours of determination, as required by *Public Resources Code* 5097. The NAHC will notify designated Most Likely Descendants, which will provide recommendations for the treatment of the remains within 24 hours. The NAHC will mediate any disputes regarding treatment of remains.

For the discovery of Native American human remains and associated items on Federal lands, the Native American Graves Protection Act (25 U.S.C. 3001) and its implementing regulations (43 CFR Part 10) will be followed.

If the find is determined to be a historical resource or a unique archaeological resource, as defined by CEQA, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or other appropriate mitigation shall be made available. Work may continue on other parts of the proposed project while historical or unique archaeological resource mitigation takes place.

Significance after Mitigation: Less than Significant.

SECTION 3.12

Air Quality

3.12 Air Quality

This section evaluates the air quality effects associated with construction and operation of the proposed project. Construction air emissions are measured against standards provided by the North Coast Unified Air Quality Management District (NCUAQMD).

3.12.1 AFFECTED ENVIRONMENT/ENVIRONMENTAL SETTING

Regional Setting

Climate and Topography

According to the *Soil Survey of Trinity County, California, Weaverville Area* (U.S. Department of Agriculture 1998), Trinity County has a climate characterized by hot, dry summers and moderate winters. Average summer high temperatures range from 89 ºF to 96 ºF while winter lows range from 26 ºF to 32 ºF with average snowfalls ranging from 5 inches to 41 inches. These readings are from the five weather stations located throughout the county. In the higher wilderness areas, which reach elevations of more than 9,000 feet, the temperatures are much lower and the snowfall is much greater (Center for Economic Development 2001). The average annual precipitation for Trinity County ranges from 30 inches in the lower elevations to 70 inches in the higher elevations. Most precipitation results from major storms from the Pacific Ocean; however, a few short thunderstorms during summer occur during most years. **Table 3.12-1** provides a summary of key historic weather parameters for the weather station at Lewiston (TRSSH), a point approximately 20 miles upstream of Hocker Flat.

TABLE 3.12-1
CLIMATOLOGICAL DATA FOR TRINITY COUNTY

Weather Parameter	Measurement
Average Annual Temperature	54.6 ºF
Average High Temperature in January	48.0 ºF
Average Low Temperature in January	31.8 ºF
Average High Temperature in July	91.8 ºF
Average Low Temperature in July	52.1 ºF
Highest Recorded Temperature	113 ºF
Lowest Recorded Temperature	4 ºF
Average Annual Precipitation	32.6 inches
Average Days of Precipitation Per Year	90
Mean Annual Snowfall	4.54 inches
Highest Recorded Snowfall	20 inches

Source: Western Regional Climate Center (2002)

Within Trinity County, the local airflow is strongly controlled by the deeply dissected mountains. The higher mountain ridges receive precipitation as snow and hold most of it until late spring. The lower elevations receive precipitation mostly as rain, with occasional snow during most winters. Dense morning fog typically occurs in the Trinity River basin during the winter, and occasionally throughout the

rest of the year. Junction City is recognized as a "banana belt" by local residents, due to milder winters than Weaverville and Lewiston. Generally speaking, the Junction City community experiences temperature inversions[1], primarily from late fall through early spring, when the daylight hours are shorter and the strength of the sun is weaker. These inversions, which take place at night when the air layer near the ground surface is cooler, can prevent the dispersion of pollutants in the atmosphere.

Air Quality Management

Air quality along the Trinity River corridor is influenced by a number of factors, including stationary sources such as residential wood heating, non-stationary sources such as motor vehicle exhaust, forest management (prescribed fire), and the meteorology of a given area. The NCUAQMD has defined the following general source categories for air pollution:

- Industrial: Sawmills, power plants, gravel plants, other heavy industry
- Commercial: Gas stations, body shops, restaurants, dry cleaners, etc.
- Residential: Home heating, backyard burning, paint and solvent use, etc.
- Mobile: Cars, planes, trains, and other transportation sources
- Agricultural: Forest management burning, field burning, herbicide use, etc. (NCUAQMD 1998a)

Federal Requirements

The 1977 federal Clean Air Act (CAA) required the EPA to identify National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. NAAQS have been established for the following "criteria"[2] air pollutants: ozone (O_3); carbon monoxide (CO); nitrogen dioxide (NO_2); sulfur dioxide (SO_2); suspended particulate matter (PM_{10} and $PM_{2.5}$); and lead (Pb).

Table 3.12-2 summarizes federal and state ambient standards for the criteria pollutants.

TABLE 3.12-2
FEDERAL AND STATE CRITERIA POLLUTANT AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	Federal Standard	State Standard
Ozone	1-Hour 8-Hour	0.12 ppm 0.08 ppm	0.09 ppm ------
Carbon Monoxide	1-Hour 8-Hour	35 ppm 9 ppm	20 ppm 9 ppm
Nitrogen Dioxide	1-Hour Annual	-- 0.053 ppm	0.25 ppm --
Sulfur Dioxide	1-Hour 24-Hour Annual	-- 0.14 ppm 0.03 ppm	0.25 ppm 0.04 ppm --
Fine Particulate Matter ($PM_{2.5}$)	24-Hour Annual Arithmetic Mean	65 $\mu g/m^3$ 15 $\mu g/m^3$	-- --
Respirable Particulate Matter (PM_{10})	24-Hour Annual Arithmetic Mean Annual Geometric Mean	150 $\mu g/m^3$ 50 $\mu g/m^3$ --	50 $\mu g/m^3$ -- 30 $\mu g/m^3$

[1] Inversions occur when warm air overlies cooler air under normal atmospheric conditions.
[2] Termed "criteria" pollutants because EPA publishes criteria documents to justify the choice of standards.

TABLE 3.12-2
FEDERAL AND STATE CRITERIA POLLUTANT AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	Federal Standard	State Standard
Lead	30-day Average	--	1.5 µg/m^3
	Calendar Quarter	1.5 µg/m^3	--

Source: EPA; CARB Notes: ppm = parts per million; µg/m3 = micrograms per cubic meter

Pursuant to the 1990 CAA amendments, the EPA has classified air basins (or portions thereof) as either "attainment" or "non-attainment" for each criteria air pollutant, based on whether or not the NAAQS have been achieved. The Trinity River basin lies within the North Coast Air Basin (NCAB), which is under the jurisdiction of the NCUAQMD (**Figure 3.12-1**). The air quality of the Trinity River basin meets the NAAQS for all criteria pollutants.

State Requirements

The California Air Resources Control Board (CARB), California's state air quality management agency, regulates mobile source emissions and oversees the activities of County Air Pollution Control Districts and regional Air Quality Management Districts. The CARB regulates local air quality indirectly by establishing state ambient air quality standards and vehicle emission standards. California has adopted ambient standards that are more stringent than the federal standards for the criteria air pollutants. These standards are referred to as the California Ambient Air Quality Standards (CAAQS) (**Table 3.12-2**). Under the California Clean Air Act (CCAA), patterned after the federal CAA, areas have been designated as attainment or non-attainment with respect to the state ambient air quality standards. The Weaverville basin is designated non-attainment by the state with respect to particulate matter less than 10 microns in aerodynamic diameter (PM_{10}) in the Weaverville area during winter months, primarily from residential wood heating. Other sources of PM_{10} in the Weaverville basin include motor vehicle exhaust, forest management/waste burning, and fugitive road dust. The proposed project is located west of the Weaverville basin, on the opposite side of Oregon Mountain.

Local Requirements

The NCUAQMD has established air quality emission thresholds for stationary sources, which can be used to assess impacts to air quality within Trinity County. Air quality emission significance thresholds (the potential of a new or modified stationary source to emit air contaminants that would equal or exceed any of the following rates in tons per year) for stationary sources are presented in **Table 3.12-3**.

As part of its overall strategy to meet the state's health-based standard for PM_{10}, the NCUAQMD adopted a *PM_{10} Attainment Plan* (North Coast Unified Air Quality Management District 1995). Included within the plan are measures to reduce PM_{10} emissions from mobile sources, as well as from wood stoves and other combustion sources.

F:Projects\10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River/Hocker Flat Project\Graphics\Chapter 3\Fig_3.12-1_Air_Quality.pdf Source: California Air Resources Board 07-02-04 TLA

Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

North State Resources, Inc.

Figure 3.12-1
California Air Quality Basins

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TABLE 3.12-3
AIR QUALITY EMISSION SIGNIFICANCE THRESHOLDS: NORTH COAST UNIFIED AIR QUALITY MANAGEMENT DISTRICT

Air Contaminant	Significant Emission Rate (tons per year)
Carbon monoxide	100
Nitrogen oxides	40
Sulfur dioxide	40
Particulate matter	25
PM_{10}	16
Ozone	49 (as volatile organic compounds [VOC])
Lead	0.6
Asbestos	0.007
Beryllium	0.0004
Mercury	0.1
Vinyl chloride	1
Fluorides	3
Sulfuric acid mist	3
Hydrogen sulfide (H_2S)	7
Total reduced sulfur (including H_2S)	10
Reduced sulfur compounds (including H_2S)	10

Source: NCUAQMD 1988b.

The program funds reductions in nitrogen oxide (NO_x) emissions and PM_{10} and toxic compounds contained in diesel exhaust.

North Coast Unified Air Quality Management District

California is divided into Air Pollution Control Districts and Air Quality Management Districts. These agencies are county or regional governing authorities that have primary responsibility for controlling air pollution from stationary sources. The NCUAQMD establishes policies, regulations, and permit procedures and monitors air quality parameters within Humboldt, Del Norte, and Trinity Counties. The following district air quality control rules applicable to the proposed project were taken from *Regulation 1: Air Quality Control Rules* (North Coast Unified Air Quality Management District 1998b).

Rule 420 - Particulate Matter

(a) General Combustion Sources

A person shall not discharge particulate matter into the atmosphere from any combustion source in excess of 0.46 grams per standard cubic meter (0.20 grains per standard cubic foot) of exhaust gas, calculated to 12 percent carbon dioxide (CO_2); or in excess of the limitations of New Source Performance Standards Rule 490, as applicable.

Rule 430 - Fugitive Dust Emissions

(a) The handling, transporting, or open storage of materials in such a manner which allows or may allow unnecessary amounts of particulate matter to become airborne, shall not be permitted.

(b) Reasonable precautions shall be taken to prevent particulate matter from becoming airborne, including, but not limited to, the following provisions:

(1) Covering open bodied trucks when used for transporting materials likely to give rise to airborne dust.

(2) Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials. Containment methods can be employed during sandblasting and other similar operations.

(3) Conduct agricultural practices in such a manner as to minimize the creation of airborne dust.

(4) The use of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads or the clearing of land.

(5) The application of asphalt, oil, water or suitable chemicals on dirt roads, materials stockpiles, and other surfaces which can give rise to airborne dusts.

(6) The paving of roadways and their maintenance in a clean condition.

(7) The prompt removal of earth or other material from paved streets onto which earth or other material has been transported by trucking or earth moving equipment, erosion by water, or other means.

Trinity County General Plan Goals and Objectives

The Trinity County General Plan contains goals and policies designed to guide the future physical development of the county, based on current conditions. The General Plan contains all the state-required elements, including community development and design, transportation, natural resources, health and safety, noise, housing, recreation, economic development, public facilities and services, and air quality. The following goals and policies, relative to air quality issues associated with the proposed project were taken from the applicable elements of the General Plan (Trinity County 2001), including the Junction City Community Plan (Trinity County 1987).

County-Wide Goals and Objectives

Safety Element

The following goals and objectives and policies are applicable to this proposed project.

Air Quality Goal

(a) Continue to maintain a high standard of air quality in Trinity County

(b) Ensure burning projects will not diminish air quality

- The burning of any material shall comply with burning permits, conditions and/or standards established by the NCUAQMD.

The General Plan does not identify specific goals, objectives, or policies specific to air quality associated with vehicular emissions and rehabilitation projects.

Project Consistency with the Trinity County General Plan and Community Plans

This section compares the goals and objectives of the Proposed Action to the relevant local planning policies (i.e., Trinity County General Plan, Junction City Community Plan) to determine if there are any inconsistencies.

As described in **Chapter 1**, Introduction, the proposed project would:

- increase the diversity and area of habitat for salmonids, particularly habitat suitable for rearing;
- increase rearing habitat for juvenile salmonids, including coho, Chinook and steelhead;
- increase structural and biological complexity of habitat for various species of wildlife associated with riparian habitats;
- increase hydraulic and fluvial geomorphic diversity and complexity;
- provide a pilot project to evaluate the fate and transport of mercury related to rehabilitation/restoration projects;
- measure/demonstrate the ecological response to changes in flow regimes, morphological features and aquatic, riparian, and upland habitats; and
- provide a self-maintaining project independent of any future TRD flows.

The following project objectives apply to the proposed project's lead/responsible agencies for the CEQA purposes:

- Evaluate changes in channel geometry in response to constructing channel and floodplain features designed for the river's current hydrologic regime
- Evaluate the evolution of channel planform features in response to designing and implementing the project at a river segment (1-mile) scale
- Evaluate the biological response (aquatic, riparian, upland) to changes in the physical environment, and incorporate this information into the AEAM Program

- Conduct a preliminary assessment of the fate and transport of mercury in response to restoration activities in a historic mining district
- Locate the project downstream of Canyon Creek to ensure that natural tributary accretion to mainstem flows has a higher likelihood of maintaining the site prior to implementation of the ROD-recommended flow regime
- Provide safe and reasonable access to the site for project planning, implementation, and monitoring
- Develop partnerships with willing participants and encourage positive landowner interest and involvement
- Design the project to function with the river's current hydrology estimated at the site
- Integrate known fluvial and ecological theories and relationships with the site's measured physical and biological attributes and evaluate response over a definitive time frame
- Minimize in-stream work to reduce construction-related impacts, maximize the river's ability to rehabilitate itself during high flows, and reduce implementation cost and complexity
- Attempt to preserve unique and valuable geomorphic and biological features wherever practicable (i.e., hydraulic controls, high-quality spawning or adult holding habitat)

The following objectives apply to the responsible and trustee agencies for the proposed project, including the SWRCB, the NCRWQCB, the SLC, the CDFG, and the HVT:

- Compliance with the California Water Code to ensure the highest reasonable quality of waters of the state and allocate those waters to achieve the optimum balance of beneficial uses
- Protection of the public trust assets of the Trinity River watershed
- Conservation, restoration, and management of fish, wildlife, and native plant resources
- Compliance with the Water Quality Control Plan for the Hoopa Valley Indian Reservation to preserve and enhance water quality on the Reservation, and to protect the beneficial uses of water

These project objectives are consistent with the applicable general plan goals and policies summarized above.

Existing Air Quality Conditions

The CARB publishes summaries of air quality monitoring data from locations throughout the state. In addition, the CARB maintains air quality monitoring sites for PM_{10} in Weaverville. The CARB regional air quality monitoring network provides information on ambient concentrations of criteria air pollutants. Monitored ambient air pollutant concentrations reflect the number and strength of emissions sources and the influence of topographical and meteorological factors. The nearest monitoring station to the proposed project is located at the Trinity County Courthouse, 101 Court Street in Weaverville (Weaverville basin), which is approximately 8 miles southeast of the Hocker Flat (outside of Weaverville basin). Pollutant concentrations measured at this station may not be generally representative of background air pollutant

concentrations in the general vicinity of the proposed project because of the influence the Trinity River corridor exerts on local air quality in association with local weather conditions.

Particulate Matter

Suspended or respirable particulate matter (airborne dust) consists of particles small enough to remain suspended in the air for long periods of time. PM_{10} consists of particulate matter 10 microns[3] or less in diameter, which can be inhaled and cause adverse health effects. Particulate matter in the atmosphere results from a variety of dust- and fume-producing industrial and agricultural operations, combustion, and atmospheric photochemical reactions. Some of these operations, such as construction activities (i.e., excavation and disposal of alluvial materials) primarily contribute to increases in local PM_{10} concentrations while others, such as vehicle traffic, affect regional PM_{10} concentrations.

EPA has also promulgated new standards for particulate matter less than 2.5 microns in diameter, or $PM_{2.5}$. PM_{10} includes all particles that are 10 microns or less in diameter; therefore, $PM_{2.5}$ would be considered a subset of PM_{10}. Typically, 30 to 80 percent of all PM_{10} is in the $PM_{2.5}$ range.

Table 3.12-4 shows that over a 7-year period, PM_{10} concentrations exceeded federal or state standards in most years within the Weaverville basin. In 1999, it was calculated that PM_{10} concentrations (24-hour average) exceeded the state standards for 30 days. This increase in PM_{10} levels was attributed to an unusually high number of wildland fires in the vicinity of the Weaverville basin during the late summer months.

TABLE 3.12-4
PM_{10} MONITORING DATA FOR WEAVERVILLE (1995-2001)

				Days Exceeded Ambient Standards	
Criteria	**Year**	**Highest Concentration ($\mu g/m^3$)**	**2nd Highest Concentration ($\mu g/m^3$)**	**Federal Standard**	**State Standard Measured (Calculated)**
24-Hour Average	1995	41.0	37.0	0	0
	1996	72.0	63.0	0	2 (8)
	1997	54.0	42.0	0	1 (6)
	1998	46.2	39.0	0	0
	1999	99.6	78.4	0	6 (30)
	2000	50.8	48.0	0	1 (3)
	2001	72.6	59.0	0	3 (18)

Source: CARB 2002 <www.arb.ca.gov/adam>

[3] A micron is one one-millionth of a meter.

3.12.2 ENVIRONMENTAL CONSEQUENCES/IMPACTS AND MITIGATION

Methodology

Construction associated with the proposed project would require the use of equipment that would temporarily contribute to air pollution within the Trinity River basin, in the form of ozone precursors and particulate matter. Construction excavation and grading are sources of fugitive dust emissions (PM_{10}) that can have a temporary impact on local air quality. Dust emissions would primarily be associated with removal of vegetation, excavation and disposal of earthen materials, and equipment travel on unpaved road surfaces. Exhaust emissions given off by heavy equipment during construction may contribute to ozone non-attainment levels.

To evaluate the impacts to air quality, this EA/DEIR assumes an 8-hour workday, with a 5 or 6 day work week. The proposed project will be implemented under the schedule outlined in **Chapter 2**. The construction activities associated with the project (Activities A; vegetation removal, B berm removal; C floodplain construction; D material transport; and E, material stockpiling and disposal) are scheduled to be performed between April and October, 2005). The estimated construction time for the proposed project is 140 days.

The air quality analysis is qualitative, and was conducted by assessing anticipated construction-related impacts of the proposed project and comparing them to existing and anticipated future air quality conditions. Due to the nature of the proposed project, information on traffic was limited (see **Section 3.18**, Traffic and Circulation) and specific information on localized construction activities was not available. The results are compared to local and national ambient air quality emissions and concentrations standards to determine the level of impact.

Significance Criteria

According to Appendix G of the *CEQA Guidelines*, a project will normally have an adverse impact if it would

- violate any ambient air quality standard;
- contribute substantially to an existing or projected air quality violation;
- conflict with or obstruct implementation of any applicable air quality plan;
- result in a cumulatively considerable net increase of any criteria pollutant (e.g., PM_{10}) for which the region is in nonattainment under an applicable state ambient air quality standard;
- expose sensitive receptors to substantial pollutant concentrations;
- result in substantial air emissions or deterioration of air quality;
- create objectionable odors;
- alter air movement, moisture, or temperature, or result in any change in climate, either locally or regionally; or

- produce toxic air contaminant emissions that exceed the air pollution control district's threshold level for health risk.

Since the first two criteria include violation of either federal or state air quality standards, these criteria will also be used to determine significance for NEPA compliance.

The NCUAQMD has not formally adopted a CEQA threshold of significance for compounds such as CO, NO_x, PM_{10}, and SO_2, but does use the significant emission rates listed in **Table 3.12-3** as a baseline when evaluating a project's potential impacts to air quality (B. Torzynski, pers. comm., 2004).

Impacts and Mitigation Measures

Table 3.12-5 summarizes the potential air quality impacts resulting from implementation of the proposed project.

TABLE 3.12-5
SUMMARY OF AIR QUALITY IMPACTS
HOCKER FLAT

Impact	No-Action Alternative	Propose d Action	Alternative 1	Proposed Action with Mitigation	Alternative 1 with Mitigation
1. Construction activities associated with the proposed project could result in an increase in fugitive dust and associated particulate matter (PM_{10}; $PM_{2.5}$) levels.	NI	S	S	LS	LS
2. Construction activities associated with the proposed project could result in an increase in construction vehicle exhaust emissions.	NI	S	S	LS	LS

Notes:
LS = Less than Significant S = Significant NI = No Impact

The potential for air quality impacts from implementation of the proposed project is discussed below.

Impact 3.12-1: Construction activities associated with the proposed project could result in an increase in fugitive dust and associated particulate matter (PM_{10}; $PM_{2.5}$) levels. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, the proposed project would not be constructed. There would be no construction-related increase in fugitive dust and associated particulate matter levels.

Proposed Action

As discussed previously, the proposed project is located within the NCAB. Construction-related dust emissions would occur during activities A, B, C, D and E. Short-term impacts associated with the generation of fugitive dust during construction would be considered significant at a local level due to these emissions. To the extent possible, revegetation would be coordinated with construction so that the amount of bare ground is limited. Revegetation would not commence until plants are dormant and fall wet conditions have returned.

Alternative 1

Generation of fugitive dust and associated particulate matter levels associated with construction of Alternative 1 would be slightly less than under the Proposed Action due to the reduction in the amount of earthwork. Under this alternative, Activities A, B, D, and E would occur, as described in **Chapter 2.** Short-term impacts associated with the generation of fugitive dust during construction would be considered significant due to these emissions. To the extent possible, revegetation will be coordinated with construction so that the amount of bare ground is limited. Revegetation would not commence until plants are dormant and fall wet conditions have returned.

Mitigation Measures

No-Action Alternative

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A.

Proposed Action; Alternative 1

1a: Reclamation shall include provisions in the construction bid documents specifying that the contractor shall implement a dust control program to limit fugitive dust and PM_{10} emissions. The dust control program may include, but not be limited, to the following elements, as appropriate:

- Water inactive construction sites at least twice daily.
- Pursuant to *California Vehicle Code* (Section 23114), all trucks hauling soil and other loose material to and from the construction site shall be covered or should maintain at least two feet of freeboard (i.e., minimum vertical distance between top of load and the trailer).
- Excavation activities and other soil-disturbing activities shall be conducted in phases to reduce the amount of bare soil exposed at any one time. Mulching with weed free materials may be used to minimize soil erosion, as described in discussed in **Sections 3.3** and **3.5**.
- Equipment and manual watering would be conducted on all stockpiles, dirt/gravel roads, and exposed or disturbed soil surfaces, as necessary, to reduce airborne dust.
- Sweep (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites, as required by Reclamation.

- Sweep roads (with water sweepers) if visible soil material is carried onto adjacent public roads, as required by Reclamation.
- All ground-disturbing activities with potential to generate dust shall be suspended when winds exceed 20 miles per hour, as directed by the NCUAQMD.
- Reclamation or its contractor would designate a person to monitor dust control and to order increased watering as necessary to prevent transport of dust offsite. The person would also respond to citizen complaints.

Significance after Mitigation: Less than Significant.

Impact 3.12-2: Construction activities associated with the proposed project could result in an increase in construction vehicle exhaust emissions. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, the proposed project would not be constructed. There would therefore be no increase in construction vehicle exhaust emissions.

Proposed Action

Proposed project construction activities would generate emissions from diesel- and gasoline-powered equipment and vehicles. Since the proposed project would take place during one construction season, emissions from the construction equipment are of concern to the NCUAQMD. Diesel particulate is an identified Hazardous Air Pollutant (HAP) and Toxic Air Contaminant (TAC), emissions of which should be minimized. In this regard, the length of the construction will require the contractor to comply with NCUAQMD Rule 420 (Particulate Matter) or use portable internal combustion engines registered and certified under the state portable equipment regulation.

Alternative 1

Construction vehicle exhaust emissions associated with Alternative 1 would be less than the Proposed Action; however, the period of construction is still of concern to the NCUAQMD. Diesel particulate is an identified Hazardous Air Pollutant (HAP) and Toxic Air Contaminant (TAC), emissions of which should be minimized. In this regard, the length of the construction will require the contractor to comply with NCUAQMD Rule 420 (Particulate Matter) or use portable internal combustion engines registered and certified under the state portable equipment regulation.

Mitigation Measures

No-Action Alternative

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A.

Proposed Action; Alternative 1

2a: Reclamation shall include provisions in the construction bid documents specifying that the contractors shall comply with NCUAQMD Rule 420. This compliance could occur through

the use of portable internal combustion engines registered and certified under the state portable equipment regulation (Health & Safety Code 41750 through 41755).

Significance after Mitigation: Less than Significant.

SECTION 3.13

Environmental Justice

3.13 Environmental Justice

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," dated February 11, 1994, requires federal agencies to identify and address disproportionately high and adverse human health or environmental effects of their actions on minorities and low-income populations and communities as well as the equity of the distribution of the benefits and risks of their decisions. Environmental justice addresses the fair treatment of people of all races and incomes with respect to actions affecting the environment. Fair treatment implies that no group of people should bear a disproportionate share of negative impacts from an environmental action. To comply with the environmental justice policy established by the Secretary of the Interior, all DOI agencies are to identify and evaluate any anticipated effects, direct or indirect, from a proposed project, action, or decision on minority and low-income populations and communities, including the equity of the distribution of the benefits and risks. Accordingly, this section examines the anticipated impacts associated with the alternatives with respect to potentially affected minority and economically disadvantaged groups. Socioeconomic issues, including population and housing, are evaluated in **Section 3.9**, Socioeconomics, Population, and Housing. This section does not function as part of the EIR portion of the joint EA/DEIR, as nothing in CEQA requires state or local agencies to address environmental justice concerns in an EIR. Thus, environmental justice is not a CEQA issue.

3.13.1 Affected Environment/Environmental Setting

Regional Setting

Poverty Rate

The Census uses a set of income limits that vary by family size and composition to determine who is poor. If a family's total income is less than the income limit, then that family, and every individual in it, is considered poor. Poverty income level thresholds are nationwide standards set by the Census. The formula for the poverty rate is the number of persons below poverty divided by the number of persons for whom poverty status is determined. Poverty rates calculated for Trinity County and its component communities are depicted in **Table 3.13-1**.

In 1998, approximately 18 percent of the population in Trinity County was living in poverty. The 1998 median household income for Trinity County was approximately $27,000, 40 percent less than the average California income. For most communities in Trinity County, poverty rates are higher than poverty rates of the state. Only three of the 13 county communities have poverty rates lower than the state: Coffee Creek, Trinity Center, and Weaverville. The other 10 communities had poverty rates from 3.8 to 22.7 percent above the state poverty rate. The community in the county with the highest poverty rate is Hyampom.

Population by Race/Ethnicity

Population by race and ethnicity is estimated annually by the California Department of Finance, Demographic Research Unit. Population by race and Hispanic ethnicity is presented for the county in **Table 3.13-2**.

TABLE 3.13-1
POVERTY RATE, TRINITY COUNTY

Community	1989	1998
Coffee Creek	4.0%	4.0%
Trinity Center	9.8%	9.6%
Weaverville	9.6%	9.5%
Lewiston	16.3%	16.1%
Douglas City	21.2%	20.9%
Lower Trinity	15.6%	15.4%
Mid Trinity	32.1%	31.7%
Helena and Junction City	20.4%	20.2%
Hyampom	35.2%	34.7%
Hayfork Area	28.7%	28.3%
Ruth/Mad River	21.0%	20.8%
Zenia/Kettenpom	28.1%	27.5%
Trinity County	18.5%	18.3%
California	12.5%	11.8%

Source: Adapted from Center for Economic Development 2001

Population by race and Hispanic ethnicity is compiled by what the respondents to the 1990 Census consider their primary ancestry. White, black, American Indian, and Asian are racial designations, while Hispanic is an ethnic designation that can be a mixture of white, black, and American Indian races. The Hispanic population is separated from the four main racial groups because many Hispanic people associate their ancestry with their ethnicity rather than their race.

TABLE 3.13-2
TRINITY COUNTY RACE/ETHNICITY DISTRIBUTION

Year	White	Hispanic	Asian or Pacific Islander	Black	American Indian, Eskimo, or Aleut	Total
1990	11,843	431	99	53	595	13,021
1991	11,861	434	100	53	605	13,053
1992	11,937	440	100	54	616	13,147
1993	11,966	445	102	56	629	13,198
1994	12,129	461	102	56	634	13,382
1995	12,095	471	102	56	639	13,363
1996	12,037	481	106	59	645	13,328
1997	11,939	485	108	59	654	13,245
1998	11,920	489	110	59	662	13,240
1999	12,020	492	113	59	669	13,353

Source: Adapted from Center for Economic Development 2001

According to the 2000 Census, the vast majority of the population in Trinity County (approximately 90 percent) consists of white non-Hispanic individuals. The remainder of the population is predominantly Native American (5 percent) and Hispanic (3 percent).

Following state patterns, the percentage of Hispanic and American Indian people in Trinity County is increasing (see **Table 3.13-2**). In 1990, the Hispanic population was 3.3 percent of the county's total population. By 1999, the percentage had increased to 3.7 percent of the total. The largest minority population in the county is the American Indian population. In 1990, American Indian counts were at 4.6 percent of the total county population and rose to 5 percent by 1999. During the same period, California's American Indian population dropped from 0.7 percent to 0.6 percent of total population. In 1990, Trinity County's non-Hispanic white population was 91 percent of the county's total population. By 1999, the percentage had dropped to 90 percent of the total. Comparatively, California's non-Hispanic white population dropped from 57 percent of the total population in 1990 to about 52 percent in 1998. The percentage of black and Asian residents of the county stayed the same. **Table 3.13-3** provides a breakdown of Trinity County race and ethnicity by community.

Almost 60 percent of the county's white non-Hispanic population, 81.2 percent of the Asian population, and 66.4 percent of the American Indian population in the county live in Weaverville, Lower Trinity, and Hayfork. Zenia/Kettenpom, Hyampom, and Coffee Creek are areas that do not have a broad racial/ethnic distribution of people.

TABLE 3.13-3
TRINITY COUNTY RACE/ETHNICITY BY COMMUNITY

Community	White	Hispanic	Asian or Pacific Islander	Black	American Indian, Eskimo, or Aleut	Other Race
Coffee Creek	213	0	0	0	11	0
Trinity Center	498	85	7	26	0	57
Weaverville	3,513	144	19	27	116	20
Lewiston	1,324	8	0	6	22	0
Douglas City	980	5	6	0	6	5
Lower Trinity	1,066	128	0	0	148	38
Mid Trinity	286	22	15	0	0	0
Helena and Junction City	605	7	0	0	70	0
Hyampom	276	0	0	0	25	0
Hayfork	2,632	47	22	0	169	15
Ruth/Mad River	545	15	0	0	52	15
Zenia/Kettenpom	195	0	0	0	33	0
Trinity County	12,133	461	69	59	652	150

Source: Adapted from Center for Economic Development 2001

Local Setting

The Trinity River flows through the center of the ESL for the proposed project, and provides a variety of beneficial uses on a year-around basis. The fisheries resources (Chinook salmon and steelhead) are widely known, and provide recreational benefits for local and visiting anglers. This provides economic benefits for the general surrounding area in the form of increased patronage of surrounding businesses.

The median household income for the communities included in the Junction City Community Plan is $23,642, which is about 50 percent less than the average California income. Almost 50 percent of the county's employed persons are involved in two distinct labor categories. Managerial and professional specialty occupations and technical, sales, and administrative support occupations are centered in the population centers like Weaverville and Hayfork. There are limited opportunities for agriculture and other labor-intensive activities, thereby minimizing the attraction for a transitional labor pool.

The Junction City community is predominantly white. Ten percent of the population has a different racial/ethnic background (primarily American Indian). No racial or ethnic group is disproportionately associated with this area.

3.13.2 Environmental Consequences/Impacts and Mitigation Measures

Methodology

The EPA compares three factors (minority representation, low-income representation, and environmental burden) between a community of concern and one or more reference areas (i.e., county-wide) in order to analyze potential environmental justice impacts. A community of concern can be defined in a number of ways, including municipality, census block group, user-defined radius around a source of pollution, or a boundary drawn along physical features such as streets, streams, or railroad tracks. The demographic data for the community of concern can then be analyzed to determine whether there would be a potential environmental justice concern in the area.

As part of this analysis, the poverty levels and minority levels were examined for Trinity County, as well as the community of Junction City. Detailed information on the residential areas associated with the proposed project is unavailable.

Significance Criteria

Environmental justice is not a CEQA issue. No specific significance criteria were applied in the evaluation of potential environmental justice consequences, although the modification or change in environmental justice factors in response to the Proposed Action was evaluated.

Impacts and Mitigation Measures

Table 3.13-4 summarizes the potential environmental justice impacts resulting from implementation of the proposed project.

TABLE 3.13-4
SUMMARY OF ENVIRONMENTAL JUSTICE IMPACTS FROM THE PROPOSED PROJECT
HOCKER FLAT

Impact	No-Action Alternative	Proposed Action	Alternative 1	Proposed Action with Mitigation	Alternative 1 with Mitigation
1. Implementation of the proposed project could adversely affect a minority or low-income population and/or community.	LS	LS	LS	N/A[1]	N/A

Notes:
LS =Less than Significant S = Significant N/A =Not Applicable

[1]. Because this potential impact is less than significant, no mitigation is required.

Impact 3.13-1: Implementation of the proposed project could adversely affect a minority or low-income population and/or community. **No Impact for No-Action Alternative; Less than Significant Impact for the Proposed Action and Alternative 1**

No-Action Alternative

Under the No-Action Alternative, no impact to a minority or low-income population or community would take place because construction associated with the proposed project would not occur.

Proposed Action; Alternative 1

Although minority and low-income residents live within the general vicinity of the proposed project (Trinity River corridor), the proposed project impacts would be experienced by residents generally in relationship to their proximity to Hocker Flat, regardless of their racial or income characteristics. There is no evidence to suggest that the proposed project would cause a disproportionately high, adverse human health or environmental effect on minority and low-income populations, compared to other residents of the Junction City Community Plan area. The known health risks to residents that could be associated with the proposed project are identified in **Section 3.5**, Water Quality; **Section 3.12**, Air Quality; and **Section 3.15**, Hazardous Materials. For the most part, these health risks are associated with the construction aspects of the proposed project, in that residents and construction workers could be exposed to hazardous materials that may be associated with the proposed project. Possible health risks to minority and low-income residents also include the risk of construction-related accidents. Reclamation will manage the proposed project to minimize these risks, as required by applicable federal and state safety regulations. Therefore no specific or disproportionate health risks on low-income groups would be associated with the proposed project.

Mitigation Measures

No-Action Alternative; Proposed Action; and Alternative 1

Since no significant impact has been identified for these alternatives, no mitigation measures are required.

Significance After Mitigation: N/A.

SECTION 3.14

Aesthetics

3.14 Aesthetics

The aesthetic value of an area is a measure of its visual character and quality, combined with the viewer's response to the area (Federal Highway Administration 1983). The purpose of this section is to address aesthetic values and assess potential impacts to the aesthetic resources at the Hocker Flat area with regards to implementation of the proposed project. The proposed project's compliance with the federal and state WSRA's will also be discussed. A review of local land use plans and policies specific to aesthetics and field reconnaissance conducted for the purpose of identifying those areas of aesthetic value potentially affected by implementation of the proposed project provide the basis for this assessment.

3.14.1 Affected Environment/Environmental Setting

Regional Setting

The Trinity River provides an important visual resource for residents and visitors to Trinity County. The scenic nature of the river is vital to the communities, residential areas, and recreational allure of the county. As part of the federal Wild and Scenic River System, the Trinity River below Lewiston Dam to its confluence with the Klamath River has been designated as a Recreation and/or Scenic River, and is listed as a Wild and Scenic River by the State of California.

Since the construction of the TRD by the CVP, the flow regime of the Trinity River has been significantly changed (U.S. Fish and Wildlife Service et al. 1999). Water flows are maintained at a relatively constant level year around with controls placed on the amounts of water flowing through the channel during spring run-off and storm events. These alterations of natural flow patterns have resulted in substantial changes in the ecology and landscape features within the channel and floodplain downstream of the TRD. Occasional fluctuations in flow levels range from high, channel-full conditions to shallow flows with exposed bedrock and gravel bars in the low-flow channel.

Local Context

The ESL for the proposed project is located immediately northwest of the rural community of Junction City. SR 299, designated as the Trinity Scenic Byway by the U.S. Forest Service, parallels the Trinity River (and the eastern ESL boundary) as the highway passes through this portion of the Trinity River Gorge past historic dredger tailings and present day gravel mining operations. A band of riparian vegetation parallel to the Trinity River obscures views of the river and most of the area encompassed by the ESL. In general the eastern (right) boundary of the proposed project is conforms to the right-of-way for SR 299 for about 1 mile. Vegetation also obscures most views of the river and the proposed project area for travelers using Red Hill Road along the western (left) ESL boundary.

The existing visual character of the ESL is typified by the river channel, narrow bands of riparian vegetation, isolated occurrences of upland vegetation (e.g., manzanita, grey pine), and large expanses of dredge tailings. A depleted gravel mine is located between SR 299 and the right bank of the Trinity River (rehabilitation area R-5, U-4), and an active operation is on the left side of the river in association with rehabilitation area U-3. Large deposits of dredge tailings dominate the landscape throughout Hocker Flat, portions of which are visible from Junction City, SR 299, Red Hill Road, and some surrounding residences.

The BLM's Junction City Campground is located near RM 78 at the northwest end of the ESL (**Figure 3.8-1**). Campers, day-use recreationists, and local residents frequently access the Trinity River from the open floodplain on the west side of SR 299 across from the campground. This reach of the river is also visible from some nearby residences and from the eastbound lane of SR 299 downstream.

Visual Environment

The visual environment, or character, is a function of both the natural and artificial landscape features that make up a view. Geologic, hydrologic, botanical, wildlife, recreational, and urban features such as roads, homes, and earthworks directly influence the character of an area. Visual character perception can vary significantly by season and even by the hour as light, shadow, weather, and the elements composing the view change. Form, line, color, and texture are the basic components used to describe visual character and quality for most visual assessments (Federal Highway Administration 1983). The dominance of each of these components on the landscape serves to form the viewer's impression of the landscape. A viewer's impression directly corresponds to the aesthetic value of the landscape. The aesthetic value of an area is a measure of its visual character and scenic quality combined with the viewer response.

Visual Sensitivity and Viewer Response

The overall sensitivity and response of a viewer to the quality of a view is based on a combination of *viewer exposure* and *viewer sensitivity*. *Viewer exposure* refers to the visibility of resources in the landscape, the proximity of the vantage point to the view, the elevation of the viewer relative to the view, the frequency and duration of the viewing, the number of observers, and pre-conceived expectations of individual viewers or groups. *Viewer sensitivity* relates to the extent of the public's concern for particular landscapes. Judgments of visual quality and viewer response should be based on the regional frame of reference (U.S. Soil Conservation Service 1978). The geographical setting and nature of the visual resource will significantly influence the degree of visual quality and sensitivity experienced by the viewer. For example, presence of a small hill within an otherwise flat landscape may be viewed as a significant visual element, but the hill may have very little significance when located in mountainous terrain.

Within the ESL for proposed project, the Trinity River corridor is the dominant component of the visual environment. Gravel bars and dredge tailings adjacent to the river also significantly influence the visual character of the existing landscape.

Viewshed

The Federal Highway Administration (1983) defines a viewshed as all of the surface area visible from a particular location (e.g., a highway pull-out) or sequence of locations (e.g., a highway or trail). For purposes of the proposed project, six individual viewsheds, referred to in this document as visual assessment units, have been defined based on exposure from Junction City, surrounding residences, or various points along SR 299 and Red Hill Road.

Light and Glare

Because of the rural nature of the Hocker Flat action area and the absence of any homes or other structures within the footprint of the proposed project, potential sources of artificial light are limited to vehicles passing through the area on either SR 299 or Red Hill Road, and nearby residences. Glare may occur during the daylight hours as the sun is reflected off of the river or light-colored sand and rocks that make up the floodplain.

Viewer Groups

The perceptions of viewers are influenced by their location, specific activities in which they engage, personal degree of awareness, and individual values and goals. Activities associated with the proposed project could potentially affect three distinct viewer groups: motorists, residents, and recreationists.

Motorists

For the purposes of this EA/DEIR *Motorists* are those persons who view a given rehabilitation area from a moving vehicle. Motorists may be drivers or passengers. This user group typically consists of commuters, local residents, business travelers, and tourists. Tourists are often acutely aware of viewshed opportunities and aesthetics associated with the action area when viewed from SR 299 or Red Hill Road. Business travelers, commuters, and local residents who travel the same routes frequently may be acclimated to the general view, but are more likely to be aware of visual changes than occasional passersby. In general, views of the river and the ESL from both SR 299 and Red Hill Road are somewhat limited and of short-duration for motorists that use the travel corridors on either side of the Trinity River.

Residents

For the purposes of this EA/DEIR *Residents* are people whose home and/or property are in close proximity to, and have a view of, any given portion of the ESL established for the proposed project. The existing landscape features associated with Hocker Flat offer a variety of visual experiences that reflect various land use practices and natural processes. The individual sensitivity of residents to aesthetics and changes within the viewshed is highly variable. Sensitivity of residents to changes within the viewshed should also be considered in the context of view point location and the length of time that their view may be altered (e.g., temporarily during construction or permanent changes to topography).

Recreationists

For the purposes of this EA/DEIR *Recreationists* are members of the community or the general public who use and access the recreational resources available within or adjacent to the ESL for proposed project. As in the case of residents, recreational users are also highly sensitive to the visual character of the river corridor since most are drawn to the area by an appreciation of its scenic nature.

Historically (since the TRD was constructed), the primary recreational activities have been associated with the warm summer temperatures (Memorial Day to Labor Day) and fishing for anadromous salmonids throughout the year. Although these activities continue, the modifications to the flow regime described in **Section 3.4** have resulted in a substantial increase in use by white water enthusiast during the

spring and early summer (April-July). In general , the Trinity River, including the Hocker Flat area, provides a myriad of recreational opportunities includes boating, kayaking, canoeing, rafting, inner tubing, fishing, swimming, wading, camping, gold panning, nature study, picnicking, hiking, and sightseeing. Fishing is a major recreational activity on the Trinity River during the remainder of the year. Developed recreation areas along the Trinity River consist of private campgrounds, resorts, and lodges; public campgrounds and picnic areas; and fishing access sites.

Visual Assessment Units and Key Observation Points

Visual Assessment Units (VAUs) are areas of distinct visual character within the viewshed that provide a framework for comparing the visual effects of a proposed project. **Figure 3.14-1** illustrates a generalized visual impact assessment process used for this EA/DEIR. Key observation points (KOPs) are commonly traveled routes or other likely observation points within a VAU from which a representative group (residents, recreationists, and motorists) can view the proposed action. KOPs have been established at locations from which rehabilitation areas can clearly be viewed by members of the previously discussed viewer groups. Locations of VAUs and KOPs established for the proposed project are shown in **Figure 3.14-2. Table 3.14-1** provides a summary of KOPs, and photos taken from each KOP are shown in **Figure 3.14-3.**

TABLE 3.14-1
KEY OBSERVATION POINTS
HOCKER FLAT

VAU #	KOP #	Figure #	Description of Key Observation Point
1	1	3.14-3a	***Mouth of Canyon Creek Unit.*** View along SR 299, south of Canyon Creek Bridge, looking northwest across Canyon Creek into rehabilitation areas R-1 and U-1. (**Photo 1**)
1	2	3.14-3a	***Mouth of Canyon Creek Unit.*** View along SR 299 and Gizean Road intersection looking northwest into rehabilitation areas R-2 and U-1. (**Photo 2**)
1	3	3.14-3a	***Mouth of Canyon Creek Unit.*** View along SR 299 looking northwest (downstream) into rehabilitation areas R-1, R-2, R-4, and U-1. (**Photo 3**)
1	3	3.14-3a	***Mouth of Canyon Creek Unit.*** View along SR 299 looking southwest (upstream) into rehabilitation areas R-2 and U-1. (**Photo 4**)
2	4	3.14-3b	***SR 299 Upstream Unit.*** View along SR 299 looking south (upstream) into rehabilitation areas R-2, R-3, and U-1. (**Photo 5**)
2	4	3.14-3b	***SR 299 Upstream Unit.*** View along SR 299 looking directly across the river into rehabilitation areas R-2, R-3, and U-1. (**Photo 6**)
2	5	3.14-3b	***SR 299 Upstream Unit.*** View along SR 299 looking south (upstream) into rehabilitation areas R-2, R-3, and U-1. (**Photo 7**)
2	6	3.14-3b	***SR 299 Upstream Unit.*** View along SR 299 looking northwest (downstream) into rehabilitation areas R-3 and R-4. (**Photo 8**)
3	7	3.14-3c	***SR 299 Downstream Unit.*** View across SR 299 looking into rehabilitation areas U-4 and R-5. (**Photo 9**)
4	8	3.14-3c	***Junction City Campground Unit.*** View from the riverbank looking south (upstream) with rehabilitation areas R-6 and R-8 on river left. (**Photo 10**)

TABLE 3.14-1
KEY OBSERVATION POINTS
HOCKER FLAT

VAU #	KOP #	Figure #	Description of Key Observation Point
4	8	3.14-3c	***Junction City Campground Unit.*** View from the riverbank looking southwest (upstream) into rehabilitation areas R-6 and R-8 on river left. (**Photo 11**)
5	9	3.14-3d	***Red Hill Road South Unit.*** View along Red Hill Road, approximately 50 feet west of photo 12, looking northeast into rehabilitation areas R-3 and U-7 (access road). (**Photo 13**)
6	10	3.14-3d	***Red Hill Road North Unit.*** View along Red Hill Road looking northeast into rehabilitation areas U-3 and U-7 (access road). (**Photo 14**)
6	10	3.14-3d	***Red Hill Road North Unit.*** View along Red Hill Road looking north into rehabilitation areas U-3 and U-7 (access road). (**Photo 15**)
6	10	3.14-3d	***Red Hill Road North Unit.*** View along Red Hill Road looking northwest into rehabilitation areas U-3 and U-7 (access road). (**Photo 16**)
Views from Residences			
VAU #	**KOP #**	**Figure #**	**Description of Key Observation Point**
1	11	3.14-3e	***Mouth of Canyon Creek Unit.*** View from a mobile home looking north across Canyon Creek into rehabilitation areas R-1, R-2, and U-1. (**Photo 17**)
4	12	3.14-3e	***Junction City Campground Unit.*** View from residence looking south (upstream) into rehabilitation area R-8. (**Photo 18**)
6	13	3.14-3e	***Red Hill Road North Unit.*** View along Red Hill Road looking southeast into rehabilitation area U-7 (access road). (**Photo 19**)
6	13	3.14-3e	***Red Hill Road North Unit.*** View along Red Hill Road looking east into rehabilitation area U-7 (access road). (**Photo 20**)
6	13	3.14-3f	***Red Hill Road North Unit.*** View along Red Hill Road looking northeast into rehabilitation areas U-6 and U-7 (access road). (**Photo 21**)
6	14	3.14-3f	***Red Hill Road North Unit.*** View along Red Hill Road looking southeast into rehabilitation areas U-6 and U-7 (access road). (**Photo 22**)
6	14	3.14-3f	***Red Hill Road North Unit.*** View along Red Hill Road looking east into rehabilitation areas U-6 and U-7 (access road). (**Photo 23**)
4	15	3.14-3f	***Junction City Campground Unit.*** View along Red Hill Road looking southeast toward rehabilitation areas R-7 and U-5. (**Photo 24**)
4	15	3.14-3f	***Junction City Campground Unit.*** View along Red Hill Road looking east toward rehabilitation areas R-7 and R-8. (**Photo 25**)

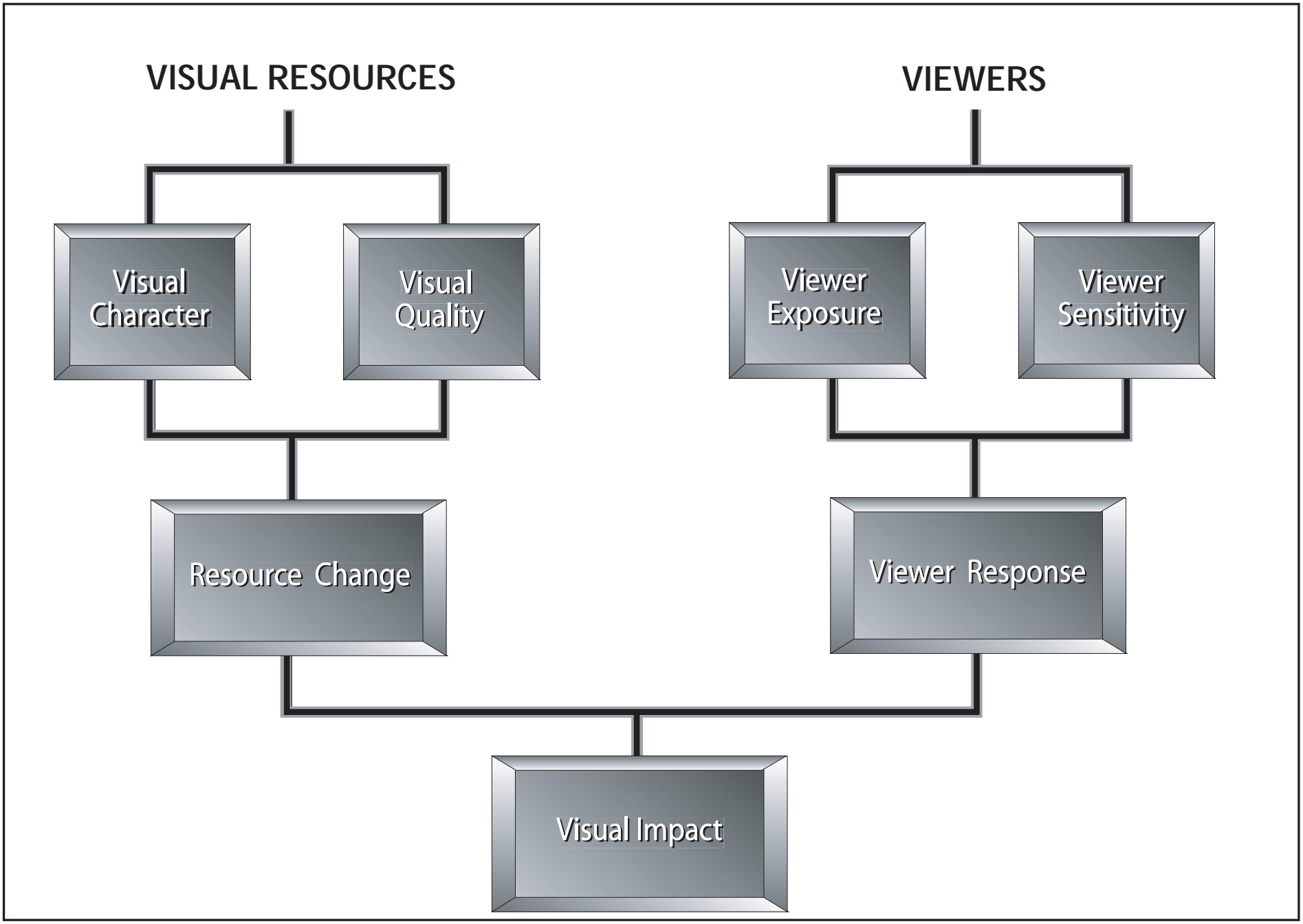
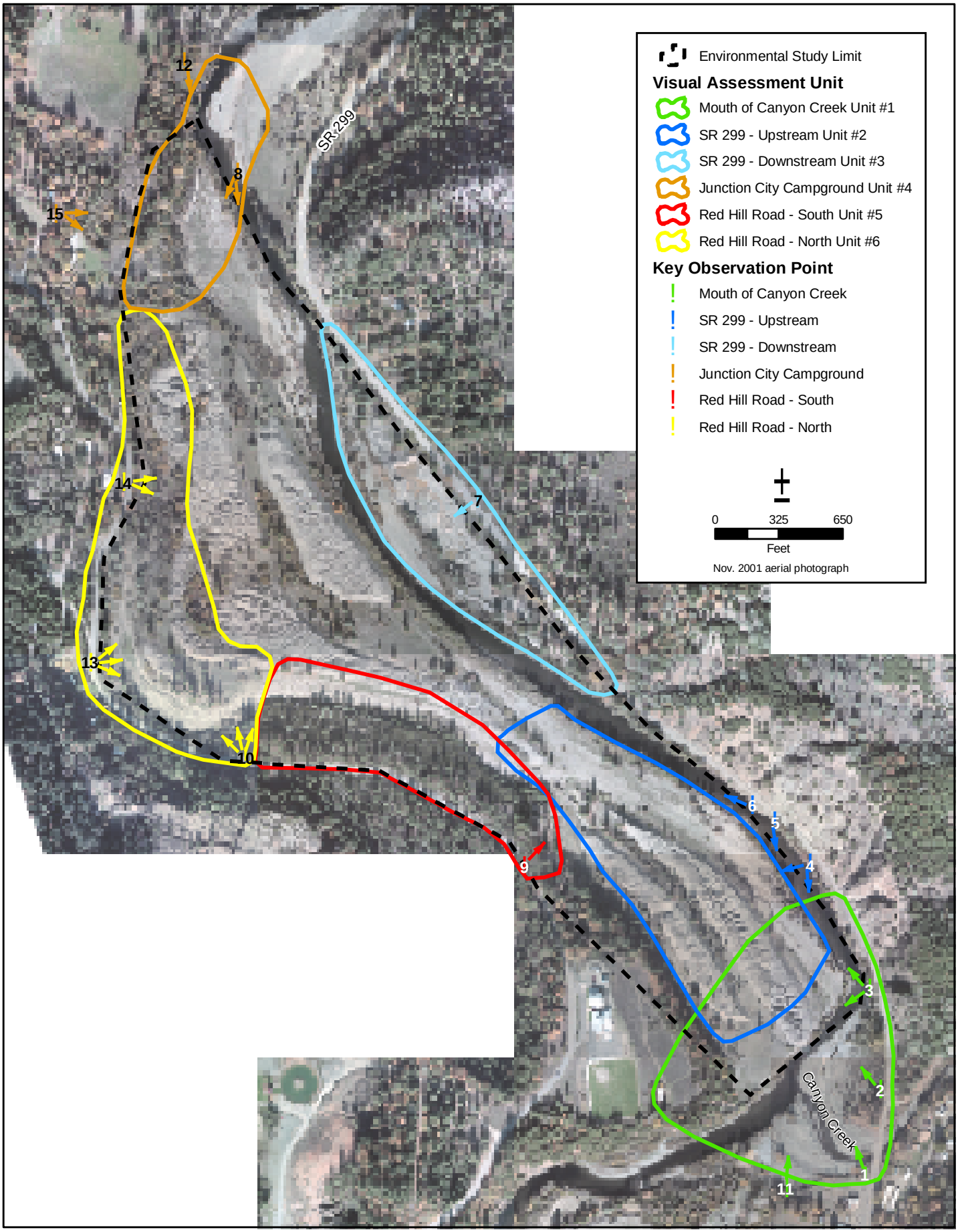


Figure 3.14-1
Visual Resource Assessment Process



F:\Projects\10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River\Hocker Flat Project\Chapter 3\Fig_3.14-2_VAU_KOP.mxd Source: NSR, Inc.; USBR, Mid-Pacific Region 07-07-04 TLA

North State Resources, Inc.

Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

Figure 3.14-2
Visual Assessment Units and Key Observation Points

Following is a discussion of VAUs and the KOPs that have been identified within each VAU for the Hocker Flat Rehabilitation Site.

VAU #1:

VAU #1 consists of 28.68 acres extending from RM 79.2 north along SR 299 to RM 78.9 (a linear distance of 1,516feet), and west from the south side of the Canyon Creek bridge nearly to the playground at the Junction City Elementary School. From the east side of the school's field, the boundary extends northeast to its intersection with SR 299. Riverine and upland rehabilitation areas included in VAU #1 are R-1, R-2, and portions of U-1 and U-2. The confluence of Canyon Creek and the Trinity River falls almost directly in the center of VAU #1. This VAU represents the view from Junction City. KOP #1 illustrates the view that residents and travelers currently have of the Hocker Flat ESL from the north end of town just south of the Canyon Creek Bridge. Moving north along SR 299, KOP #2 was established approximately 442feet beyond KOP #1 and just west of the intersection of SR 299 and Gizean Road. Vegetation opens toward the river along this stretch of the highway, providing an unobstructed view of rehabilitation areas R-1 and U-1. KOP #3 is also located within the boundaries of VAU #1 approximately 167feet north of KOP #2. KOP #3 is similar to KOP #2 in that the absence of vegetation allows the passerby an unobstructed view of the west side of the river, specifically rehabilitation areas R-2, R-3, R-4, and U-1. Total estimated time for a vehicle traveling along SR 299 through VAU #1 (a linear distance of 1,516feet) at an average speed of 55 mph is less than 20 seconds. Mature upland vegetation, including trees and shrubs, effectively obstructs most views of the rehabilitation areas from the west side of the VAU with the minor exception of views from KOP #9, which is included in the discussion of VAU #5.

One residence, a mobile home located approximately 400feet west of SR 299 and KOP #1, has a view downstream beyond the Trinity River/Canyon Creek confluence. Much of rehabilitation areas R-1, R-2, and portions of U-1 are visible from the home. This location has been designated as KOP #11.

VAU #2

VAU #2, at 27.45 acres, is overall the most visible of the VAUs from SR 299. At its southern end, VAU #2 overlaps VAU #1, extending from RM 79.0 northwest along the west side of the Trinity River to RM 78.7, overlapping VAU #4 for a short time before extending southeast roughly along the bank of upland vegetation that occurs outside of the river's 100-year floodplain. Three KOPs (#'s 4, 5, and 6) have been identified from south to north along SR 299. From KOP #4 (located approximately 576feet north of KOP #3), rehabilitation areas R-2 and U-1 are visible; from KOP #5 (approximately 195feet north of KOP #4), rehabilitation areas R-2, R-3, and U-1 are visible; and from KOP #6 (approximately 156feet north of KOP #5), rehabilitation areas R-3 and R-4 are apparent. Total estimated time for a vehicle traveling at an average speed of 55 mph along SR 299 to pass through VAU #2 is approximately 24 seconds.

VAU #3

VAU #3 (19.12 acres) extends approximately 2,327 feet along SR 299 beginning at RM 78.7 and continuing northwest to RM 78.2. The entire VAU is located on the right side of the river and affords only minimal views of the rehabilitation areas delineated for the proposed project obscured from the

highway by vegetation. Only one observation point, KOP #7 (located approximately 668 feet north of KOP #6), has been established along this stretch of the roadway and views are extremely limited. While travelers slowing or stopping to use the pull-out along the westbound lane might notice, to a limited degree, activities in rehabilitation areas U-4 and R-5, the likelihood of motorists from either direction achieving more than a cursory glance of the ESL of the proposed project while traveling at normal highway speeds is marginal. A vehicle traveling along this stretch of SR 299 at an average speed of 55 mph would require approximately 29 seconds to pass through VAU #3.

VAU #4

VAU #4, the smallest of the Hocker Flat VAUs at 12.91 acres, encompasses the portion of the proposed project ESL where changes to aesthetics would most likely be noticed by recreationists. Easily accessible by motorized vehicle, the northeast portion of this VAU is used by rafters, kayakers, fishermen, swimmers, and other people who enjoy the aesthetic and recreational opportunities offered by the Trinity River. Located on the west side of SR 299 across from the Junction City Campground, the northern end of VAU #4 begins at RM 77.9 and continues upriver to RM 78.1 before extending southwest across the river toward Red Hill Road. From the graveled floodplain in the northeast portion of VAU #4, KOP #8 has been established, from which portions of R-6, R-7, and R-8 are somewhat visible, but are limited by the presence of riparian vegetation, when looking downstream to the south and southwest. KOP #8 is located at RM 78.05.

One residence, located approximately 150 feet west of RM 77.95 on the Trinity River, has a partial view of VAU #4, specifically rehabilitation area R-8. The view from this residence has been designated KOP #12. A second residence located along Red Hill Road approximately 1,365feet northwest of KOP #14 (described in VAU #6) faces VAU #4 and rehabilitation areas R-7, R-8, and U-5, but dense upland vegetation obscures any view of these areas.

VAU #5

VAU #5 (17.71 acres) has been created to account for views of the proposed project near the southern end of Red Hill Road. The southern boundary of VAU #5 begins approximately 510feet from the north end of the Junction City School, following Red Hill Road approximately 1,605feet west/northwest from the VAU's southern boundary. VAU #5 is contains mainly upland vegetation with occasional openings that allow for views across the river to SR 299. KOP #9, which is 73feet north of the VAU's southern boundary, has been established to acknowledge views of rehabilitation areas U-2, U-3, and U-4 from Red Hill Road. As with most of the previously discussed VAUs, views of the rehabilitation area for motorists passing through VAU #5 are brief and limited in scope. However, the rural nature of Red Hill Road makes it suitable as a route for bicyclists and walkers, individuals having a greater opportunity to observe the effects of activities within rehabilitation areas U-2, U-3, and U-4 than those passing through at a higher rate of speed. Approximate travel time through the area in a motorized vehicle averaging 35 mph would be about 31 seconds.

VAU #6

VAU #6, also extending along Red Hill Road, takes off from the upper (northwest) end of VAU #5 (approximately 2,115feet west/northwest of the Junction City School), and extends north 2,900feet along the east side of Red Hill Road to the southern end of VAU #4. KOP #10 has been established in the southwest corner of VAU #6 near where the gravel mine access road intersects with Red Hill Road. This KOP views rehabilitation areas U-3, U-6, and U-7. The remainder of VAU #6 does not allow for views of the river or any of the proposed rehabilitation areas. Upland vegetation and dredger tailings block views to the east from Red Hill Road. Approximate travel time through the area in a motorized vehicle averaging 35 mph would be about 57 seconds.

Several residences along Red Hill Road have a limited vantage point to view the proposed project, but views are limited by dense upland vegetation. KOPs #13 and 14 have been established at two of the residences most likely to observe impacts to rehabilitation areas U-6 and U-7. KOP #13 is located approximately 975feet northwest of KOP #10, and KOP #14 is located approximately 955feet north of KOP #13.

3.14.2 REGULATORY FRAMEWORK

Federal

National Wild and Scenic Rivers Act of 1968

Congress enacted the National WSRA in 1968 in an effort to protect free-flowing rivers with "outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values." The entire mainstem of the Trinity River was designated a National Wild and Scenic River by the Secretary of Interior in 1981, primarily because of the river's anadromous fishery. In addition, the reach of the river downstream from Lewiston Dam was classified as having distinctive scenic quality and high viewer sensitivity during peak flows, when the scenic qualities of the river are enhanced. Approximately 97.5 miles of the river are classified as recreational under the federal WSRA.

For projects upstream of Helena on the Trinity River, the BLM is responsible for ensuring that the scenic values of public lands are considered before allowing uses that may have negative visual impacts. The BLM accomplishes this through its Visual Resource Management (VRM) system, a system for minimizing the visual impacts of surface-disturbing activities to scenic public lands and maintaining scenic values for the future. The VRM system consists of two stages, inventory and analysis. The inventory stage involves identifying the visual resources of an area and assigning them to inventory classes using the BLM's visual resource inventory process. The analysis stage involves determining whether the potential visual impacts from proposed surface-disturbing activities or developments will meet the management objectives established for the area, or whether design adjustments will be required (Bureau of Land Management 2002a).

The VRM system also uses four inventory classes, each having distinct management objectives:

- **Class I Objective:** To preserve the existing character of the landscape. The level of change to the characteristic landscape should be very low and must not attract attention.
- **Class II Objective:** To retain the existing character of the landscape. The level of change to the characteristic landscape should be low.
- **Class III Objective:** To partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate.
- **Class IV Objective:** To provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high.

The Trinity River corridor is classified as VRM Class II. Therefore, management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape (Bureau of Land Management 2002b).

While there are no separate reporting requirements to address Wild and Scenic rivers, environmental documentation should include a discussion of project-related issues, summarize coordination among participating agencies, evaluate impacts to qualities that support the river's designation, and propose suitable mitigation measures as warranted. **Appendix E** provides the analysis and determination necessary for the Proposed Action to comply with Section 7 of the federal WSRA. Compliance may require preparation of one or more of the following:

- U.S. Army Corps of Engineers Clean Water Act Section 404 Permit
- California Regional Water Quality Control Board Section 401 Water Quality Certification
- NPDES Permit
- CDFG Section 1602 Streambed Alteration Agreement
- ESA Section 7 consultation for endangered species potentially affected by the project

State

California Wild and Scenic Rivers Act of 1972

Patterned after the federal WSRA, the California WSRA was enacted in 1972 to preserve those rivers within the state designated as having extraordinary scenic, recreation, fishery, or wildlife values. Under this act, the Klamath River and its tributaries, including the mainstem Trinity River, are subject to similar criteria and definitions of purpose defined by the federal WSRA. However, while the federal act applies to public lands located within approximately 0.25 miles on either side of a river's channel and requires development and implementation of a river protection management plan, the state act provides protection only to the first line of permanent riparian vegetation and does not require development of a management plan.

Under the California WSRA, the segment of the Trinity River that passes through the Hocker Flat ESL is designated as "scenic" and "recreational." The *California Public Resources Code* (5093.53[b]) defines "scenic rivers" as being "those rivers or segments of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads." "Recreational rivers" are defined in the *California Public Resources Code* (5093.53[c]) as being "those rivers or segments of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment of division in the past." While the California WSRA does not specifically require that water quality, streambed alteration, or other project-related permits be granted, other permits or agreements may be required to comply with other laws in accordance with the federal WSRA. CDFG 1602 Streambed Alteration Agreements related to Wild and Scenic Rivers are evaluated by the Resources Agency for consistency with the California WSRA. Additional conditions may be placed on this agreement to avoid inconsistency with the WSRA.

Local

Trinity County General Plan Goals and Objectives

The Trinity County General Plan contains goals and policies designed to guide the future physical development of the county, based on current conditions. The General Plan contains all the state-required elements, including community development and design, transportation, natural resources, health and safety, noise, housing, recreation, economic development, public facilities and services, and air quality. The Trinity County General Plan does not specifically address visual resources. However, certain goals identified within the context of other plan elements are relevant to visual resources. The following goals and objectives related to aesthetic issues associated with the proposed project were taken from the applicable elements of the County's General Plan (Trinity County 2001) and the Junction City Community Plan (Trinity County 1987).

County Wide Goals and Objectives

Cultural

Goal: To retain the rural character of Trinity County:

- By encouraging uses that fit with the land.

Natural Resource Lands

Goal: To protect the scenic natural resources of Trinity County and preserve areas that are important as commercial natural resources for future generations.

- Preserve areas of established natural scenic beauty as areas of active and passive enjoyment.

Scenic Lands

Goal: To conserve, preserve, and maintain the scenic beauty of Trinity County.

- Encourage private developers to utilize conservation methods when using or developing the land. Discourage development on steep slopes unless special construction techniques are used.

- Acquire scenic easements for conservation of Trinity County's scenic beauty.
- Adopt stringent regulations requiring the landscaping and maintenance of vegetation on cut and fill slopes as required by the appropriate agency.
- Control encroachment of cut and fill slopes into scenic easement areas or corridors along scenic highways, whether these highways are State or County.

Junction City Community Plan Goals and Objectives

This plan includes the area centered on the Trinity River from Helena to Maxwell Creek.

Goal: To retain and enhance the overall high visual quality of the Plan area.

Community Design

Goal: To retain and enhance the overall high visual quality of the Plan Area.

- Review future development for impact on the visual qualities on the Trinity River.

Project Consistency with the Trinity County General Plan and Community Plans

This section compares the goals and objectives of the Proposed Action to the relevant local planning policies (i.e., Trinity County General Plan, Junction City Community Plan) to determine if there are any inconsistencies.

As described in **Chapter 1, Introduction**, the proposed project would:

- increase the diversity and area of habitat for salmonids, particularly habitat suitable for rearing;
- increase structural and biological complexity of habitat for various species of wildlife associated with riparian habitats;
- increase hydraulic and fluvial geomorphic diversity and complexity;
- provide a pilot project to evaluate the fate and transport of mercury related to rehabilitation/restoration projects;
- demonstrate the ecological response to changes in flow regimes, morphological features, and aquatic, riparian and upland habitats; and
- provide a self-maintaining project independent of any future TRD flows.

The following project objectives apply to the proposed project's lead/responsible agencies for CEQA purposes:

- Evaluate changes in channel geometry in response to constructing channel and floodplain features designed for the river's current hydrologic regime.
- Evaluate the evolution of channel planform features in response to designing and implementing the proposed project at a river segment (1-mile) scale.

- Evaluate the biological response (aquatic, riparian, upland) to changes in the physical environment, and incorporate this information into the AEAM Program.
- Conduct a preliminary assessment of the fate and transport of mercury in response to restoration activities in a historic mining district.
- Locate the proposed project downstream of Canyon Creek to ensure that natural tributary accretion to mainstem flows has a higher likelihood of maintaining the site prior to implementation of the ROD-recommended flow regime.
- Provide safe and reasonable access to the site for project planning, implementation, and monitoring.
- Develop partnerships with willing participants, and encourage positive landowner interest and involvement.
- Design the project to function with the river's current hydrology estimated at the site.
- Integrate known fluvial and ecological theories and relationships with the site's measured physical and biological attributes and evaluate response over a definitive time frame.
- Minimize in-stream work to reduce construction-related impacts, maximize the river's ability to rehabilitate itself during high flows, and reduce implementation cost and complexity.
- Attempt to preserve unique and valuable geomorphic and biological features wherever practicable (i.e., hydraulic controls, high-quality spawning or adult holding habitat).

The following objectives apply to the project's responsible and trustee agencies, including the NCRWQCB, SLC, CDFG, and SWRCB:

- compliance with the Water Code to ensure the highest reasonable quality of waters of the state and allocate those waters to achieve the optimum balance of beneficial uses;
- protection of the public trust assets of the Trinity River watershed;
- conservation, restoration, and management of fish, wildlife, and native plant resources; and
- compliance with the Water Quality Control Plan for the Hoopa Valley Indian Reservation to preserve and enhance water quality on the Reservation, and to protect the beneficial uses of water.

These project objectives are consistent with the applicable general plan goals and policies summarized above.

3.14.3 Environmental Consequences/Impacts and Mitigation Measures

Methodology

Driving surveys of the Hocker Flat area were conducted for the purpose of identifying areas of visual sensitivity and scenic resources, and to assess the existing character and quality of the aesthetic resources associated with the proposed project. This assessment emphasized the potential relationship between the proposed project and the receptors associated with the Trinity River, SR 299, Red Hill Road, and

surrounding residences. VAUs were mapped based on the distinct visual character of the landscape, and KOPs (points from which the ESL or portions thereof are visible from major travel routes and/or surrounding residences) were identified within each VAU and photo points were established.

Analysis of potential impacts to aesthetic resources is based on the significance criteria described in Appendix G of the *CEQA Guidelines.* The DWR, as CEQA lead agency, has used these criteria to develop significance thresholds. Significance thresholds are used to evaluate the proposed project's potential impact on the visual character of the Hocker Flat area, particularly the visual character of those areas identified as KOPs. All assessments are qualitative, evaluating potential impacts of the proposed project to the viewshed in relation to the local aesthetic context. A review of the proposed project's consistency with federal and state Wild and Scenic River designations is also presented in **Appendix E**.

Significance Criteria

The proposed project would have a significant impact if it

- obstructs a scenic view from public viewing areas;
- has a substantial adverse effect on a scenic vista;
- substantially damages scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- substantially degrades the existing visual character or quality of the project site and its surroundings;
- introduces physical features that are substantially out of character with adjacent residential areas;
- alters the site so that the scale or degree of change appears as a substantial, obvious, and disharmonious modification of the overall scene (to the extent that it clearly dominates the view);
- creates substantial daytime glare associated with new construction;
- disrupts adjacent residential areas from new night-time lighting;
- creates a new source of substantial light or glare that would adversely affect day or nighttime views in the ESL;
- is inconsistent with the policies of the Trinity County General Plan relating to aesthetics; or
- is inconsistent with the goals and objectives of both the federal and state WSRAs with regards to the Trinity River.

Impacts and Mitigation Measures

Table 3.14-2 summarizes the potential aesthetic impacts resulting from construction and operation of the Proposed Action.

TABLE 3.14-2
SUMMARY OF AESTHETIC IMPACTS
HOCKER FLAT

Impact	No-Action Alternative	Proposed Action	Alternative 1	Proposed Action with Mitigation	Alternative 1 with Mitigation
1. Implementation of the proposed project could result in the degradation and/or obstruction of a scenic view from key observation areas.	NI	LS	LS	N/A[1]	N/A
2. Implementation of the proposed project could substantially change the character of, or be disharmonious with existing land uses and aesthetic features.	NI	LS	LS	N/A	N/A
3. The proposed project may be inconsistent with federal and state Wild and Scenic River Act or Scenic Byway requirements.	NI	LS	LS	N/A	N/A
4. The proposed project may potentially generate increased daytime glare and/or nighttime lighting.	NI	LS	LS	N/A	N/A

Notes: LS = Less than Significant NI = No Impact N/A = Not Applicable
[1]Because this potential impact is less than significant, no mitigation is required.

Impact 3.14-1: Implementation of the proposed project could result in the degradation and/or obstruction of a scenic view from key observation areas. ***No Impact for the No-Action Alternative; Less than Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, the proposed project would not be implemented. No degradation or obstruction of scenic views would occur within any of the VAUs described.

Proposed Action

Potential impacts of the Proposed Action to views from KOPs established for the proposed project are discussed below by VAU.

VAU # 1

KOP #1 (Views of R-1 and U-1), KOP #2 (Views of R-1 and U-1), and KOP #11 (Views of R-1, R-2, and U-1) : The Proposed Action does not include rehabilitation activities in R-1; therefore, there would be no impact to the aesthetic quality of the view from KOP #1, KOP #2, or KOP #11 with regards to R-1. However, rehabilitation activities are proposed for U-1 and R-2. As with all of the upland areas except U-7, U-1 would be used as a repository for excavated material (i.e., sand, gravel, cobble). Excavated material would be deposited outside of the 100-year floodplain in the line and form of existing tailing piles such that any noticeable change would be less than significant. Rehabilitation of R-2 (visible from KOP #11) would require some removal of floodplain and river bank material. This would improve the sinuosity of the river, allowing it to meander and take on a more natural flow pattern. Removal of material would improve the form, line, and function of the existing gravel bar, giving the area a natural appearance. Although existing riparian vegetation in this area may be removed to allow for rehabilitation activities, revegetation of R-2 would occur through the planting of native species and natural recruitment. Visual impacts, as seen from KOP #11, would be less than significant.

KOP #3 (Views of R-1, R-2, R-4, and U-1): The Proposed Action does not include rehabilitation activities in R-1; therefore, there would be no impact to the aesthetic quality of the view from KOP #3 with regards to R-1. Approximately 7,000 cubic yards of fill material would be removed from R-2, lowering the ground surface elevation and facilitating a river-induced meander and floodplain development. Activities in R-2 would lower the existing ground surface along the active channel to an elevation sufficient to allow the river to widen and re-activate the floodplain. This action would also improve the form, line, and function of the river by lessening the channel effect created by historic dredging. Removal of material would also improve the form, line, and function of the existing gravel bar, giving the area a natural appearance. Although existing riparian vegetation in this area may be removed to allow for rehabilitation activities, revegetation of R-2 would occur through the planting of native species and natural recruitment.

Activities in R-4 would lower the existing ground surface of both the floodplain and directly along the active channel, restoring the sinuosity of the river. The disharmonious straight, channelized character of the existing channel would, over time, take on a more natural appearance as the river migrates laterally and a point bar develops along the left bank. Although this portion of the river is one of the most visible points from SR 299, immediate direct impacts to aesthetic quality as construction occurs would be minimal and long-term indirect impacts would be positive, enhancing the natural appearance of the river. Currently, vegetation along the channel and floodplain is sparse, consisting of riparian and some upland species. Existing vegetation would be removed; however, the area would revegetate both naturally and through planting with native riparian species.

As previously described for KOPs #1 and 2, proposed activities in U-1 would have a less than significant impact on the viewshed as observed from KOP #3.

VAU # 2

KOP #4 (Views of R-2, R-3, and U-1) and KOP #5 (Views of R-2 and U-1): R-2, R-3, and U-1 are readily apparent from both the east and west bound lanes of SR 299. Motorists, residents, and recreationists may notice the initial direct impacts associated with soil movement and vegetation removal, but the temporary loss of the relatively small strip of vegetation adjacent to SR 299, and the somewhat minor changes in the existing ground surface elevation would have a less than significant impact on visual resources within the vicinity of the depleted gravel mine. Activities within R-2 and R-3, including revegetation through natural recruitment and planting of native riparian species and anticipated restoration of channel sinuosity, would enhance the scenic nature of this stretch of the river over the long term.

Activities associated with U-1, including the grading of tailings piles to conform with the existing line and height of the piles, would have no adverse impact on the view from KOP #4 or KOP #5 and a less than significant effect on the view during construction implementation. Changes would be relatively minor and not readily apparent to motorists, recreationists, or residents.

KOP #6 (Views of R-3 and R-4): The Proposed Action does not include rehabilitation activities for R-3; therefore, views from KOP #6 of R-3 would not be impacted. R-4 would be visible from the west bound lane of SR 299. Changes in floodplain elevation and removal of riparian vegetation would allow the river to widen towards the west and take on a more natural appearance, thereby enhancing the aesthetic quality of the view. Because the proposed project has been designed to follow the form, line, and function of the surrounding area, impacts to aesthetic resources resulting from activities within R-4 would be less than significant.

VAU # 3

KOP # 7 (Views of R-5 and U-4): The view from KOP #7 along SR 299 is brief, for the most part obscured by upland vegetation, and would likely be noticed only by those individuals looking perpendicular to SR 299 towards the river. The Proposed Action would deposit approximately 35,000 cubic yards of material into U-4, thereby bringing this area of excavated pits and Caltrans spoils piles to a uniform elevation, consistent with the surrounding area. Activities in this area would have no impact on the aesthetic quality of VAU #3, since the vast majority of the area is blocked from view on virtually all sides. R-5 is also barely visible from SR 299; however, because it is immediately adjacent to the river, rehabilitation activities, particularly the feathering of the east bank of the channel, would be readily visible to recreationists using the river through this stretch. Because the proposed project has been designed to integrate into and complement the surrounding landscape, there would be no adverse aesthetic impacts resulting from the Proposed Action.

VAU # 4

KOP #8 (Views of R-6 and R-8), KOP #12 (View of R-8), and KOP #15 (No discernable views): KOP #8 is located in a popular recreation area located just outside of the downstream ESL boundary. From this observation point, upstream views include R-6 and R-8. The Proposed Action does not involve

any rehabilitation activities within R-8; therefore, there would be no impacts to the aesthetic quality of R-8 as viewed from either KOP #8 or KOP #12. Bank feathering activities within R-6 would be partially visible from KOP #8**.** Removal of relatively dense riparian vegetation on the channel's right bank would be apparent, but not out of character for the Trinity River. A shift of the river towards the right bank would create a natural-appearing meander and widening of the river. Planting and natural recruitment of native vegetation would occur on the floodplain. Impacts to the aesthetic quality of this VAU and its KOPs would be less than significant.

There are no discernable views of the rehabilitation areas from the residence represented by KOP #15; therefore, there would be no impact to aesthetic resources with regards to the rehabilitation area when viewed from this location.

VAU # 5

KOP # 9 (View of U-7): U-7 has been created to serve as the primary staging and access areas from which Proposed Action activities would be conducted. Little of the Hocker Flat ESL is visible from Red Hill Road; it is obscured mainly by upland vegetation and topography. Because some upland vegetation removal would be necessary to allow for construction traffic, minor impacts may be noticed by those individuals traveling on Red Hill Road. Only a small portion of an access road into the ESL is visible from KOP #9. Limitations placed on the width of vegetation removal needed to allow for vehicle access would minimize adverse aesthetic impacts, thus making any potential impacts to the views from KOP #9 less than significant.

VAU # 6

KOP # 10 (Views of U-3 and U-7), KOP #13 (Views of U-6 and U-7), and KOP #14 (Views of U-6 and U-7): KOPs #10, 13, and 14 are also located along Red Hill Road. KOP #10 is located at the intersection of Red Hill Road and the existing access road used for the gravel mine. From this location, it is unlikely that passersby would notice any changes to the Hocker Flat area. A very minor component of upland vegetation may need to be removed to allow for improvements to access roads and establishment of a temporary staging area, but the overall aesthetic quality of the impacts on views from this observation point would be less than significant. Rehabilitation activities proposed for U-3 have been designed to blend with the elevational contours of surrounding existing tailings piles.

Views into the ESL from the residences represented by KOP #13 and KOP #14 are limited. Only small glimpses of U-6 and U-7 are available from either of these KOPs; they are blocked from view by upland vegetation that would remain intact before, during, and after implementation. Potential impacts to aesthetic resources from either of these KOPS would be less than significant.

Alternative 1

Potential impacts of this alternative to views from KOPs established for the proposed project are discussed below by VAU.

VAU # 1

KOP #1 (Views of R-1 and U-1), KOP #2 (Views of R-1 and U-1), and KOP #11 (Views of R-1, R-2, and U-1) : Under Alternative 1, there would be no impacts to R-1. Fill material deposited into the tailings piles located in U-1 would be placed below the average elevation of the existing ground surface and would not be visible. Selection of Alternative 1 would have no impact on the views as seen from KOP #1, KOP #2, or KOP #11. Activities in R-2, as viewed from KOP #11, would be less than significant due to the design elements described under the Proposed Action.

KOP #3 (Views of R-1, R-2, R-4, and U-1): Views from KOP #3 would not be adversely affected by implementation of Alternative 1. While there would be no activities occurring in R-1 and deposition of fill into U-1 would not be visible (as previously described), some activities in R-2 and R-4 would be visible from KOP #3. However, impacts to the aesthetic quality of these areas would be less than significant because of the design elements described under the Proposed Action.

VAU # 2

KOP #4 (Views of R-2, R-3, and U-1), KOP #5 (Views of R-2 and U-1), and KOP #6 (Views of R-3 and R-4): Rehabilitation activities would not occur in area R-3; therefore, there would be no impacts incurred in this area. Impacts on views of R-2 and R-4 would be less than significantly impacted due to the relatively minor amount of material scheduled for removal and the inclusion of design elements to blend the grade surface to match slopes in other reaches of the river. Material deposited into U-1 would not be visible from KOP #4 or KOP #5 and therefore would not have a significant impact on aesthetic resources.

VAU # 3

KOP #7 (Views of R-5 and U-4): There would be no impacts visible from KOP #7. Within R-5, a relatively small amount of material would be removed along the bank, below the ordinary high water mark (450 cfs). Fill material deposited into U-4 would not exceed the existing ground surface elevation and therefore would not be visible from KOP #7. There would be no aesthetic impacts to R-5 or U-4.

VAU # 4

KOP #8 (Views of R-6 and R-8), KOP #12 (View of R-8), and KOP #15 (No discernable views): No activities would take place within R-8; therefore, no changes to the views would occur from KOP #8 or KOP #12. Rehabilitation activities planned for R-6 would be less than those described in the Proposed Action and would be less than significant.

VAU # 5

KOP # 9 (View of U-7): U-7 would be used to provide access and contractor staging in the same manner as proposed in the Proposed Action. Potential impacts to views from KOP #9 would be minimized by the

placement of limitations on the widths of vegetation removal along roadways and around staging areas. These activities would have a less-than-significant impact on aesthetic resources when viewed from KOP #9.

VAU # 6

KOP # 10 (Views of U-3 and U-7), KOP #13 (Views of U-6 and U-7), and KOP #14 (Views of U-6 and U-7): Although some removal of upland vegetation may be necessary to meet the rehabilitation objectives for U-3 and U-6, and utilization of U-7, the overall aesthetic quality of the views from KOPs #10, 13, and 14 would be lower than the impacts described for the Proposed Action. Impacts to this VAU would be less than significant.

Mitigation Measures

No-Action Alternative; Proposed Action; Alternative 1

No potentially significant impacts resulting from the selection of any of these alternatives has been identified; therefore, mitigation is not required.

Significance after Mitigation: ***N/A***

Impact 3.14-2: Implementation of the proposed project could substantially change the character of, or be disharmonious with, existing land uses and aesthetic features. ***No Impact for the No-Action Alternative; Less than Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, the proposed project would not be implemented. No changes would occur to the character or harmony of aesthetic features and existing land uses.

Proposed Action and Alternative 1 (All VAUs)

The Proposed Action and Alternative 1 have both been designed to be not only functional (e.g., enhance fisheries, restore river sinuosity), but to complement the visual resources associated with the proposed project. The design of the proposed project incorporates the diversity of landscapes and vegetation types into the character of the rehabilitated riverine and upland areas. Under either alternative, the existing upland dredger tailings piles (rehabilitation area U-1 - U-7) will provide locations to dispose of material excavated from the riverine areas. A design criteria stipulated that this material would be placed in a manner that blends this material into the contours of the existing piles while not changing the nominal heights of the piles. Retention of existing topographic features would significantly lessen the degree of visual impact.

Rehabilitation activities proposed incorporate the existing morphology (bed and bank features) to provide a basis for adjustments to the river channel and floodplain over time, which are flow dependent. Although the alternatives vary in the degree to which the channel and floodplain would be affected, selection of either alternative would produce gradual, ever-improving changes in the aesthetic quality of this stretch of the Trinity River, while keeping in character with the surrounding land uses. Because changes associated with both the Proposed Action and Alternative 1 would retain the character of existing land uses and features, selection of either alternative would result in a less-than-significant impact on aesthetic resources.

Mitigation Measures

No-Action Alternative; Proposed Action; Alternative 1

No potentially significant impacts resulting from the selection of any of these alternatives have been identified; therefore, mitigation is not required

Significance after Mitigation: N/A

Impact 3.14-3: The proposed project may be inconsistent with the federal or state Wild and Scenic River Acts or Scenic Byway requirements. ***No Impact for the No-Action Alternative; Less than Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, the proposed project would not be implemented. No changes would occur that would be inconsistent with the federal or state WSRA or Scenic Byway requirements.

Proposed Action and Alternative 1 (All VAUs)

Under Section 7 of the WSRA, direct and adverse effects to the values for which the Trinity River was recognized as a Wild and Scenic River are prohibited. Implementation of either the Proposed Action or Alternative 1 would not be inconsistent with these values because the activities would not be considered substantially out of character with the current aesthetic conditions. Implementation of either alternative would result in a less-than-significant impact to aesthetic resources. The WSRA Section 7 Determination for the Proposed Action included as **Appendix E.**

Mitigation Measures

No-Action Alternative 1; Proposed Action; Alternative 1

No potentially significant impacts resulting from the selection of any of the alternatives have been identified; therefore, mitigation is not required.

Significance after Mitigation: N/A

Impact 3.14-4: The proposed project may potentially generate increased daytime glare and/or nighttime lighting. ***No Impact for the No-Action Alternative; Less than Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, no changes in existing daytime glare or nighttime lighting would occur because the proposed project would not be constructed.

Proposed Action and Alternative 1 (All VAUs)

Under either the Proposed Action or Alternative 1, significant increases in daytime glare and/or nighttime lighting are not anticipated to occur. Construction activities would not take place during nighttime hours; therefore, nearby residences and motorists traveling along SR 299 or Red Hill Road would not be subjected to the headlights of construction equipment or stationary spotlights. Material removed from the floodplain and deposited into upland rehabilitation areas is generally not reflective and would have a less than significant impact on daytime glare. Some changes may occur in the locations and amounts of glare produced by the widened active river channel, but overall, these changes would be short-lived as the sun passes over; the impacts of these changes would therefore be less than significant. The most likely viewer group to be affected by daytime glare would be residents, but only a few homes near the Hocker Flat area have views of various portions of the ESL and these views are somewhat limited. Furthermore, any occurrences of daytime glare produced by the sun reflecting off of the water would be of short duration.

Mitigation Measures

No-Action Alternative; Proposed Action; Alternative 1

No potentially significant impacts resulting from the selection of these alternatives have been identified; therefore, mitigation is not required.

Significance after Mitigation: N/A

Photo 1. Mouth of Canyon Creek Unit
View along SR 299, south of Canyon Creek Bridge, looking northwest across Canyon Creek into rehabilitation areas R-1 and U-1. VAU#1; KOP#1.

Photo 2. Mouth of Canyon Creek Unit
View along SR 299 and Gizean Road intersection looking northwest into rehabilitation areas R-2 and U-1. VAU#1; KOP#2.

Photo 3. Mouth of Canyon Creek Unit
View along SR 299 looking northwest, downstream, into rehabilitation areas R-1, R-2, R-4, and U-1. VAU#1; KOP#3.

Photo 4. Mouth of Canyon Creek Unit
View along SR 299 looking southwest, upstream, into rehabilitation areas R-2 and U-1. VAU#1; KOP#3.

F:Projects/10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River/Hocker Flat Project/Graphics/Chapter 3/Figure 3.14-3a_VAU_photos.ai 07-02-04 TLA

Figure 3.14-3a
Visual Assessment Unit (VAU) & Key Observation Point (KOP) Photographs

Photo 5. SR 299 Upstream Unit
View along SR 299 looking south, upstream,
into rehabilitation areas R-2, R-3, and U-1.
VAU#2; KOP#4.

Photo 6. SR 299 Upstream Unit
View along SR 299 looking directly across
the river into rehabilitation areas R-2, R-3, and U-1.
VAU#2; KOP#4.

Photo 7. SR 299 Upstream Unit
View along SR 299 looking south, upstream,
into rehabilitation areas R-2, R-3, and U-1.
VAU#2; KOP#5.

Photo 8. SR 299 Upstream Unit
View along SR 299 looking northwest, downstream,
into rehabilitation areas R-3 and R-4.
VAU#2; KOP#6.

F:Projects/10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River/Hocker Flat Project/Graphics/Chapter 3/Figure 3.14-3b_VAU_photos.ai 07-02-04 TLA

Figure 3.14-3b
Visual Assessment Unit (VAU) & Key Observation Point (KOP) Photographs

Photo 9. SR 299 Dowstream Unit
View across SR 299 looking into
rehabilitation areas U-4 and R-5.
VAU#3; KOP#7.

Photo 10. Junction City Campground Unit
View from the riverbank looking south, upstream,
with rehabilitation areas R-6 and R-8 on river left.
VAU#4; KOP#8.

Photo 11. Junction City Campground Unit
View from the riverbank looking southwest,
upstream, into rehabilitation areas
R-6 and R-8 on river left. VAU#4; KOP#8.

Photo 12. Red Hill Road - South Unit
View along Red Hill Road looking northeast,
into rehabilitation area U-7 (access road).
VAU#5; KOP#9.

F:Projects/10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River/Hocker Flat Project/Graphics/Chapter 3/Figure 3.14-3c_VAU_photos.ai 07-02-04 TLA

Figure 3.14-3c
Visual Assessment Unit (VAU) & Key Observation Point (KOP) Photographs

Photo 13. Red Hill Road - South Unit
View along Red Hill Road, approximately 50 ft west of photo 12, looking northeast into rehabilitation area U-7 (access road).
VAU#5; KOP#9.

Photo 14. Red Hill Road - North Unit
View along Red Hill Road looking northeast into rehabilitation areas U-3 and U-7 (access road).
VAU#6; KOP#10.

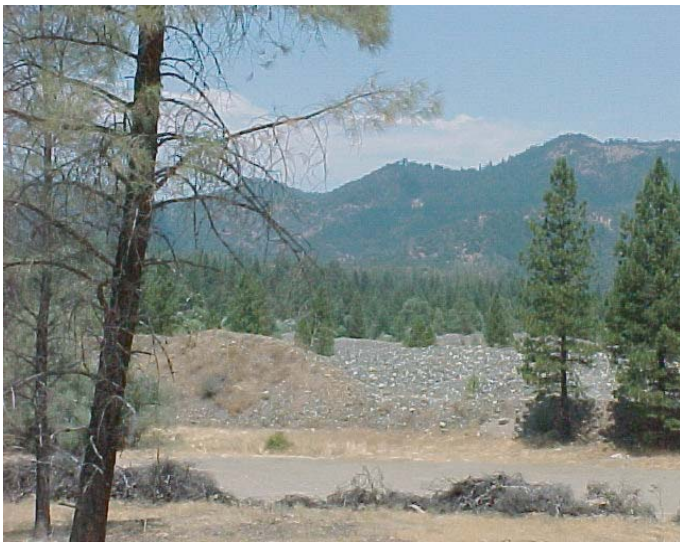


Photo 15. Red Hill Road - North Unit
View along Red Hill Road looking north into rehabilitation areas U-3 and U-7 (access road).
VAU#6; KOP#10.

Photo 16. Red Hill Road - North Unit
View along Red Hill Road looking northwest into rehabilitation areas U-3 and U-7 (access road).
VAU#6; KOP#10.

F:Projects/10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River/Hocker Flat Project/Graphics/Chapter 3/Figure 3.14-3d_VAU_photos.ai 07-02-04 TLA

Figure 3.14-3d
Visual Assessment Unit (VAU) & Key Observation Point (KOP) Photographs

Photo 17. Mouth of Canyon Creek Unit
View from a mobile home looking north
across Canyon Creek into rehabilitation
areas R-1, R-2, and U-1. VAU#1; KOP#11.

Photo 18. Junction City Campground Unit
View from a residence looking south,
upstream, into rehabilitation area R-8.
VAU#4; KOP#12.

Photo 19. Red Hill Road - North Unit
View along Red Hill Road looking southeast
into rehabilitation area U-7 (access road).
VAU#6; KOP#13.

Photo 20. Red Hill Road - North Unit
View along Red Hill Road looking east
into rehabilitation area U-7 (access road).
VAU#6; KOP#13.

F:Projects/10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River/Hocker Flat Project/Graphics/Chapter 3/Figure 3.14-3e_VAU_photos.ai 07-02-04 TLA

Figure 3.14-3e
Visual Assessment Unit (VAU) & Key Observation Point (KOP) Photographs

Photo 21. Red Hill Road - North Unit
View along Red Hill Road looking northeast
into rehabilitation areas U-6 and U-7 (access road).
VAU#6; KOP#13.

Photo 22. Red Hill Road - North Unit
View along Red Hill Road looking southeast
into rehabilitation areas U-6 and U-7 (access road).
VAU#6; KOP#14.

Photo 23. Red Hill Road - North Unit
View along Red Hill Road looking east
into rehabilitation areas U-6 and U-7 (access road).
VAU#6; KOP#14.

Photo 24. Junction City Campground Unit
View along Red Hill Road looking southeast
toward rehabilitation areas R-7 and U-5.
VAU#4; KOP#15.

Photo 25. Junction City Campground Unit
View along Red Hill Road looking east
toward rehabilitation areas R-7 and R-8.
VAU#4; KOP#15.

F:Projects/10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River/Hocker Flat Project/Graphics/Chapter 3/Figure 3.14-3f_VAU_photos.ai 07-02-04 TLA

Figure 3.14-3f
Visual Assessment Unit (VAU) & Key Observation Point (KOP) Photographs

SECTION 3.15

Hazardous Materials

3.15 Hazardous Materials

This section provides an evaluation of the types of hazardous materials that may currently be present within the ESL of the proposed project, as well as potential hazardous materials that may be introduced as a result of implementing the proposed project. Potential health hazards related to implementing the proposed project are also evaluated.

3.15.1 AFFECTED ENVIRONMENT/ENVIRONMENTAL SETTING

Regional Setting

Hazardous materials and wastes are regulated by federal, state, and local agencies, and are required to be recycled or disposed of properly. However, illegal storage and disposal and unintentional releases of hazardous materials or waste from leaks and accidents can still occur. In Trinity County and within the general vicinity of the proposed project, hazardous materials and waste are transported predominantly via roadways such as SR 299. The California Highway Patrol (CHP) under CCR, Title 13, Section 1150-1194 and CFR, Title 49 regulates transport of hazardous materials. When a hazardous material/waste spill originates on a highway, the CHP is responsible for direction of cleanup and enforcement (CCR Section 2450-2453b).

When a hazardous material/waste spill occurs on public land, it is the managing agency's responsibility to direct cleanup and enforcement, initiate all investigations and cleanup, and contact the necessary personnel. When a hazardous material/waste spill occurs on private lands, the property owner is responsible for cleanup. Trinity County Environmental Health contacts the proper personnel and ensures that cleanup is completed according to federal, state, and local regulations.

In 1994, State Bill 1982 amended the California Health and Safety Code, establishing a unified program to deal with hazardous waste and materials in California. The program consolidated six state environmental programs into one program under the authority of a Certified Unified Program Agency (CUPA). The six programs are the Hazardous Materials Business Plan/Emergency Response Plan, Hazardous Waste, Tiered Permitting, Underground Storage Tanks, Aboveground Storage Tanks (Spill Prevention Control and Countermeasure only), and the Uniform Fire Code Hazardous Materials Management Plan. The CUPA is typically a local agency that has been certified by the California Environmental Protection Agency (CalEPA) to implement the six state environmental programs within the local agency's jurisdiction.

While the benefits of a CUPA are many for larger, more urban areas, there are fewer benefits for a rural area such as Trinity County. The costs and training required for implementing these programs at the local level is substantial. The County has not formed a CUPA for the following reasons (Trinity County 2001):

1. No significant public or environmental health benefit has been identified for implementing these programs in rural areas that do not have an industrial base.
2. The CalEPA incentive funding, allotted in 2001, to the non-CUPA was not guaranteed and was dependent on the annual California budget. However, eligibility for such funding required a full commitment from the County to participate as a CUPA.

3. The program requires annual reporting and periodic state audits that would total approximately 100 hours of staff time annually, without any direct benefit to public health.

4. There would be substantial increased County liability from accepting responsibility for enforcing hazardous materials law.

5. Inspector proficiency would be extremely challenging due to the complexity of the hazardous material laws and the lack of local inspector opportunities. Establishing and maintaining staff proficiency would be a problem and would increase County liability.

Currently, the CalEPA is responsible for administering CUPA programs in Trinity County. Since the County has declined to apply for CUPA status, that responsibility remains with the CalEPA. The one exception to this rule is the Underground Tank Program, which has been administered by Trinity County Environmental Health for over a decade. Underground fuel storage tanks may leak, causing significant groundwater contamination. These storage tanks are permitted and inspected annually to ensure operator compliance and to protect the county's groundwater and drinking water supplies.

The Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database contains general information on hazardous waste sites across the nation. **Table 3.15-1** lists three active hazardous waste sites in Trinity County.

Trinity County fire protection needs are currently met by 16 volunteer fire departments located throughout the county, the CDF, and the USFS. By law, the CDF is responsible for wildland fire protection on all private lands within Trinity County and the USFS is responsible for wildland fire protection on all federal National Forest lands. Consequently, both the CDF and USFS fire stations are staffed only during the summer fire season, which normally lasts from May to November. The Trinity County volunteer fire departments are responsible for structural fire protection and rescue services in Trinity County throughout the year. The Junction City Volunteer Fire Department provides services within the general area of the Junction City Community Plan; however, the department routinely responds to hazardous materials spills outside of its legal boundaries if it is dispatched by the 911 Center, which is maintained by the Trinity County Sheriff's Department (Trinity County 2002).

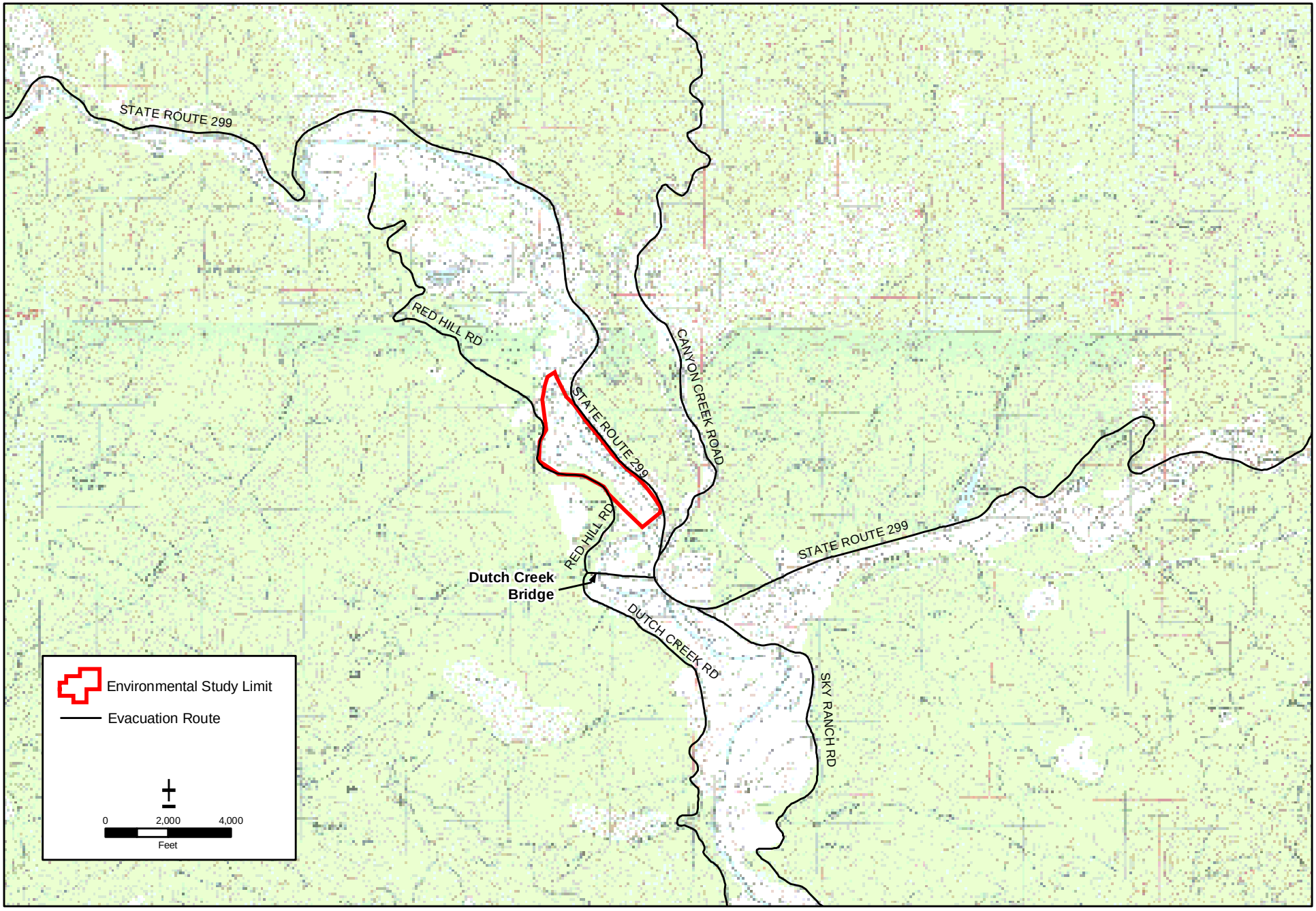
TABLE 3.15-1
HAZARDOUS WASTE SITES RECORDED IN TRINITY COUNTY, CALIFORNIA

Site Name	Status	Location	Distance From Proposed Project
Cheek Skyline Logging	Active	South of Highway 3; Douglas City, CA	8 miles
Kingsbury Creek Mine Lab	Active	Shasta Trinity NF; Hayfork, CA	25 miles
USFS Drinkwater Gulch Mine	Active	T31N, R12W, Section 6; Hayfork, CA	23 miles

Source: EPA 2004 (http://www.epa.gov/superfund/sites/cursites/index.htm)

The Safety Element of the Trinity County General Plan identifies specific major evacuation routes in the event of an emergency (**Figure 3.15-1**). Within the vicinity of the proposed project, the primary evacuation route is SR 299.

F:\Projects\10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River\Hocker Flat Project\Chapter 3\Fig_3.15-1_Evacuation_Route.mxd Source: NSR, Inc.; USBR; USGS; Trinity County 07-02-04 TLA



North State Resources, Inc.

Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

Figure 3.15-1
Major Evacuation Routes

Local Setting

No structures or dwellings are present within the rehabilitation areas described in **Chapter 2**. Junction City Elementary School is located southwest of the ESL established for the proposed project. The only structure within the ESL is a small frame building (well house) immediately east of the school fence. An active sand and gravel operation is authorized by the County, and has been in operation for a number of years. In the past 10 years, no hazardous material spills have been recorded in the vicinity of Hocker Flat (Peter Hedtke, Trinity County Health Department, pers. comm. 2004).

3.15.2 REGULATORY FRAMEWORK

Summarized below are pertinent federal, state, and local environmental laws and regulations pertaining to the storage, handling, and disposal of hazardous waste.

Federal Resource Conservation and Recovery Act (RCRA)

The RCRA is a federal regulatory statute designed to provide "cradle to grave" control of hazardous waste by imposing management requirements on generators and transporters of hazardous wastes and on owners and operators of treatment, storage, and disposal facilities.

Federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

The CERCLA of 1980 is the primary federal statute focusing on past hazardous waste activities. The CERCLA's scope is broader than that of other federal statutes. The CERCLA also initiated development of the National Priorities List, which lists sites that are eligible for remedial action. Section 101(14)(a) of CERCLA states "a hazardous substance is any substance [the] EPA has designated for special consideration under the Clean Air Act (CAA), Clean Water Act, or Toxic Substances Control Act and any hazardous waste under RCRA." The EPA maintains and updates a list of all such hazardous substances (40 CFR 302).

State Superfund Program

In 1981, the California State Legislature enacted the Hazardous Substances Account Act to establish state authority to clean up hazardous substances releases, compensate persons injured from exposure to hazardous substances, and provide funds for payment of the state's mandatory 10 percent share of cleanup cost under the federal Superfund Law. The California Department of Health Services administers the state Superfund program.

U.S. Environmental Protection Agency

The EPA, in addition to several other responsibilities, regulates land disposal through the RCRA. Under the RCRA, the EPA regulates the activities of waste generators, transporters, and handlers (any individual who treats, stores, and/or disposes of a designated hazardous waste). The EPA is also responsible for tracking hazardous waste from its generation to its final disposal (i.e., cradle to grave) to assure proper accountability.

Occupational Safety and Health Administration (OSHA)

Through the enactment of the Occupational Safety and Health Act, the OSHA was obligated to prepare and enforce occupational health and safety regulations with the goal of providing employees a safe working environment. The OSHA regulations apply to the work place and cover activities ranging from confined space entry to toxic chemical exposure. The OSHA regulates workplace exposure to hazardous chemicals and activities through promulgating regulations specifying work place procedures and equipment.

U.S Department of Transportation (DOT)

The DOT regulates the interstate transport of hazardous materials and wastes through implementation of the Hazardous Materials Transportation Act. This act specifies driver-training requirements, load labeling procedures, and container design and safety specifications. Transporters of hazardous wastes must also meet the requirements of additional statutes such as the RCRA.

California Environmental Protection Agency Department of Toxic Substances Control (DTSC)

The DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste under the RCRA and the State Hazardous Waste Control Law. Both laws impose “cradle to grave” regulatory systems for handling hazardous waste in a manner that protects human health and the environment.

Emergency Response to Hazardous Materials Incidents

California has developed an Emergency Response Plan to coordinate emergency services provided by federal, state, and local government and private agencies. Response to hazardous materials incidents is one part of this plan. The plan is administered by the state Office of Emergency Services (OES), which coordinates the responses of other agencies, including the CalEPA, CHP, CDF, the NCRWQCB, local fire departments, and other emergency service providers.

Hazardous Materials Transport

State agencies with primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies are the CHP and Caltrans. Together, these agencies determine container types used and license hazardous waste haulers for hazardous waste transportation on public roads.

Trinity County General Plan Goals and Objectives

The Trinity County General Plan contains goals and policies designed to guide the future physical development of the county, based on current conditions. The General Plan contains all the state-required elements, including community development and design, transportation, natural resources, health and safety, noise, housing, recreation, economic development, public facilities and services, and air quality. The following goals and policies related to hazards and hazardous waste issues associated with the proposed project were taken from the applicable elements of the General Plan (Trinity County 2001), including the Junction City Community Plan (Trinity County 1987).

County-Wide Goals and Objectives

Safety Element

The following goals, objectives, and policies are applicable to the proposed project.

Hazardous Material/Waste Safety Goal

Reduce threats to the public health and the environment caused by the use, storage and transportation of hazardous material and hazardous waste.

Proper regulation of transportation and storage

- Transport of hazardous materials shall be regulated by the CHP under CCR Title 13: 1150-13:1194 and CFR Title 49.

Accessibility

- Roads shall be constructed to provide adequate width, grade and turn-around space for emergency vehicles by complying with appropriate federal, state and local adopted standards. Construction of roads shall protect water quality, slope stability and threat to natural and cultural resources.
- Encourage owners of existing private roads to provide identification signage for emergency access purposes.

Project Consistency with the Trinity County General Plan and Community Plans

This section compares the goals and objectives of the Proposed Action to the relevant local planning policies (i.e., Trinity County General Plan, Junction City Community Plan) to determine if there are any inconsistencies.

As described in **Chapter 1**, Introduction, the proposed project would:

- increase the diversity and area of habitat for salmonids, particularly habitat suitable for rearing;
- increase rearing habitat for juvenile salmonids, including coho, chinook and steelhead;
- increase structural and biological complexity of habitat for various species of wildlife associated with riparian habitats;
- increase hydraulic and fluvial geomorphic diversity and complexity;
- provide a pilot project to evaluate the fate and transport of mercury related to rehabilitation/restoration proposed projects;
- measure/demonstrate the ecological response to changes in flow regimes, morphological features, and aquatic, riparian, and upland habitats; and
- provide a self-maintaining project independent of any future TRD flows.

The following project objectives apply to the proposed project's lead/responsible agencies for the CEQA purposes:

- Evaluate changes in channel geometry in response to constructing channel and floodplain features designed for the river's current hydrologic regime.
- Evaluate the evolution of channel planform features in response to designing and implementing the proposed project at a river segment (1-mile) scale.
- Evaluate the biological response (aquatic, riparian, upland) to changes in the physical environment, and incorporate this information into the AEAM Program.
- Conduct a preliminary assessment of the fate and transport of mercury in response to restoration activities in a historic mining district.
- Locate the proposed project downstream of Canyon Creek to ensure that natural tributary accretion to mainstem flows has a higher likelihood of maintaining the site prior to implementation of the ROD-recommended flow regime.
- Provide safe and reasonable access to the site for project planning, implementation, and monitoring.
- Develop partnerships with willing participants, and encourage positive landowner interest and involvement.
- Design the project to function with the river's current hydrology estimated at the site.
- Integrate known fluvial and ecological theories and relationships with the site's measured physical and biological attributes and evaluate response over a definitive time frame.
- Minimize in-stream work to reduce construction-related impacts, maximize the river's ability to rehabilitate itself during high flows, and reduce implementation cost and complexity.
- Attempt to preserve unique and valuable geomorphic and biological features wherever practicable (i.e., hydraulic controls, high-quality spawning or adult holding habitat).

The following objectives apply to the project's responsible and trustee agencies, including the HVT, NCRWQCB, SLC, CDFG, and the SWRCB:

- Comply with the Water Code to ensure the highest reasonable quality of waters of the state and allocate those waters to achieve the optimum balance of beneficial uses
- Protect the public trust assets of the Trinity River watershed
- Protect, conserve, restore, and manage fish, wildlife, and native plant resources
- Comply with the Water Quality Control Plan for the Hoopa Valley Indian Reservation to preserve and enhance water quality on the Reservation, and to protect the beneficial uses of water.

These project objectives are consistent with the applicable general plan goals and policies summarized above.

3.15.3 ENVIRONMENTAL CONSEQUENCES/IMPACTS AND MITIGATION MEASURES

Methodology

Field reconnaissance of the ESL was conducted by TRRP staff to identify and/or characterize any potential hazardous materials. In addition, Trinity County Planning Department and Environmental Health staff were consulted regarding the potential for hazardous substances.

Significance Criteria

An impact would be considered significant if the proposed project would

- involve the use, production, or disposal of materials that pose a hazard to people, or to animal or plant populations in the area affected;
- create a substantial potential public health or safety hazard due to risk of upset (accidents);
- create a substantial potential public health or safety hazard due to a reasonably foreseeable release of hazardous materials and/or hazardous waste (i.e., from contaminated soil);
- violate applicable laws intended to protect human health and safety or would expose employees to working situations that do not meet health standards;
- physically interfere with, or impair implementation of, emergency response plans or emergency evacuation plans;
- substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- be located on a site that is included on a list of hazardous materials sites compiled pursuant to *California Government Code* Section 65962.5 and, as a result, create a significant hazard to the public or the environment; or
- emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

A project will not be considered to have a significant impact if the potential for adverse effects is remote, as supported by historical data.

Impacts and Mitigation Measures

Table 3.15-2 summarizes the potential hazards and hazardous waste impacts resulting from construction of the proposed project.

TABLE 3.15-2
SUMMARY OF HAZARDS AND HAZARDOUS WASTE IMPACTS
HOCKER FLAT

Impact	No-Action Alternative	Proposed Action	Alternative 1	Proposed Action with Mitigation	Alternative 1 with Mitigation
1. Implementation of the proposed project may increase the potential for release of, or exposure to, potentially hazardous materials that could pose a public health or safety hazard.	NI	LS	LS	N/A[1]	N/A
2. Construction activities associated with the proposed project may interfere with emergency/response/ evacuation plans by temporarily slowing traffic flow.	NI	LS	LS	N/A	N/A

Notes:
LS = Less than Significant NI = No Impact N/A = Not Applicable

[1]Because this potential impact is less than significant, no mitigation is required.

Impact 3.15-1: Implementation of the proposed project may increase the potential for release of, or exposure to, potentially hazardous materials that could pose a public health or safety hazard. ***No Impact for No-Action Alternative; Less than Significant Impact for Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, construction activities that could potentially release hazardous substances (i.e., oil, gas, diesel) in a manner that could pose a health or safety hazard to the general public would not occur because the proposed project would not be implemented.

Proposed Action

As discussed in the preceding section, the potentially hazardous materials that would be used in conjunction with implementation of the proposed project construction are similar to those transported along SR 299 on a routine basis. The excavation and transport of sand and gravel within the ESL of the proposed project has occurred since 1995 with no releases of hazardous materials to the environment. The temporary nature of the construction aspects of the proposed project and the isolated location reduce the likelihood for public hazards.

Alternative 1

Construction activities that could potentially release hazardous substances (i.e., oil, gas, diesel) to the general public under Alternative 1 would be less than those of the Proposed Action in terms of the timing and magnitude of the construction activities.

Mitigation Measures

No-Action Alternative; Proposed Action; Alternative 1

Since no impact was identified, no mitigation is required.

Significance after Mitigation: N/A.

Impact 3.15.2: Construction activities associated with the proposed project may interfere with emergency response/evacuation plans by temporarily slowing traffic flow. ***No Impact for No-Action Alternative; Less than Significant Impact for Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, construction activities that could interfere with emergency response/evacuation plans would not occur because the proposed project would not be constructed.

Proposed Action

Under the Proposed Action, construction traffic would include the mobilization and demobilization of construction equipment (i.e., scrapers, excavators, bulldozers) to the site. Once the equipment is on the site, construction traffic would be limited to daily trips for personnel and routine service and supply vehicles. Construction activities would be managed to ensure that emergency response/evacuation plans are not impeded.

Alternative 1

Under Alternative 1, the potential to interfere with emergency response/evacuation plans would be lower than under the Proposed Action in terms of the timing and magnitude of the construction activities.

Mitigation Measures

No-Action Alternative; Proposed Action; Alternative 1

Since no significant impacts were identified for these alternatives, no mitigation is required.

Significance after Mitigation: N/A.

SECTION 3.16

Noise

3.16 Noise

This section evaluates the potential noise effects associated with construction of the proposed project. The following evaluation is based on review of local land use plans and policies, and field reconnaissance to identify potential sensitive receptors relative to the proposed construction activities.

3.16.1 AFFECTED ENVIRONMENT/ENVIRONMENTAL SETTING

Existing Noise Levels

This noise analysis describes the existing noise environment in the vicinity of Hocker Flat. The relevant noise standard for the proposed project comes from the Noise Element of the County of Trinity General Plan (Trinity County 1974). These standards were used to determine whether the proposed project would result in significant noise impacts and whether mitigation for these impacts would be required. Total noise in a given environment is usually measured with an A-weighted decibel scale (dBA), which approximates the range of sound audible to the human ear (where 10 dBA is at the low threshold of hearing and 120 dBA is the threshold of pain). **Table 3.16-1** lists examples of dBA levels for a range of noises.

TABLE 3.16-1
NOISE LEVELS AND ASSOCIATED EFFECT FOR A VARIETY OF NOISE TYPES

Noise Source at a Given Distance	A-Weighted Sound Level in Decibels[a]	Noise Environments	Subjective Impression
Civil defense siren (100 feet)	130		
Jet takeoff (200 feet)	120 110	 Rock music concert	Pain threshold
Ambulance siren (100 feet)	100 90	 Boiler room Printing press plant	Very loud
Freight cars (50 feet) Pneumatic drill (50 feet)	80		
Freeway (100 ft)	70		Moderately loud
Vacuum cleaner (10 feet)	60	Data processing center Department store	
Light traffic (100 feet) Large transformer (200 feet)	50 40	Private business office	Quiet
Soft whisper (5 feet)	30 20 10		 Threshold of hearing

[a] A-Weighted Sound Level, dBA = The A-weighted filter de-emphasizes very-low and very-high frequency components of sound similar to the response of the human ear.

Noise measurements are usually taken over time to capture daily or hourly variance in noise levels. Noise levels taken over time are often reported in energy-equivalent noise level (L_{eq}), the day-night average noise level (L_{dn}), and the community noise equivalent (CNEL). L_{eq} is an hourly average, while L_{dn} and CNEL are 24-hour weighted averages.

Noise is not considered to be a problem in Trinity County. Sources of noise in Trinity County include the following:

- Highway traffic, especially commercial trucks (i.e., logging trucks, tankers)
- Sawmills
- Airports (light planes, helicopters)
- Mining (sand and gravel excavation)
- Other sources, classifiable as miscellaneous residential, commercial, and industrial sources

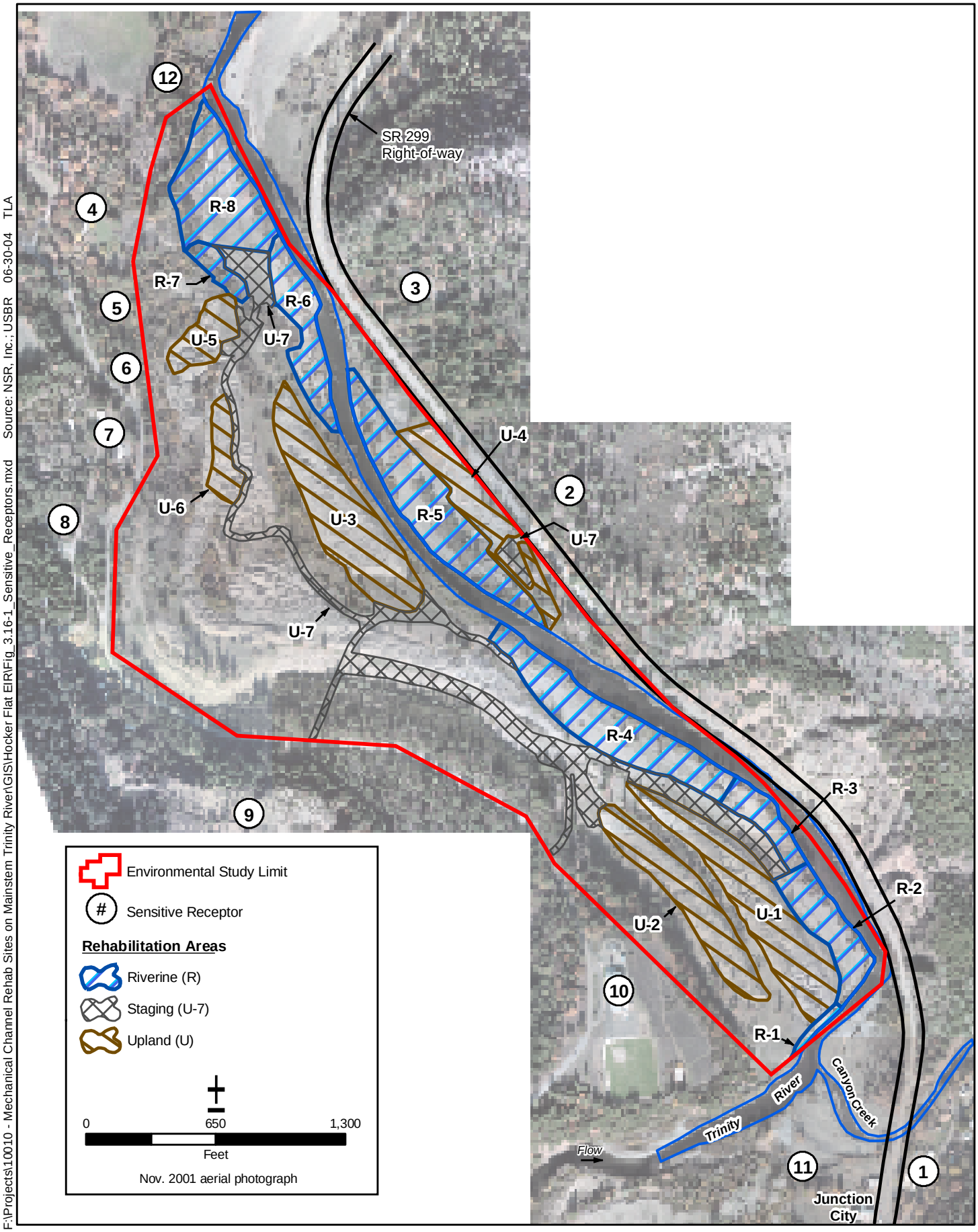
Noise levels in the general vicinity of the proposed project are governed primarily by noise from SR 299 traffic and, to a lesser extent, sand and gravel operations. Local residential and commercial vehicle traffic and miscellaneous sources (i.e., river flow, overhead aircraft, barking dogs, children at play) are an intermittent source of noise throughout the area. A community noise survey was conducted in Trinity County in 2002 (Brown-Buntin 2002) as part of the update for the County General Plan – Noise Element. The nearest survey point to the proposed project was the Junction City Elementary School. This survey indicated that although results were slightly higher (due to pump noise from a water well), the noise levels were consistent with those expected in small communities and rural areas. The community noise survey results indicate that noise levels in the Junction City area range from 47 to 76 dB L_{dn}[1] . Occasional aircraft overflights, fire sirens, and construction activities were other sources of maximum noise levels. Background noise levels in the absence of these maximum-noise generating events are largely attributable to distant traffic, water, wind, livestock, birds, and insects.

Sensitive Noise Receptors

Sensitive receptors are specific geographic points, such as schools, residences or parks, where people could be exposed to unacceptable levels of noise. Noise-sensitive land uses that have been identified within the general vicinity of the proposed project include Junction City Elementary School, private residences outside the ESL of the proposed project, and recreational use of the river corridor. Within the general area (1/4 mile of the ESL for the proposed project), there is one school, several commercial enterprises, and numerous residences. Given the nature of the proposed project, the noise generating activities will occur throughout the ESL established for the proposed project; however, the level of activity will be focused for short periods of time. Upon completion of the proposed project, the noise generating activities will return to the levels that occurred prior to initiation of the proposed project.

Twelve sensitive receptors are located in the vicinity of Hocker Flat (**Figure 3.16-1**). Sensitive receptors identified within 1,000 feet of the ESL for the proposed project are listed in **Table 3.16-2**.

[1]dB Ldn = The average equivalent sound level during a 24-hour day, obtained after addition of ten A-weighted decibels to sound levels in the night after 10:00 PM and before 7:00 AM. A-weighted decibels, abbreviated dBA, or dBa, or dB(a), are an expression of the relative loudness of sounds in air as perceived by the human ear.



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North State Resources, Inc.

Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

Figure 3.16-1
Sensitive Receptor Locations

TABLE 3.16-2
SENSITIVE NOISE RECEPTORS
HOCKER FLAT

Receptor Number	Description	Approximate Distance to Proposed project ESL (ft)	Approximate Distance to Nearest Rehabilitation Area (ft)
1	Private Residence	850	850 ft to R-1
2	Private Residence	325	330 ft to U-4
3	Private Residence	340	485 ft to R-6
4	Private Residence	250	395 ft to R-8
5	Private Residence	115	335 ft to U-5
6	Private Residence	100	200 ft to U-5
7	Private Residence	225	435 ft to U-5
8	Private Residence	270	730 ft to U-6
9	Chagdud Gonpa Foundation	390	480 ft to U-7
10	Junction City School	220	465 ft to U-2
11	Private Residence	480	550 ft to R-1
12	Private Residence	150	210 ft to R-8

Table 3.16-3 lists the U.S. General Services Administration maximum noise levels allowed for government contract construction activities.

TABLE 3.16-3
U.S. GENERAL SERVICES ADMINISTRATION MAXIMUM NOISE LEVELS ALLOWABLE FOR GOVERNMENT CONTRACTS

Equipment	Sound Level (dBA) at 50 feet
Earthmoving	
Front loader	75
Backhoe	75
Dozer	75
Tractor	75
Scraper	80
Grader	75
Truck	75
Paver	80
Impact	
Pile driver	95
Jack hammer	75
Rock drill	80

TABLE 3.16-3
U.S. GENERAL SERVICES ADMINISTRATION MAXIMUM NOISE LEVELS ALLOWABLE FOR GOVERNMENT CONTRACTS

Equipment	Sound Level (dBA) at 50 feet
Pneumatic drill	80
Materials handling	
Concrete mixer	75
Concrete pump	75
Crane	75
Derrick	75
Stationary	
Pump	75
Generator	75
Compressor	75
Other	
Saw	75
Vibrator	75

Source: Sincero and Sincero (1996) as cited in Draft Anderson-Cottonwood Irrigation District Fish Passage Improvement Project Proposed FONSI/EA/Initial Study (1999).

3.16.2 Relevant Plans and Policies

Trinity County

Trinity County has no specific noise standards, but a draft noise element of the General Plan and implementing ordinance are under review for adoption (Brown-Buntin 2002). The current adopted noise element that was prepared in 1974 makes only recommendations and has no implementing ordinance. The Draft County Noise Ordinance was considered by the County Board of Supervisors for approval in June 2003, and the County Planning Department was instructed to continue staff work and present it at some point in the future. County staff indicate there is no expectation that a Draft County Noise Ordinance will be approved prior to completion of the NEPA/CEQA process for the proposed project.

The county General Plan identifies a specific recommendation that is applicable to the proposed project. This recommendation states "*It must be realized that although noise is not a health problem in Trinity County, it is a major annoyance in some areas and should be abated, when feasible to the benefit of everyone.*"

3.16.3 Environmental Consequences/Impacts and Mitigation Measures

Methodology

Since the proposed project would not result in a noticeable increase in traffic volume, the focus of this impact analysis will be on construction noise. Construction noise impacts are based upon an assumed mixture of construction equipment and related noise levels. Noise levels of individual types of equipment are based on industry averages. Assumptions related to construction equipment mixture and industry

noise averages were used to evaluate construction-related noise impacts. Implementation of the proposed project would occur during a relatively short time period (e.g., 6-12 months). Associated activities would consist of several distinct phases, including site preparation (minor grading and grubbing), excavation, transport and placement of excavated material, and revegetation of the rehabilitation areas. Noise levels used to evaluate the construction of the proposed project were taken from the literature, assuming a typical mix of construction equipment used in the construction of public works projects (Bolt et al. 1971). These construction noise levels were used to determine the resultant noise levels at the nearest sensitive receptors.

Significance Criteria

Based on Appendix G of the *CEQA Guidelines*, the proposed project would be considered to have a significant direct noise impact if it results in a noise increase and:

- Exposure of persons to or generation of excessive ground-borne vibration or ground borne-noise levels;
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above existing levels; and
- Exposure of persons to or generation of noise levels in excess of standards established in the Trinity County General Plan Noise Element and associated noise ordinance, or applicable standards of other agencies.

Impacts and Mitigation Measures

Table 3.16-4 summarizes the potential noise impacts resulting from construction of the proposed project.

TABLE 3.16-4
SUMMARY OF NOISE IMPACTS
HOCKER FLAT

Impact	No-Action Alternative	Proposed Action	Alternative 1	Proposed Action with Mitigation	Alternative 1 with Mitigation
1. Construction activities associated with the proposed project would result in temporary noise impacts to nearby sensitive receptors.	NI	S	S	LS	LS

Notes:
LS=Less than Significant S = Significant NI = No Impact

Impact 3.16-1: Construction activities associated with the proposed project would result in temporary noise impacts to nearby sensitive receptors. ***No Impact for No-Action Alternative; Significant Impact for Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, no change in ambient noise levels would occur because the proposed project would not occur.

Proposed Action

Typical construction noise levels are shown in **Table 3.16-5**. This table assumes operations of various construction equipment, as indicated in **Table 3.16-6** (Construction Equipment Noise).

TABLE 3.16-5
TYPICAL CONSTRUCTION NOISE LEVELS

Construction Stage	Noise Level (dBA, L_{eq})[1]
Ground Clearing	84
Excavation	89
Hauling	88
Revegetation	65

[1] Average noise levels 50 feet from the noisiest source and 200 feet from the rest of the equipment associated with a given construction stage. Noise levels correspond to public works projects (50 dBA ambient environment). Source: Bolt et al. 1971

TABLE 3.16-6
CONSTRUCTION EQUIPMENT NOISE

Type of Equipment	Maximum Level, dBA at 50 feet
Truck	75
Scrapers	80
Bulldozers	75
Backhoe	75
Pneumatic Tools	80

Source: Sincero and Sincero (1996) as cited in Draft Anderson-Cottonwood Irrigation District Fish Passage Improvement Project Proposed FONSI/EA/Initial Study (1999).

Twelve sensitive receptors are located in the immediate vicinity of Hocker Flat (**Figure 3.16-1**). Sensitive receptors identified within 1,000 feet of Hocker Flat are listed in **Table 3.16-2**. During the construction phases of the Proposed Action, noise from construction activities would dominate the noise environment in the immediate area. Activities involved in construction would generate noise levels ranging from 70 to 90 dBA at a distance of 50 feet (**Table 3.16-5**). No sensitive receptors are located within 100 feet of the ESL established for the proposed project. Construction activities would be temporary in nature, typically occurring during normal working hours. While daytime construction noise

would be annoying at times in localized areas, it would be considered less than significant due to the short-term nature of the event, assuming construction activities are limited to daytime hours. No nighttime construction activities are proposed; however, incidental activities (i.e., security, equipment service) could occur in support of the project. The noise levels associated with the incidental activity would be similar to the activities that currently exist in the surrounding area (i.e., logging trucks, service vehicles). No construction activities would occur on Sundays.

Alternative 1

Noise impacts will be lower under Alternative 1 than under the Proposed Action. The primary difference is the amount of construction that would occur in terms of quantity and timing.

Mitigation Measures

No-Action Alternative

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A.

Proposed Action; Alternative 1

1a: Construction activities near residential areas would be scheduled between 7:00 AM and 7:00 PM, Monday through Saturday. No construction activities shall be scheduled for Sundays or other hours and days, as established by the local jurisdiction (e.g., Trinity County). The contractor may submit for variances in construction activity hours, as needed.

1b: Reclamation shall require in construction specifications that the contractor maintain all construction equipment with manufacturer's specified noise muffling devices.

1c: Reclamation shall require in construction specifications that the contractor place all stationary noise-generating equipment as far away as feasibly possible from sensitive noise receptors or in an orientation minimizing noise impacts (i.e., behind existing barriers, storage piles, unused equipment).

Significance after Mitigation: Less than Significant.

SECTION 3.17

Public Services and Utilities/Energy

3.17 Public Services and Utilities/Energy

This section evaluates potential impacts to public services and utilities from implementation of the proposed project. Additionally, this section addresses potential impacts to energy resources due to substantial or wasteful use of energy resources during implementation of the proposed project. This section is based on review of local planning documents for applicable to the proposed project, telephone communication with local service providers, and field reconnaissance by TRRP and NSR staff.

3.17.1 AFFECTED ENVIRONMENT/ENVIRONMENTAL SETTING

Regional Setting

Water Supply and Distribution

Community service districts provide water services to several communities in Trinity County, including Weaverville, Lewiston, and Hayfork. In some instances, local service districts provide water service to small residential areas. Outside these communities, a large portion of the population is served by onsite water developments. These developments include wells, springs, and surface intake facilities along the Trinity River and its tributaries.

Surface Water

Surface water sources include pumps and stilling wells in the Trinity River, as well as developed springs throughout the area. Surface water is primarily used for domestic purposes, including incidental use for gardens, livestock, and fire protection.

Groundwater

Groundwater wells provide water for domestic purposes adjacent to the ESL established for the proposed project. The water source for the Junction City Elementary School is a well located along the southwestern boundary of the ESL. All rehabilitation areas were located to ensure that this facility is avoided. Private residences outside the ESL use groundwater as their primary or secondary water source in a number of areas.

The Recent Alluvium formation is the predominant, fresh water-yielding formation along the Trinity River. This formation underlies the ESL at varying depths. Water quality is highly variable and depends on local geologic features. The most common potential hazards to groundwater quality in the county involve the concentration of nitrates and dissolved solids from agricultural practices and septic tank failures.

Water Treatment Facilities

Water treatment facilities vary widely throughout the county. There are no public treatment services within the immediate vicinity of Hocker Flat, although Junction City Elementary School operates a small treatment facility for its own use. Water treatment facilities that serve communities are operated in accordance with established EPA guidelines. Water supplies that serve small subdivisions and private residences often have filtration and treatment systems that are used to address local water quality concerns.

SECTION 3.18

Transportation/Traffic Circulation

3.18 Transportation/Traffic Circulation

This section addresses transportation and traffic issues related to implementation of the proposed project. The following evaluation is based on review of local transportation plans and policies, as well as a field reconnaissance to document current local roadway conditions.

3.18.1 Affected Environment/Environmental Setting

Regional Roadway Network

The USFS Scenic Byways program was developed to provide alternative uses of national forest lands while meeting the public demand for scenic driving tours on safe, well-maintained roads within or near the boundaries of national forests. Trinity County currently has two Scenic Byways, the Trinity Scenic Byway along SR 299 and the Siskiyou-Trinity Scenic Byway along SR 3 and SR 36. SR 299 was designated the Trinity Scenic Byway in October 1991. It enters Trinity County from the east over Buckhorn summit, descending toward the Trinity River at Douglas City. Following Weaver Creek to Weaverville and then climbing Oregon Mountain, it rejoins the river at Junction City and follows the Trinity River Gorge into Humboldt County. SR 3, historically called the Trinity Heritage Scenic Byway, has recently been renamed the Siskiyou-Trinity Scenic Byway. It travels south from Montague in Siskiyou County through the Scott River Valley and enters Trinity County over the Scott Mountain summit, 55 miles north of Weaverville. It travels through the Trinity Alps to Trinity Lake before continuing on to Weaverville, then south through Hayfork to the end of the highway at its junction with SR 36. This scenic byway continues along SR 36 through Forest Glen before continuing into Humboldt County (Center for Economic Development 2001).

The Junction City/Helena Community is a collection of residential and commercial areas connected by SR 299. Sky Ranch Road, Canyon Creek Road, Dutch Creek Road, and Red Hill Road are part of the Trinity County road system. Hocker Flat is accessed via Red Hill Road, after crossing Dutch Creek Bridge over the Trinity River (**Figure 3.18-1**).

Local Setting

Access to the proposed project area is provided by SR 299 on the right side of the Trinity River. Rehabilitation areas R-5, U-4, and U-7 (staging) are located between the river and SR 299. **Table 3-18.1** characterizes the roadways that access the proposed project.

Red Hill Road via Dutch Creek Road provides access to the proposed project on the left side of the Trinity River. The primary access point for the proposed project area is located on Red Hill Road about ½ mile downstream from Junction City Elementary School (**Figure 2-1**, U-7).

TABLE 3.18-1
ROADWAY CHARACTERISTICS FOR ROADS ACCESS TO THE PROPOSED PROJECT
HOCKER FLAT

Road Name	Ownership	Roadway Class	No. of Lanes	Surface Type	Curb Shoulder	Pedestrian Walkway	Traffic Counts ADT	Cross Streets
SR 299	State of California	Highway/ Scenic Byway	2-3	Paved	Yes	No	1675 (1)	Canyon Creek Road Dutch Creek Road
Dutch Creek Road	Trinity County	Local/ Residential	1-2	Paved	No	Bike Lane	886 (2)	Red Hill Road SR299
Red Hill Road	Trinity County	Local/ Residential	1-2	Paved	No	Bike Lane	604 (2)	Dutch Creek Road

Notes:
(1) Caltrans http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/2003
(2) Average Daily Traffic (ADT), Jan Smith, County Transportation Department 2004, pers. comm.

Designated Truck Routes

SR 299 is a designated truck route between the Sacramento Valley and the coastal communities of Northern California. Red Hill Road via Dutch Creek Road, provides access to residential areas and timberlands, both federal and private. A permitted sand and gravel mine within the ESL established for the proposed project generates truck traffic on an intermittent basis.

Public Health

No public health programs or private meals programs for seniors (i.e., meals on wheels) or disabled persons currently serve residents in the Junction City community.

Bikeways/Pedestrian Circulation

In conformance with the Junction City Community Plan, Red Hill Road was widened to include a bike lane, primarily to provide alternative transportation between local residences and Junction City Elementary School. Pedestrian uses include students who walk to the bus stops along Red Hill Road, as well as local residents and their guests who use the roadway for access, as well as for exercise and recreational pursuits on an occasional basis.

Duration of Construction

The estimated construction time for the proposed project is 6 months to a year. During this time, several phases of activity, including site preparation (grading and clearing of vegetation), excavation, transport and placement of materials, and revegetation, may be separated by periods of relatively less activity. Additional information on construction schedules is provided in **Chapter 2**.

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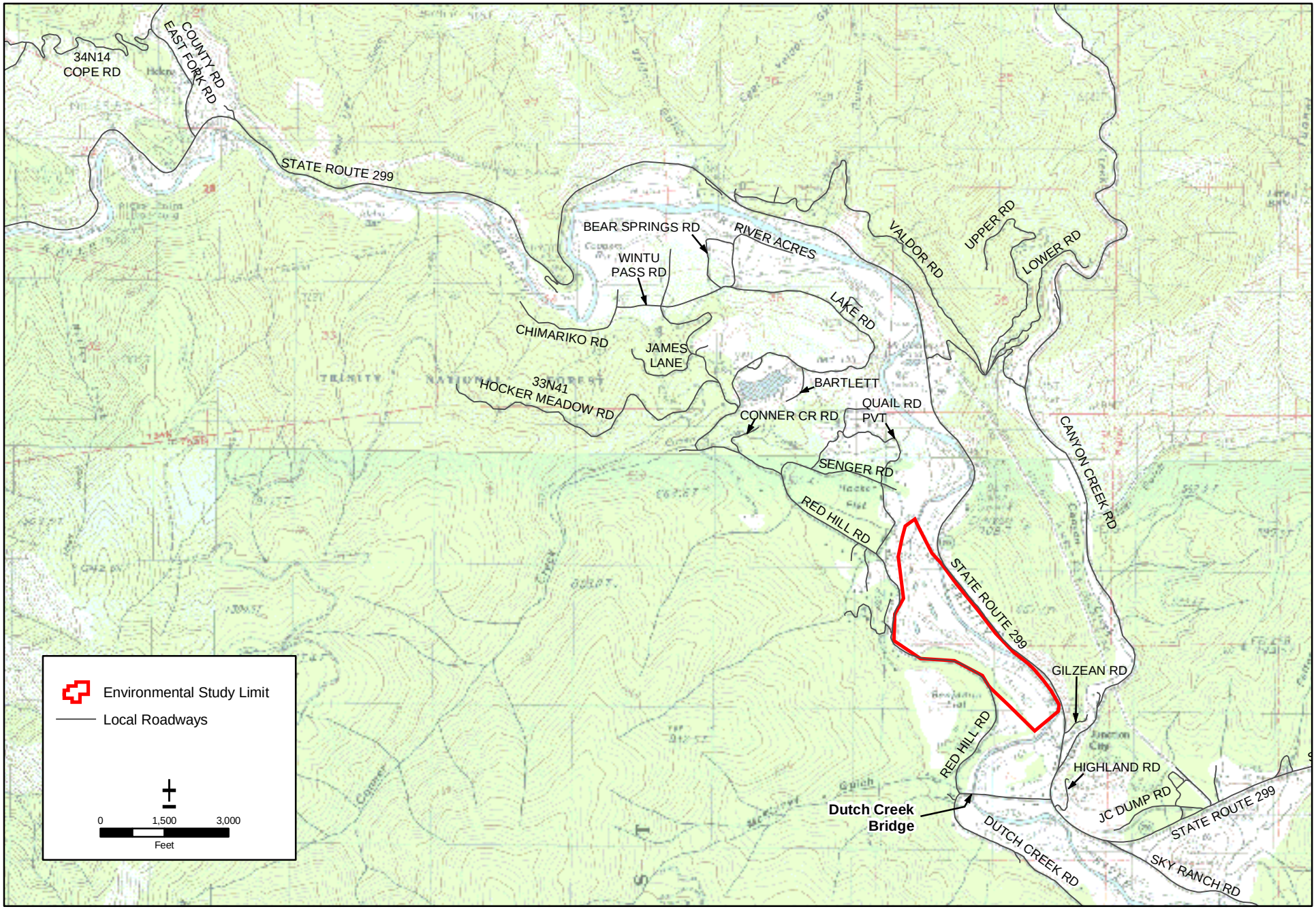

North State Resources, Inc.

Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

Figure 3.18-1
Local Roadways

3.18.2 REGULATORY SETTING

Trinity County General Plan Goals and Objectives

The Trinity County General Plan contains goals and policies designed to guide the future physical development of the county, based on current conditions. The General Plan contains all the state-required elements, including community development and design, transportation, natural resources, health and safety, noise, housing, recreation, economic development, public facilities and services, and air quality. The following goals and policies, relative to transportation/traffic issues associated with the proposed project, were taken from the applicable elements of the General Plan (Trinity County 2001), including the Junction City Community Plan (Trinity County 1987).

Circulation Element

The Circulation Element contains the following goal associated with non-motorized transportation.

Goal: To increase bicycle and pedestrian travel by developing a safe and convenient system of bicycle routes, trails, storage facilities and pedestrian walkways, connecting all of Trinity County's major activity centers.

Junction City Community Plan Goals and Objectives

This plan covers the area centered on the Trinity River from Helena to Maxwell Creek.

Transportation

Goal: To provide a roadway system which effectively, efficiently and safely serves transportation needs.

- Improve the safety characteristics of identified roadways based on average daily traffic and public safety requirements.

Goal: To coordinate the transportation and circulation system with planned land uses..

- Concentrate heavy traffic generators on major roads.

Public Services and Facilities

Goal: Maintain as a priority, the existing level of public services and improvements within areas of the community already served.

- Insure that new development does not reduce the level of existing services.

Project Consistency with the Trinity County General Plan

This section compares the goals and objectives of the Proposed Action to the relevant local planning policies (i.e., Trinity County General Plan, Junction City Community Plan) to determine if there are any inconsistencies.

As described in **Chapter 1**, Introduction, the proposed project would:

- increase the diversity and area of habitat for salmonids, particularly habitat suitable for rearing;
- increase rearing habitat for juvenile salmonids, including coho and Chinook salmon and steelhead;
- increase the structural and biological complexity of habitat for various species of wildlife associated with riparian habitats;
- increase hydraulic and fluvial geomorphic diversity and complexity;
- provide a pilot project to evaluate the fate and transport of mercury related to the rehabilitation/restoration projects;
- measure/demonstrate the ecological response to changes in flow regimes, morphological features, and aquatic, riparian, and upland habitats; and
- provide a self-maintaining project independent of any future TRD flows.

The following project objectives apply to the proposed project's lead/responsible agencies for CEQA purposes:

- Evaluate changes in channel geometry in response to constructing channel and floodplain features designed for the river's current hydrologic regime.
- Evaluate the evolution of channel planform features in response to designing and implementing the proposed project at a river segment (1-mile) scale.
- Evaluate the biological response (aquatic, riparian, upland) to changes in the physical environment, and incorporate this information into the AEAM Program.
- Conduct a preliminary assessment of the fate and transport of mercury in response to restoration activities in a historic mining district.
- Locate the proposed project downstream of Canyon Creek to ensure that natural tributary accretion to mainstem flows has a higher likelihood of maintaining the site prior to implementation of the ROD-recommended flow regime.
- Provide safe and reasonable access to the site for project planning, implementation, and monitoring.
- Develop partnerships with willing participants, and encourage positive landowner interest and involvement.
- Design the proposed project to function with the river's current hydrology estimated at the site.
- Integrate known fluvial and ecological theories and relationships with the site's measured physical and biological attributes and evaluate response over a definitive time frame.
- Minimize in-stream work to reduce construction related impacts, maximize the rivers ability to rehabilitate itself during high flows, and reduce implementation cost and complexity.

- Attempt to preserve unique and valuable geomorphic and biological features wherever practicable (i.e., hydraulic controls, high quality spawning or adult holding habitat).

The following objectives apply to the proposed project's responsible and trustee agencies, including the HVT, the NCRWQCB, the SLC, the CDFG, and the SWRCB:

- Comply with the Water Code to ensure the highest reasonable quality of waters of the state and allocate those waters to achieve the optimum balance of beneficial uses
- Protect the public trust assets of the Trinity River watershed
- Protect, conserve, restore, and manage fish, wildlife, and native plant resources
- Comply with the Water Quality Control Plan for the Hoopa Valley Indian Reservation to preserve and enhance water quality on the Reservation, and to protect the beneficial uses of water.

These project objectives are consistent with the applicable general plan goals and policies summarized above.

3.18.3 Environmental Consequences/Impacts and Mitigation Measures

Methodology

A qualitative assessment of traffic impacts was based on several components including the construction procedures and equipment that will be utilized, local transportation policies, site review of existing conditions, and the level of traffic on the key roadways.

Significance Criteria

Significance criteria were developed based upon Appendix G of the *CEQA Guidelines*, as well as project-specific issues identified during the scoping process (i.e., access during construction). For the proposed project, significant construction-related impacts would result if the proposed project would

- cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections);
- exceed, either individually or cumulatively, a level of service standard established by the county for designated roads or highways;
- disrupt existing traffic operations, including vehicular and bicycle traffic;
- significantly degrade the existing conditions of local, private roads;
- obstruct access to adjacent land uses, including emergency access;
- affect the operation of the local transit system;
- pose a safety hazard to motorists, bicyclists, or pedestrians;

- cause substantial damage or wear of public and private roadways; or
- reduce available parking capacity.

Impacts and Mitigation Measures

Table 3.18-2 summarizes the potential transportation/traffic impacts resulting from implementation of the proposed project.

TABLE 3.18-2
SUMMARY OF TRANSPORTATION/TRAFFIC IMPACTS
HOCKER FLAT

Impact	No-Action Alternative	Proposed Action	Alternative 1	Proposed Action with Mitigation	Alternative 1 with Mitigation
1. Construction of the proposed project would reduce/close existing traffic lanes.	NI	LS	LS	N/A[1]	N/A
2. Construction of the proposed project would generate short-term increases in vehicle trips.	NI	LS	LS	N/A	N/A
3. Construction of the proposed project would obstruct access to adjacent land uses.	NI	S	S	LS	LS
4. Construction of the proposed project would increase local roadway wear-and-tear.	NI	S	S	LS	LS
5. Construction of the proposed project could pose a safety hazard to motorists, bicyclists, and pedestrians.	NI	S	S	LS	LS

Notes:
LS = Less than Significant S = Significant NI = No Impact
N/A = Not Applicable

[1.] Because this potential impact is less than significant, no mitigation is required.

Impact 3.18-1: Construction of the proposed project would reduce/close existing traffic lanes. ***No Impact for the No-Action Alternative; Less than Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, construction-related reduction or closure of traffic lanes would not occur because the proposed project would not be constructed.

Proposed Action

Project construction activities associated with the Proposed Action would be managed to ensure that SR 299, Dutch Creek Road, and Red Hill Road remain open to through traffic, although traffic control may be necessary during the mobilization and demobilization of heavy equipment. No road closures are anticipated: therefore, passage for emergency vehicles will not be restricted. The adequate passage of traffic within and through the construction area in the event of an emergency evacuation is discussed in

Section 3.15, Hazardous Materials. Because any traffic control requirements associated with project access roads would be temporary, this impact is considered less than significant.

Alternative 1

Similar to the Proposed Action, construction activities associated with Alternative 1 would not result in significant reductions in or closure of traffic lanes in the vicinity of Hocker Flat. In fact, the impact of Alternative 1 will be substantially less in terms of the timing and magnitude of construction activities.

Mitigation Measures

No-Action Alternative; Proposed Action; Alternative 1

Since no significant impact was identified for these alternatives, no mitigation is required.

Significance After Mitigation: N/A.

Impact 3.18-2: Construction of the proposed project would generate short-term increases in vehicle trips. ***No Impact for the No-Action Alternative; Less than Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, construction-related short-term increases in vehicle trips would not occur because the proposed project would not be constructed.

Proposed Action

Construction of the Proposed Action would require a number of truck and worker vehicle trips on area roads leading to and from the construction area (SR 299, Dutch Creek Road, Red Hill Road) as described previously in this section. During the period of construction when the greatest number of workers and trucks would be required, up to 20 construction workers and 15 trucks would be required. Up to 15 construction workers and an average of 10 trucks would be added to area roads on a daily basis. During the construction phase of the proposed project, Reclamation shall limit the amount of daily construction equipment traffic by staging most construction equipment and vehicles within the ESL of the proposed project at the end of each workday. Post-construction activities (i.e., revegetation, maintenance and monitoring) would require intermittent access for 3 to 5 years, depending on the success of natural revegetation. Because the existing traffic volumes on area roads located across the river from SR 299 is low and the increase in traffic from construction would be modest and temporary, increased traffic associated with construction of the Proposed Action is not considered significant.

Alternative 1

Similar to the Proposed Action, construction of Alternative 1 would not result in significant increases in vehicle trips on roads in the vicinity of Hocker Flat. This alternative would also require up to 15 construction workers and an average of 10 trucks would be added to area roads on a daily basis during the construction period. Revegetation efforts would be limited compared to the Proposed Action, thereby reducing the traffic associated with post-construction activities.

Mitigation Measures

No-Action Alternative; Proposed Action; Alternative 1

Since no significant impact was identified for these alternatives, no mitigation is required.

Significance After Mitigation: N/A.

Impact 3.18-3: Construction of the proposed project would affect access to adjacent land uses. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

Under the No-Action Alternative, construction would not affect access to adjacent land uses because the proposed project would not be constructed.

Proposed Action

As described in **Section 3.2,** land uses adjacent to Hocker Flat include residential areas located on both sides of the Trinity River. The residents on the right bank (east bank) of the Trinity River live on the east side of SR 299. A number of residents live on either side of Red Hill Road, and in some instances these residences are associated with parcels within the ESL of the proposed project. As previously described, construction activities associated with the Proposed Action will utilize the access points identified as area U-7 on **Figure 2-1**, including a primary access point on SR 299 and one on Red Hill Road.

Although recreational access to the Trinity River would be restricted within the ESL during the construction period, several public access points are available on both sides of the ESL (upstream and downstream). Impacts relating to recreational activities are discussed under **Section 3.8** (Recreation).

Alternative 1

Similar to the Proposed Action, under Alternative 1 proposed project construction activities associated with this alternative would be staged to limit the amount of impacts to users of Dutch Creek and Red Hill Roads during construction.

Mitigation Measures

No-Action Alternative

Since no significant impact was identified, no mitigation is required.

Significance After Mitigation: N/A.

Proposed Action; Alternative 1

3a Construction bid documents will require that access be maintained throughout the construction period for all private residences adjacent to the proposed project.

3b During the construction phase of the proposed project, Reclamation shall limit the amount of daily construction equipment traffic by staging most construction equipment and vehicles on the proposed project site at the end of each work day.

Significance After Mitigation: Less than Significant

Impact 3.18-4: Construction of the proposed project would increase local roadway wear-and-tear. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action and Alternative 1.***

No-Action Alternative

Under the No-Action Alternative, construction-related wear-and-tear on local roadways would not occur because the proposed project would not be constructed.

Proposed Action

Under the Proposed Action, construction-related traffic that would be added to area roads would consist of heavy trucks. The use of heavy construction equipment to move material to and from the work site for the proposed project could affect local road conditions on the designated haul routes by increasing the rate of road wear. The degree to which this impact would occur depends on the design (pavement type and thickness) and the existing condition of the road. On major roadways such as SR 299, which is designed to accommodate a mix of vehicle types including heavy trucks, the proposed project's impacts would be negligible. Rural roads are generally not built with a pavement thickness that will withstand substantial heavy truck traffic volumes. Dutch Creek and Red Hill Roads are the primary roadways that would be subjected to wear-and-tear.

Alternative 1

Construction activities associated with Alternative 1 relative to roadway wear-and-tear would be less than under the Proposed Action in term of the magnitude, duration, and timing of activities.

Mitigation Measures

No-Action Alternative

Since no significant impact was identified for these alternatives, no mitigation is required.

Significance After Mitigation: N/A.

Proposed Action; Alternative 1

4a Reclamation shall include provisions in the contract specifications that require the construction contractor to perform a pre-construction survey with Trinity County Department of Transportation officials to determine the existing roadway conditions of the construction access route (Dutch Creek and Red Hill Roads). An agreement would be entered into prior to construction that would detail the pre-construction conditions and post-construction requirements for potential roadway rehabilitation.

4b A post-construction survey of the construction access route (Dutch Creek and Red Hill Roads) shall be performed with Trinity County Department of Transportation officials to determine if any damage has occurred during construction. If necessary, Reclamation shall require the contractor to conduct the required roadway rehabilitation identified in the mutual agreement between Reclamation and Trinity County Department of Transportation.

Significance After Mitigation: Less than Significant

Impact 3.18-5: Construction of the proposed project could pose a safety hazard to motorists, bicyclists, and pedestrians. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action and Alternative 1***

No-Action Alternative

The No-Action Alternative would not pose a safety hazard to motorists, bicyclists, or pedestrians because the proposed project would not be constructed.

Proposed Action

Traffic safety hazards could arise for motorists, pedestrians, and bicyclists in the vicinity of the construction access route for brief periods of time on an intermittent basis. Access to the Trinity River through the proposed project ESL may be limited to identified routes during construction activities to minimize public exposure to construction traffic.

Alternative 1

Safety concerns associated with construction of Alternative 1 would be similar to those under the Proposed Action, although the magnitude and timing of the construction activity will be substantially less.

Mitigation Measures

No-Action Alternative

Since no significant impact was identified, no mitigation is required.

Significance After Mitigation: N/A.

Proposed Action; Alternative 1

5a Reclamation shall include provisions in the contract specifications that require the construction contractor to prepare and implement a traffic control plan that would include provision and maintenance of temporary access through the construction zone, reduction in speed limits though the construction zone, signage and appropriate traffic control devices, illumination during hours of darkness or limited visibility, use of safety clothing/vests to ensure visibility of construction workers by motorists, and fencing as appropriate to separate pedestrians and bicyclists from construction activities.

Significance After Mitigation: Less than Significant

CHAPTER 4

Other Statutory Considerations

Other Statutory Considerations

This chapter addresses other statutory considerations that must be evaluated pursuant to NEPA and/or the CEQA guidelines. The following sections address these specific statutory considerations, with the applicable environmental guidelines noted in parenthesis:

- 4.1 – Cumulative Impacts (NEPA and CEQA)
- 4.2 – Growth-Inducing Impacts (NEPA and CEQA)
- 4.3 – Significant Irreversible and Irretrievable Commitments of Resources Which Would Result from the Proposed Action (NEPA and CEQA)
- 4.4 – Relationship Between Local Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity (NEPA)
- 4.5 – Mitigation Monitoring Program for CEQA-Mandated Mitigation (CEQA)
- 4.6 – Significant and Unavoidable Adverse Impacts (CEQA)
- 4.7 – Findings of Fact and Statements of Overriding Consideration (CEQA)

4.1 Cumulative Impacts

4.1.1 LEGAL REQUIREMENTS

Cumulative impacts are the impacts on the environment that result from the incremental impacts of the Proposed Action when added to other past, present, and reasonably foreseeable future actions (14 CCR 15355[b], 40 CFR 1508.7), regardless of what agency (federal or non-federal) or entity undertakes such other actions. These impacts can result from individually minor but collectively significant actions taking place over time.

State *CEQA Guidelines* and Council on Environmental Quality (CEQ) NEPA regulations require that the cumulative impacts of a proposed project be addressed in an EA/EIR when the cumulative impacts are expected to be significant (14 CCR 15130[a], 40CFR 1508.25[a][2]). When a lead agency is examining a project with an incremental effect that is not “cumulatively considerable,” the lead agency need not consider that effect significant, but shall briefly describe its basis for concluding that the incremental effect is not cumulatively considerable.

4.1.2 METHODOLOGY

The analysis of cumulative effects in this EA/DEIR addresses the cumulative impacts of the proposed project in general, with no separate analysis for each alternative. It is recognized that the Proposed Action may be implemented in an interactive manner with other concurrent projects. In addition, these other projects may affect the impacts of the Proposed Action.

According to the *CEQA Guidelines*, the cumulative impacts discussion "should be guided by the standards of practicality and reasonableness." The *CEQA Guidelines* require that a cumulative impacts analysis identify related projects, summarize the expected environmental impacts of those related projects, and analyze the cumulative impacts of the proposed and related projects. To identify the related projects, the *CEQA Guidelines* recommend either

- the list approach, which entails listing past, present and reasonable anticipated future projects producing related or cumulative impacts, including those projects outside the control of the agency; or
- the projection approach, which uses a summary of projections contained in an adopted general plan or related planning document that is designed to evaluate regional or area wide conditions.

This cumulative impacts section identifies the related projects and programs through the list approach, based on input from the lead and cooperating agencies. The geographic scope of the area examined for cumulative effects is the Trinity River corridor between Lewiston Dam and the confluence of the North Fork Trinity River (Helena, California). The following section summarizes the projects and programs that are considered to potentially cumulative effects.

4.1.3 RELATED PROJECTS AND PROGRAMS

Fish Habitat Management

Forty-seven mechanical rehabilitation projects were identified in the FEIS/EIR for the Trinity River Mainstem Fishery Restoration Project (USFWS et al. 2000a). The project evaluated in this EA/DEIR is the first of these channel rehabilitation efforts planned in accordance with ROD. As described in **Section 1.1** of this EA/DEIR the United States Court of Appeals for the Ninth Circuit rendered an opinion on July 13, 2004 that reversed portions of earlier rulings issued by the , the United States District Court. In summary, both courts upheld the ROD as it relates to authorization of the mechanical rehabilitation projects. Currently the TRRP has several ongoing planning efforts for rehabilitation projects in addition to the demonstration project described in this EA/DEIR.

These projects are being planned and implemented by the TRRP, with oversight from the Trinity Management Council. The TRRP has two distinct program elements: 1) the Rehabilitation and Implementation Group, which is responsible for project development, engineering, and regulatory compliance, and 2) the Technical Modeling and Analysis Group, which is responsible for project development, monitoring, and integrating activities in an adaptive management framework.

A number of federal, state and local participants are involved at both the policy and project level. Active participants include Reclamation, USFWS, NOAA Fisheries, USFS, DWR, Trinity County, and the Hoopa Valley and Yurok Tribes.

In addition to the proposed project, four additional rehabilitation efforts are slated for implementation by the TRRP between 2005 and 2007. These projects would be similar to the Proposed Action in terms of the magnitude and types of activities in the Trinity River corridor. In addition to the mechanical channel rehabilitation efforts downstream of Canyon Creek, the TRRP has a number of restoration activities scheduled upstream of Junction City. Specifically, the TRRP has initiated construction activities at four bridge locations between Lewiston and Douglas City (U. S. Bureau of Reclamation 2003c). Additional restoration actions include mechanical channel rehabilitation efforts between Junction City and Lewiston, dredging of the Hamilton sediment ponds which control fine sediment introduction from Grass Valley Creek, injection of spawning gravel, and modification of the infrastructure and facilities to facilitate the modified flow regime upheld in the July 13 court opinion (**Appendix A**) and expected in the future.

The four sites below Canyon Creek are:

- Pear Tree, RM 73.1
- Elkhorn, RM 74.0
- Valdor Gulch, RM 75.4
- Conner Creek, RM 77.2

Similar to Hocker Flat, these rehabilitation sites were selected downstream of Canyon Creek where natural tributary accretion to mainstem flows has a higher likelihood of maintaining the site prior to implementation of the ROD-recommended flow regime than upstream sites. The TRRP's goals for these sites are to develop and implement a suite of self-maintaining rehabilitation projects that will:

- Increase the diversity and area of habitat for salmonids, particularly habitat suitable for rearing
- Increase the structural and biological complexity of habitat for various species of wildlife associated with riparian habitats
- Increase the hydraulic and fluvial geomorphic diversity and complexity

The design of these sites will seek to encourage desirable geomorphic features, including a more sinuous channel, increased diversity in the longitudinal profile, dynamic alternate bar sequences, a floodplain frequently accessible by the future flow regime, fine sediment deposition on the floodplain during overbank flows, increased channel morphology and hydraulic complexity, more exposed gravel bars, and increased secondary high-flow channels, and off-channel wetlands.

The replacement or modification of the four bridges (Salt Flat, Bucktail, Poker Bar and Biggers) affords the TRRP flexibility to modify river releases from the TRD anticipated in the future. In addition to the four bridge locations, several other areas in the vicinity of Poker Bar and Indian Creek may require some modification to the existing infrastructure to accommodate anticipated future TRD flow releases.

The development and implementation of a Spawning Gravel Management Plan may result in the placement of about 10,300 cubic yards of gravel annually, with an estimated range from 0 cubic yards in critically dry water years to 67,000 cubic yards in extremely wet water years (actual amounts would be determined by ongoing monitoring).

Flow FEIS/EIR

The Trinity River is a major tributary of the Klamath River system and has been subject to extensive water development as part of the CVP. Efforts have been underway since the TRD was constructed to mitigate its adverse affects on salmonid habitat. The FEIS, completed in 2000 (U.S. Fish & Wildlife Service et al. 2000a), resulted in a ROD to implement a restoration program consisting of "a combination of managed high flow releases, mechanical riparian berm removal, and gravel augmentation to redirect geomorphic processes so that a more complex channel form will evolve, creating the mosaic of aquatic habitats necessary to enhance freshwater salmonid production" (U.S. Fish & Wildlife Service and Hoopa Valley Tribe 1999).

A biological opinion issued by NMFS on the Trinity River Mainstem Fishery Restoration Project in 2000 found that the program "*is not likely to jeopardize the continued existence of* [SONCC ESU] *coho salmon*," and "*is not likely to destroy or adversely modify critical habitat for the* [SONCC ESU] *coho salmon*." Specifically, the biological opinion concluded "*that because the expected outcome of implementation of the proposed action is greatly improved fish habitat conditions (including necessary coho salmon habitat), the value of critical habitat for both the survival and recovery of SONCC coho salmon will not be appreciably diminished*." Included in this biological opinion was an incidental take statement that included terms and conditions to implement Reasonable and Prudent Measures (RPMs). RPMs related to this project include:

- Complete "the first phase of the channel rehabilitation projects" (U.S. Fish and Wildlife Service, et al. 2000) in a timely fashion [including Hocker Flat].
- The USFWS and/or Reclamation shall provide for review of individual mainstem channel rehabilitation projects via the technical team ('designated team of scientists', 'technical modeling and analysis team or equivalent group'), and provide a written recommendation to the NMFS *(NOAA Fisheries*) about whether the projects are similar to those described in the TRMFR DEIS and should be covered by this incidental take statement; if the technical team determines that these projects and their impacts to aquatic habitat are substantially different than described in the TRMFR DEIS and U.S. Fish and Wildlife Service, et al. 2000, the technical team will recommend to the NMFS that additional ESA Section 7 consultation is appropriate.

California Coastal Salmonid Restoration Program/Five Counties Salmonid Conservation Program

As a result of the proposed listing of the SONCC ESU coho salmon, the counties of Humboldt, Trinity, Del Norte, Siskiyou, and Mendocino joined together to assist in the recovery of coho and now steelhead. The overall goal of the counties is to address and improve anadromous salmonid habitat as well as conservation and restoration within the five-county area, such that the listings do not result in massive economic impacts similar to the spotted owl listing. Significant funding has been or is being provided by the NOAA Fisheries, SWRCB (Proposition 204 Delta Tributary Watershed Program), CDFG (SB 271) for the Sake of the Salmon, and the California Resources Agency (CRA).

In 1997, the CDFG established the Salmonid Restoration Program for coastal watersheds. Initiatives included in this program support watershed planning projects at a local level, coastal salmon and anadromous trout habitat restoration, and improved efforts to manage anadromous salmon. The program includes a Salmon and Steelhead Trout Restoration Account, to be expended on a wide range of issues including watershed planning, on-the-ground habitat restoration projects, and other restoration-related projects for restoring salmonid populations. This fund also finances a Watershed Restoration and Protection Council that 1) oversees State watershed protection and enhancement activities, and 2) directs and develops a Watershed Protection Program to provide for anadromous salmonid conservation.

Trinity County is participating in the Salmonid Restoration Program through the Five Counties Salmon Conservation Program. The Five Counties Program, consisting of Trinity, Del Norte, Siskiyou, Humboldt, and Mendocino counties, is coordinating and prioritizing restoration projects and developing standard practices to prevent degradation of salmonid habitat resulting from county road projects. NOAA Fisheries has nominated the Five Counties Program for the Governor's Environmental and Economic Leadership Award in the area of Watershed Management for "laudable efforts of restoring, enhancing, and improving California's watersheds, while promoting sustainable economic progress."

The Five Counties group has inventoried fish passage barriers at county road crossings and sediment delivery sources along county roads. Prioritized projects were identified to improve fish passage and reduce sediment delivery to both salmonids-bearing and non salmonids-bearing streams in the Trinity, Klamath, Eel, Mad, Van Duzen, Redwood Creek, Smith, Gualala, and other major coastal watersheds. Fish barriers have been removed at a rate of five to 10 per year for the last 3 years, and future projects are in the planning and design stage. Sediment reduction projects have been planned and implemented in a number of locations as part of this program. The group has prepared a Water Quality and Stream Habitat Protection Manual for County Road Maintenance in Northwestern California Watersheds, several drafts of which have been reviewed and commented on by NOAA Fisheries, the CDFG, and the NCRWQCB. With these agencies' concurrence, the final manual will be circulated for public review and presented to the Board of Supervisors of each county for adoption as county policy.

Clean Water Action Section 303(d) Total Maximum Daily Load Requirements

The TMDL and accompanying source allocation for sediment in various reaches and tributaries of the Trinity River have been established to comply with Section 303(d) of the CWA, because the State of California has determined that the water quality standards for the Trinity River have been consistently exceeded due to excessive sediment. The TMDL for sediment describes how seasonal variation is considered. Sediment delivery in the Trinity River watershed inherently has considerable annual and seasonal variability. Due to the variability in terms of magnitude, timing, duration, and frequency, the TMDL and load allocation apply to the sources of sediment and use a 10-year rolling average. A number of contributing causes were identified, including historic mining effects, past road building activities, certain timber-harvesting practices, and the concomitant effects of reduced bed-mobilizing river flows, due to the TRD, on sediment transport (Environmental Protection Agency 2001). The TMDL does not allocate flow; however, it does take into account critical conditions for flow, loading, and water quality parameters. The control of the streamflow below the TRD has greatly contributed to the impairment of the Trinity River below Lewiston Dam (Environmental Protection Agency 2001). The reduction in available coarse sediment upstream of Rush Creek and the significant contribution of fine sediment from Grass Valley Creek have severely affected the sediment flux in the river. These effects are observable as far downstream as the North Fork.

In 2001, the EPA established the TMDL, with assistance from NCRWQCB staff (Environmental Protection Agency 2001). The primary adverse impacts associated with excessive sediment in the Trinity River pertain to the beneficial uses ascribed to anadromous salmonid fish habitat. The main responsibility for water quality management and monitoring resides with the State. The EPA now expects the State to develop and submit implementation measures to the EPA as part of revisions to the State water quality management plan, as provided by the EPA regulations in 40 CFR Section 130.6.

4.1.4 Issue-Specific Cumulative Impact Analysis

The following discussion identifies potential cumulative impacts that are anticipated as a result of implementing the proposed project (including the No-Action Alternative, Proposed Action, and Alternative 1) in relation to past, present, and reasonably foreseeable projects for each resource area described in **Chapter 3**. In other words, the discussion identifies those areas in which the impacts of the proposed project, when viewed against the backdrop of these other projects, could cause an incremental impact that is “cumulatively considerable” within the meaning of the CEQA. Where appropriate, Cumulative Significant Impacts are described pursuant to the *CEQA Guidelines*. According to Section 15130 of the *CEQA Guidelines*, effects of the project as well as surrounding projects and reasonably foreseeable development in the surrounding area. should be considered.

Land Use

Under the No-Action Alternative, the proposed project would not be implemented, and the Trinity River within and downstream of the ESL would continue to function in response to the managed flows from the TRD. No significant cumulative land use effects are anticipated to result from the No-Action Alternative.

The selection of the No-Action Alternative could limit the ability of the TRRP to achieve the overall goal of restoration of the Trinity River.

No significant cumulative land use effects are anticipated to occur under either of the action alternatives. The implementation of other restoration elements associated with the Trinity River may support the TRRP goal of restoration of the Trinity River.

Geology, Fluvial Geomorphology, and Soils

Under the No-Action Alternative, the proposed project would not be implemented, and the effects on geology, fluvial geomorphology, and soils would be similar to those that have occurred since the construction and operation of the TRD. No significant cumulative effects are anticipated to result from the No-Action Alternative. The selection of the No-Action Alternative may limit the ability of the TRRP to achieve the overall goal of restoration of the Trinity River.

No significant cumulative effects associated with geologic hazards, geomorphic processes, or erosional processes are anticipated to occur as a result of implementation of the proposed project under either action alternative. Appropriate implementation of prescribed mitigation measures will adequately mitigate for potential impacts regarding geologic hazards. The short-term erosional aspects will be addressed through implementation of the prescribed mitigation measures in conformance with the Trinity River TMDL. The fluvial geomorphic processes embodied in the Healthy River Attributes will be affected at the local level; however, these effects will not be significant at the scale previously described. The sand and gravel mines will continue to operate and may benefit from the readily available source of mineral materials.

In short, the proposed project as mitigated will benefit, rather than adversely affect, geology, fluvial geomorphology, and soils in the long term, as will most of the other related projects described in this chapter. Thus, far from creating adverse impacts that will compound or exacerbate the adverse impacts of other projects, the proposed project will contribute to long-term environmental benefits and assist in meeting the TMDL sediment requirements for the Trinity River.

Water Resources

Under the No-Action Alternative, the proposed project would not be implemented and the effects on water resources would be similar to those that have occurred since the construction and operation of the TRD. No significant cumulative effects to water resources are anticipated to result from the No-Action Alternative. The selection of the No-Action Alternative could limit the ability of the TRRP to achieve the overall goal of restoration of the Trinity River.

No significant cumulative effects to water resources, specifically an increase in the BFE within the ESL of the proposed project, are anticipated due to implementation of either action alternative. Since the project is within the floodplain of the Trinity River, it is subject to the jurisdiction of the Trinity County Floodplain Management Ordinance. The increased channel capacity provided by either of the action

alternatives is designed to reduce flood hazards in conjunction with other channel restoration projects and other flood-hazard reduction projects.

Water Quality

Under the No-Action Alternative the proposed project would not be implemented and the effects on water resources would be similar to those that have occurred since the construction and operation of the TRD. No significant cumulative effects to water quality are anticipated to result from the No-Action Alternative. The selection of the No-Action Alternative could limit the ability of the TRRP to achieve the overall goal of restoration of the Trinity River.

No significant cumulative effects to water quality are anticipated to occur as a result of implementation of either of the action alternatives. The TRRP has identified the need to undertake a suite of restoration activities throughout the Trinity River basin, and while some activities may be implemented simultaneously, the intent of the TRRP is to stage these activities, both in terms of timing and locations, in a way that minimizes the potential impacts on water quality. In the event that simultaneous implementation of these activities is required over the course of several years, some level of cumulative degradation of water quality could occur within the Trinity River during the construction and implementation periods. Appropriate implementation of prescribed mitigation measures, coordinated by the TRRP, will adequately mitigate for potential water quality impacts associated with turbidity, sedimentation, accidental spills, etc. The cumulative effect of these identified actions within the scope of this analysis is considered less than significant, and in fact would result in an overall improvement in water quality, consistent with the requirements of the Trinity TMDL.

No significant cumulative effects on mercury mobilization and methylation are anticipated to occur due to implementation of either of the action alternatives. Sources of mercury to the watershed include historic gold mining practices, wet and dry deposition of mercury from the atmosphere, and mercury that naturally occurs in rocks and soils. Dissolved mercury species can become methylated through a complex pathway by sulfate-reducing bacteria in anoxic environments. Methylmercury is the form of mercury that is of most concern because it most readily accumulates within biota. Methylmercury contamination and exposure can adversely affect the reproductive success and health of native fish and wildlife species. Elevated concentrations of elemental mercury have been found in association with fine sediment samples (less than two millimeters) within the Trinity River basin. Implementation of prescribed project mitigation measures for turbidity and sedimentation will adequately control the mobilization and methylation of mercury. The cumulative effect from mercury mobilization is considered less than significant.

In short, the proposed project as mitigated would benefit, rather than adversely affect, water quality in the long term, as will most of the other related projects described in this chapter. Thus, far from creating adverse impacts that will compound or exacerbate the adverse impacts of other projects, the proposed project will contribute to long-term water quality benefits.

Fishery Resources

Under the No-Action Alternative, the proposed project would not be implemented and the effects on fishery resources would be similar to those that have occurred since the construction and operation of the TRD. No significant cumulative effects to fishery resources are anticipated to result from the No-Action Alternative. The selection of the No-Action Alternative could limit the ability of the TRRP to achieve the overall goal of restoration of the Trinity River.

No significant cumulative effects to fisheries resources are anticipated to occur due to the implementation of either action alternative. The proposed project, in conjunction with the projects and programs described in the preceding section is a direct result of years of legislative direction, legal decisions, scientific study, and public involvement directed at restoring the fishery resources of the Trinity River. The 2000 biological opinion (National Marine Fisheries Service 2000) acknowledged that simultaneous implementation of these projects and programs (specifically the TRRP) may result in short-term loss of aquatic habitat and temporary displacement of aquatic organisms. Furthermore, NMFS determined that the activities described in the biological opinion would not have a cumulative impact on the SONCC ESU of coho salmon. Since a primary objective of the TRRP is restoring the form and function of physical processes and riparian communities in the Trinity River basin, the projects and programs described above have a collective purpose of restoring the fishery resources in the Trinity River. Appropriate implementation of prescribed mitigation measures, coordinated by the TRRP, will adequately mitigate for potential impacts associated with removal of vegetation, loss of habitat, and impacts on wetlands. The cumulative effect of these identified actions within the scope of this analysis is considered less than significant.

In short, the proposed project as mitigated will benefit, rather than adversely affect, fishery resources in the long term, as will most of the other related projects and programs described in this chapter. Thus, far from creating adverse impacts that will compound or exacerbate the adverse impacts of other projects, the proposed project will contribute to long-term fishery resources benefits.

Vegetation, Wildlife, and Wetlands

Under the No-Action Alternative, the proposed project would not be implemented, and the effects on vegetation, wildlife, and wetlands would be similar to those that have occurred since the construction and operation of the TRD. The potential for continued encroachment and conversion of these resources is directly related to the ability to provide a flow regime designed to restore certain habitat components. No significant cumulative effects to these resources are anticipated to result from the No-Action Alternative. The selection of the No-Action Alternative could limit the ability of the TRRP to achieve the overall goal of restoration of the Trinity River.

No significant cumulative effects to vegetation, wildlife, and wetlands are anticipated to occur as a result of implementation of either action alternative. The proposed project, in conjunction with the projects and programs described in the preceding section, are a direct result of years of legislative direction, legal decisions, scientific study, and public involvement that was directed at restoring the physical processes

and biological resources of the Trinity River. Since a primary objective of the TRRP is restoring the form and function of physical processes and riparian communities in the Trinity River basin, the projects and programs described above have a collective purpose of restoring the mainstem Trinity River. Simultaneous implementation of these projects may result in short-term loss of upland, wetland and riverine features, including *Waters of the United States*. In some instances projects could result in a conversion of these features (e.g., riparian wetlands to "other waters"); however, these projects provide the foundation necessary to meet the primary objective of the TRRP. Appropriate implementation of prescribed mitigation measures, coordinated by the TRRP would adequately mitigate for potential impacts associated with removal of vegetation, loss of habitat, and impacts on wetlands. The cumulative effect of these identified actions within the scope of this analysis is considered less than significant.

In short, the project as mitigated will benefit, rather than adversely affect, vegetation, wildlife, and wetlands in the long term, as will most of the other related projects and programs described in this chapter. Thus, far from creating adverse impacts that will compound or exacerbate the adverse impacts of other projects, the proposed project will contribute to long-term vegetation, wildlife, and wetlands benefits.

Recreation

Under the No-Action Alternative the proposed project would not be implemented, and the effects on recreation would be similar to those that have occurred since the construction and operation of the TRD. No significant cumulative effects to recreation resources are anticipated to result from the No-Action Alternative.

No significant cumulative effects to recreational resources are anticipated to occur due to implementation of either action alternative. The projects and programs described above are intended to benefit the aquatic environment and the Trinity River fishery. Benefits to recreational values may be achieved through the implementation of the TRRP over time.

In short, the project as mitigated will benefit, rather than adversely affect, recreation in the long term, as will most of the other related projects described in this chapter. Thus, far from creating adverse impacts that will compound or exacerbate the adverse impacts of other projects, the proposed project will contribute to long-term recreation benefits.

Socioeconomics, Population, and Housing

Under the No-Action Alternative, the proposed project would not be implemented, and the effects on socioeconomics, population, and housing would be similar to those that have occurred since the construction and operation of the TRD. No significant cumulative effects to recreation resources are anticipated to result from the No-Action Alternative.

No significant cumulative effects to socioeconomics, population, and housing are anticipated to occur as a result of implementation of either action alternative. The projects and programs described above are intended to benefit the Trinity River fishery, with projected benefits to the residents and communities in

the general area. Some socioeconomic benefits are expected through the implementation of the TRRP, including short-term demand for construction labor and the potential for increased long-term recreational use as part of meeting the fishery restoration goals of the overall Trinity River Mainstem Fishery Restoration Program.

Tribal Trust Assets

Under the No-Action Alternative, the proposed project would not be implemented, and the effects on Tribal Trust Assets would be similar to those that have occurred since the construction and operation of the TRD. The status of the Tribal Trust Assets will be related to the level of restoration achieved by the TRRP. No significant cumulative effects to Tribal Trust Assets are anticipated resultant from the No-Action Alternative.

No significant cumulative effects to Tribal Trust Assets are anticipated to occur as a result of implementation of either action alternative. The projects and programs described above are intended to benefit the Tribal Trust Assets, including the Trinity River fishery, through the implementation of the TRRP over time.

In short, the project as mitigated will benefit, rather than adversely affect, Tribal Trust Assets in the long term, as will most of the other related projects and programs described in this chapter. Thus, far from creating adverse impacts that will compound or exacerbate the adverse impacts of other projects, the proposed project will contribute to long-term environmental benefits and benefits to Tribal Trust Assets.

Cultural Resources

Under the No-Action Alternative, the proposed project would not be implemented, and the effects on cultural resources will be similar to those that have occurred since the construction and operation of the TRD. The focus of the projects and programs described in the preceding section is on restoration efforts on the bed and banks of the Trinity River. The proximity of anticipated restoration efforts to the floodplain reduces the likelihood that cultural resources may be encountered. No significant cumulative effects to cultural resources are anticipated as a result of the No-Action Alternative.

No significant cumulative effects to cultural resources are anticipated to occur as a result of implementation of either action alternative. The PA (**Appendix K**) described in **Section 3.11** was intended to address the multiple elements of the TRRP. Appropriate implementation of prescribed mitigation measures, in coordination with the SHPO and the ACHP, will adequately mitigate for potential impacts.

Air Quality

Under the No-Action Alternative, the proposed project would not be implemented, and the effects on air quality resources would be similar to those that have occurred since the construction and operation of the TRD. No significant cumulative effects to air quality are anticipated as a result of the No-Action Alternative.

No significant cumulative effects to air quality are anticipated to occur as a result of implementation of either action alternative. The NCUAQMD requirements will be addressed by appropriate implementation of prescribed mitigation measures.

Although the proposed project, as explained in **Section 3.12**, would generate some temporary air emissions, these emissions would be too limited to rise to the level of being "cumulatively considerable." In part, this is so because they are temporary, but also because the projects and programs described in the preceding section are not anticipated to generate any long-term air pollutants. Moreover, construction activities associated with these projects and programs are not likely to occur at the same time, and the locations of the activities themselves are generally far enough apart to allow for considerable dissipation and dispersion of construction-related pollutants.

Environmental Justice

Under the No-Action Alternative, the proposed project would not be implemented, and the effects on environmental justice would be similar to those that have occurred since the construction and operation of the TRD. No significant cumulative effects to environmental justice are anticipated to occur as a result of the implementation of any of the alternatives evaluated in this EA/DEIR.

Aesthetics

Under the No-Action Alternative, the proposed project would not be implemented, and the effects on aesthetic resources would be similar to those that have occurred since the construction and operation of the TRD. No significant cumulative effects to aesthetic resources are anticipated to result from the No-Action Alternative.

No significant cumulative effects to aesthetics are anticipated to occur as a result of implementation of either action alternative. The short-term effects that would result from other restoration and watershed projects in the corridor will be consistent with federal and state requirements for Wild and Scenic Rivers, and the Trinity County General Plan.

In short, the proposed project as designed will benefit, rather than adversely affect, aesthetics in the long term, as will most of the other related projects described in this chapter. Thus, far from creating adverse impacts that will compound or exacerbate the adverse impacts of other projects, the proposed project will contribute to long-term aesthetic values.

The aesthetic impacts of the projects are not "cumulatively considerable" in large part because their impacts will not compound or exacerbate the aesthetic impacts of the previously identified related future projects, which are located in areas that are physically separated from the proposed project. Because people will not be able to see all of these projects, or even many of these projects, at the same time, their visual impacts are individualized and limited to the geographic settings in which they are located.

Hazardous Materials

No significant cumulative effects relative to hazardous materials are anticipated through the implementation of any of the alternatives evaluated in this EA/DEIR.

Noise

Under the No-Action Alternative the proposed project would not be implemented, and the noise effects would be similar to those in the ambient environment. No significant cumulative noise effects are anticipated to result from the No-Action Alternative.

No significant cumulative effects related to noise are anticipated through the implementation of either action alternative. The TRRP will coordinate the implementation of other restoration projects to ensure that construction noise is minimized through project scheduling.

The noise impacts of the projects are not "cumulatively considerable" in large part because their impacts will not compound or exacerbate the noise impacts of the previously identified related future projects, which are located in areas that are physically separated from the location of the proposed project. Because people would not be able to hear noise from more than one of these projects at the same time, the separate noise sources – all of which are temporary — would not contribute to any cumulative noise impacts. Rather, each project would create very localized noise levels only.

Public Services and Utilities/Energy

No significant cumulative effects related to Public Services and Utilities/Energy are anticipated through the implementation of any of the alternatives, evaluated in this EA/DEIR.

Transportation/Traffic Circulation

Under the No-Action Alternative, the proposed project would not be implemented, and the effects associated with transportation / traffic circulation would be similar to those in the surrounding area. No significant cumulative effects to aesthetic resources are anticipated to result from the No-Action Alternative.

Although the proposed project, as explained in **Section 3.18**, would generate some temporary construction-related traffic, such traffic would be too limited to rise to the level of being "cumulatively considerable." This is so in part because the traffic will be temporary, but also because the previously identified related future projects would also tend not to generate any long-term traffic. Moreover, construction activities for all of the various projects are not likely to occur at once, and the locations of the activities themselves are generally far enough apart to make it unlikely that trucks serving one construction location will cross paths with trucks serving a separate location.

No significant cumulative effects related to Transportation/Traffic Circulation are anticipated through the implementation of either action alternative. The TRRP will coordinate with appropriate road management agencies to ensure that the mitigation prescribed in this EA/DEIR is acceptable to these agencies.

4.2 Growth-Inducing Impacts

4.2.1 INTRODUCTION

This section evaluates the potential for growth that could be induced by implementation of the proposed project and assesses the level of significance of any expected growth inducement. The potential for growth inducement is limited by the nature and location of the rehabilitation activities described in **Chapter 2**.

River rehabilitation projects are typically implemented in specific areas during a finite time period. Although the TRRP was established to implement the ROD, thereby increasing the fishery resources of the Trinity River, growth inducing impacts were not anticipated within Trinity County. Section 15126 (g) of the state *CEQA Guidelines* provides definitions and guidance in determining the growth-inducing impacts of a Proposed Action.

Specifically, a project is defined to be growth-inducing if it would

- accelerate the rate of planned growth
- remove obstacles to population growth
- tax existing community service facilities
- foster, promote, or sustain economic or population growth

Growth itself is not assumed beneficial, detrimental, or insignificant to the environment. If a project is determined to be growth-inducing, an evaluation is made to determine if significant impacts on the environment would result from that growth.

4.2.2 GROWTH AND DEVELOPMENT POTENTIAL

Trinity County Growth Policies

The Trinity County General Plan (Trinity County 2001) does not describe specific growth policies; however, it establishes general goals and policies related to housing and residential land use. Trinity County recognizes that more than one-half of its housing is located in remote, rural areas with a high level of individual self-reliance to meet the infrastructure needs of this segment of the population. The County also understands that a strong tradition exists of non-involvement of local government in the area of housing and residential development.

Population

Trinity County population is concentrated in and around the communities of Weaverville, Hayfork, and Lewiston, as described in **Section 3.9**. The population in the county increased significantly between 1970 and 1980, from 7,615 to 11,858 (55 percent increase). Although growth continued through 1990, it was substantially less (12 percent increase to 13,300). The population growth was furthered by an influx of retirees and of people seeking an alternative lifestyle in the mountains of Northern California, and a reasonable cost of living.

Vacant Land and Projected Buildout

Approximately 14.6 percent of the land in Trinity County is potentially available for private development. The USFS, the BLM, and various timber production firms manage the balance of the lands within the county. The General Plan identifies 5,517 private parcels as unimproved and potentially available for development and suggests that the actual number may be significantly lower, based on requirements for waste disposal, slope, and water sources.

Trinity County's Constraints to Development

The General Plan identifies a number of existing or potential factors that could adversely affect future residential and commercial development. A number of state and local permits and fees are currently required for new developments. Building Construction Standards and compliance with the CEQA are also identified as potential constraints to development. The ability to develop the necessary infrastructure (i.e., water, sanitation, energy, and access) continues to challenge developers throughout the county.

Proposed Land Uses

In general, all parcels within the ESL established for the proposed project have been fully subdivided to the extent possible under existing zoning designations; therefore, future rural residential development within the ESL is unlikely. Located directly adjacent to the river, many of these parcels fall into the Flood Hazard and Scenic Overlay designation zones, making further development of these areas difficult. Several parcels zoned for residential use are currently vacant, and the potential for development of a single-family residence on such parcels does exist. The BLM manages one parcel of public land within the ESL consistent with the WSRA and its Resource Management Plan. In general, the parcels within the ESL have no further potential for development. There will be no growth inducing impacts as a result of this project.

4.3 Significant Irreversible and Irretrievable Commitments of Resources Which Would Result From the Proposed Action

Specific to the requirements of the President's CEQ NEPA Regulations, Section 102 and 40 C.F.R. 1502.16, an environmental document must include a discussion of "any irreversible and irretrievable commitments of resources which would be involved in the Proposed Action should it be implemented." Additionally, Section 15126.2(c) of the *CEQA Guidelines* requires a discussion of significant irreversible

environmental changes that would be result from the Proposed Action should it be implemented This section states:

> *Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvements which provide access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.*

The No-Action Alternative would not directly involve the use of resources or cause significant irreversible environmental effects. Implementation of either action alternative would result in an irretrievable commitment of energy (i.e., fossil fuels) and other nonrenewable resources used in the excavation, disposal, and revegetation of the rehabilitation areas, as described in **Chapter 1**. Since these resources are not in short supply and the material requirements for this project would be relatively minor compared to the overall demand for such materials, the use of these materials would not have a significant adverse effect on their continued availability. Additionally, the project purpose and need, as well as the project objectives discussed in **Chapter 1**, justify the need for the expenditure of these resources.

4.4 Relationship Between Local Short-Term Uses of the Environment And the Maintenance and Enhancement of Long-Term Productivity

Section 102 of the CEQ NEPA Regulations and CFR 1502.16 require that a NEPA environmental document include a discussion of "the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity."

The proposed project would not sacrifice the long-term productivity of the project area for short-term uses. The short-term effects on the environment associated with implementation of the proposed project are considered minimal compared to the long-term benefit and productivity of the proposed project in conjunction with other objectives of the TRRP. Construction-related effects to natural resources, including water quality, fisheries, wildlife, vegetation, and wetlands, will be mitigated to a less than significant level. Land use conflicts associated with noise, aesthetics, air quality, and traffic would be short-term, occurring only during with the construction phase of the project. This impact is considered less than significant, and no mitigation is required.

4.5 Mitigation Monitoring Program for CEQA-Mandated Mitigation

Under NEPA, there are no specific statutes or regulations that explicitly require that all significant project impacts be avoided or mitigated to a less-than-significant level, or that any adopted mitigation measures developed as part of an EA be "monitored" to ensure that they are carried out. Under CEQA, *Public Resources Code* section 21081.6(a) requires lead agencies to "adopt a reporting and mitigation monitoring

program for the changes to the project which it has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment."

Throughout this EA/DEIR, mitigation measures have been clearly identified and presented in language that will facilitate establishment of a monitoring and reporting program. Any mitigation measures adopted by DWR as conditions of project approval will be included in a Mitigation Monitoring and Reporting Program (MMRP) to verify compliance. The Draft MMRP is included as **Appendix B** and the Final MMRP will be included as an appendix to the EA/Final EIR. The approval of such a program will be part of any action taken by DWR with respect to the project. When other regional or state agencies subject to CEQA approve portions of the proposed project under their own jurisdiction or regulatory power, these "responsible agencies" will be required to adopt their own MMRPs (*CEQA Guidelines*, Section 15097(d)).

The MMRP will be used by the Reclamation staff, project contractors, participating agencies, and monitoring personnel during implementation of the project. The intent of the MMRP is to ensure the effective implementation and enforcement of adopted mitigation measures and permit conditions. The MMRP will provide for monitoring of construction activities as necessary, on-site identification of environmental problems, and proper reporting to Reclamation staff.

4.5.1 Responsibilities and Authority

Reclamation will have the primary responsibility for implementation of the MMRP. Reclamation will be responsible for the following tasks:

- ensuring the MMRP is incorporated into the construction bid documents
- coordination of monitoring activities
- direction of the preparation and filing of compliance reports
- maintenance of records concerning the status of all mitigation measures

4.5.2 Monitoring Plan Format

The MMRP includes a summary table that identifies the mitigation measures proposed for the Proposed Action. These mitigation measures will be excerpted from the EA/DEIR for the project. The mitigation-monitoring table will include the following columns:

- **Mitigation Measure:** Presents the mitigation measures identified the EA/DEIR for a specific impact, along with the number of each measure, as presented in the EA/DEIR.

- **Timing:** Identifies when the mitigation measures will need to be implemented.

- **Agency/Department Consultation:** References the specific agency(ies) with which coordination is required to satisfy the requirements of the mitigation measure.

- **Verification:** Spaces to be initialed and dated by the individual designated to verify compliance with a specific mitigation measure.

4.5.3 NONCOMPLIANCE COMPLAINTS

Complaints of noncompliance with adopted mitigation measures shall be directed to Reclamation in written form, providing specific information on the alleged violation. If any complaints are received, Reclamation and DWR shall conduct an investigation and determine the validity of the complaint. If noncompliance with a mitigation measure has occurred, Reclamation shall take the appropriate action to remedy the violation. The complainant shall receive written confirmation indicating the results of the investigation or the final action corresponding to the particular noncompliance issue.

4.6 Significant Unavoidable Adverse Impacts

Public Resources Code Section 21100(b)(2)(A) requires that an EIR include a detailed statement that summarizes any significant effects on the environment that cannot be avoided if a Proposed Action is implemented. *CEQA Guidelines* Section 15126.2(b) states that such impacts include those that can be mitigated but not reduced to a level of insignificance. When there are significant impacts that cannot be fully mitigated to a less than significant or minimized by changing the project design, the implications of the impacts and the reasons why the project is being proposed must be described. The environmental analysis conducted for the proposed project did not identify any significant and unavoidable impacts.

4.7 CEQA Findings of Fact and Statements of Overriding Consideration

Section 15091 of the *CEQA Guidelines* states that "no public agency shall approve or carry out a project for which an EIR has been certified which identifies one or more significant environmental effects of the project unless the public agency makes one or more written findings for each of these significant effects, accompanied by a brief explanation of the rationale for each finding." For this EA/DEIR, DWR will need to prepare written findings for each significant impact identified in this document before the project can be approved by DWR.

Section 15093(a) of the *CEQA Guidelines* allows the decision-making body of the lead agency to determine if the benefits of a proposed project outweigh the unavoidable adverse environmental impacts of implementing the project. The lead agency can approve a project with significant unavoidable impacts if it prepares a "Statement of Overriding Considerations" that sets forth the specific reasons for making such a judgment. Since no significant unavoidable impacts were identified for the proposed project, a Statement of Overriding Considerations will not be required.

CHAPTER 5

Consultation and Coordination

Consultation and Coordination

This chapter summarizes the scoping process, consultation, coordination, and applicable laws, policies, and regulations used to develop this EA/DEIR.

5.1 Lead and Participating Agencies

The co-lead agencies for this EA/DEIR are Reclamation, as defined by NEPA, and DWR, as defined by CEQA. The primary cooperating (NEPA), responsible and trustee (CEQA) agencies include:

- U.S. Department of Interior, Bureau of Land Management
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- NOAA Fisheries
- California Department of Fish and Game
- California Regional Water Quality Control Board, North Coast Region
- Trinity County

5.2 Project Scoping

5.2.1 Summary of Public Scoping Meetings

The following is a summary of the public scoping process that has been completed to date:

- **March 8, 2002** – A Project Kick-Off meeting was held with representatives from Reclamation, DWR, BLM, CDFG, Trinity County and the environmental consulting team, to discuss the project, potential alternatives, the timing requirements for the environmental review process, scope of technical studies, and potential permitting requirements.

- **April 23, 2002** – A field review was conducted by members of the design team and the environmental consulting team. The outcome of this review was the selection of the Hocker Flat location for the demonstration project described in this EA/DEIR. Additionally, the review resulted in delineating the ESL for the proposed project and developing several conceptual rehabilitation themes for additional evaluation.

- **March 5, 2003** – Reclamation conducted a meeting that included potential lead and cooperating agencies to discuss the type and degree of NEPA and CEQA compliance required by the project.

- **January 15, 2004** – A meeting that included staff from the TRRP, Yurok Tribe, USFS, USFWS, Corps and members of the environmental team was held in Weaverville to review restoration designs for the proposed project. The outcome of this meeting was direction to the design team regarding specific criteria to meet TRRP objectives.

- **April 2004** – DWR accepted the role as the lead CEQA agency and made the determination to prepare an EIR based on potential controversy of the proposed project.
- **May 17, 2004** – DWR, the lead CEQA agency circulated an NOP with the State of California, Governors Office of Planning and Research, State Clearinghouse (SCH) for the proposed project. The NOP encouraged full public participation to promote open communication on the issues surrounding the proposed project. All federal, state, and local agencies and other persons or organizations were urged to participate in the scoping process.

In conjunction with the issuance of the NOP, a Public Notice was published on May 26 and June 2, 2004 in the Trinity Journal, the newspaper that serves Trinity County. The notice included information on the proposed project, as well as the date and location of the public scoping meeting.

- **June 2, 2004** – A Public Agency Scoping Meeting was held at the Junction City Community Center in Junction City, California. The purpose of the meeting was to outline the objectives of the TRRP; identify the types of actions and alternatives that may be evaluated in the Joint NEPA/CEQA document; describe the nature, scope and timing of the environmental process; and to solicit comments on the NOP.

5.2.2 Comments on the Notice of Preparation

On May 17, 2004, DWR circulated an NOP to the public; and local, state, and federal agencies to solicit comments. The NOP is included in **Appendix C.** A list of agencies, groups, and individuals providing comments and/or comment letters on the NOP are listed below:

- California Department of Fish and Game
- California Department of Transportation
- California Native American Heritage Commission

Additional information on the Scoping process is provided in **Appendix C** (Public Involvement Process).

5.2.3 List of Agencies and Organizations Contacted

Following is a list of agencies and organizations consulted during the preparation of the environmental document. **Chapter 6**, References, under “Persons Contacted”, lists the specific individuals that were contacted.

- California Air Resources Board
- California Department of Fish and Game
- California Department of Transportation
- California Division of Mines and Geology
- California Native American Heritage Commission
- California State Lands Commission
- California Resources Agency
- California Water Quality Control Board, North Coast Region
- Junction City Volunteer Fire Department
- Junction City Elementary School

- NOAA Fisheries (Arcata)
- Trinity County Building and Development Services, Environmental Health Division
- Trinity County General Services Department
- Trinity County Transportation Department
- Trinity County Sheriffs Office
- U.S. Army Corps of Engineers (San Francisco District – Eureka Field Office)
- U.S. Department of Transportation, U.S. Coast Guard
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service (Arcata Field Office)
- U.S. Forest Service (Shasta-Trinity National Forest)

5.3 Agency Consultation and Coordination

Provided below is a list of the related laws, rules, regulations, and federal executive orders that were considered in the preparation of this EA/DEIR.

5.3.1 Consistency with Environmental Laws

Provided below is a discussion of how this EA/DEIR is consistent with the federal (NEPA) and state (CEQA) statutes.

National Environmental Policy Act

This EA/DEIR was prepared pursuant to NEPA and the regulations implementing that statute. NEPA provides a commitment that federal agencies will consider the environmental effects of their actions. This EA/DEIR provides detailed information regarding project alternatives, the effects of these alternatives on the environment, and potential mitigation measures. NEPA requires that these environmental effects be disclosed. **Chapter 1** provides a comprehensive discussion on the NEPA requirements pertaining to the proposed project.

California Environmental Quality Act

This EA/DEIR was prepared to comply with CEQA, based on DWR's determination that the proposed action constitutes a "project" under CEQA (*CEQA Guidelines* Section 15378[a]). Key among the CEQA provisions is the requirement to identify all significant impacts. Significance thresholds are identified for each issue area to allow the reader to clearly see at what point a given environmental impact was considered significant. CEQA and NEPA are similar in many ways in terms of identification of alternatives, potential mitigation measures, and adverse environmental impacts that cannot be avoided (see **Chapter 1**, Introduction). However, to the extent possible, CEQA requires impact mitigation to be incorporated into the proposed project. This joint NEPA/CEQA document is meant to comply with both laws so as to reduce redundancy while providing the necessary documentation for both processes.

5.3.2 DISCRETIONARY APPROVALS

Provided below is a summary of the various discretionary approval processes that have been completed or are being coordinated concurrent with the NEPA/CEQA environmental review process:

U.S. Army Corps of Engineers

Reclamation will be required to obtain a Section 404 permit from the Corps. Discharge of fill material into "waters of the U.S.," including "wetlands," is regulated by the Corps under Section 404 of the federal CWA (33 USC 1251-1376). Communication with the U.S. Coast Guard confirmed that the Trinity River is not under their jurisdiction as "navigable waters of the U.S.," therefore it is not subject to Section 10 of the federal Rivers and Harbors Act (33 USC 401 et seq.). Projects are permitted under either individual or general (e.g., nationwide) permits. The Corps, on a case-by-case basis determines specific applicability of permit type.

The location and boundaries of wetlands and other waters potentially impacted by the proposed project were evaluated based on field surveys, aerial photograph interpretation, and existing published information. Wetlands are defined for regulatory purposes as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (33 CFR 328.3; 40 CFR 230.3)." "Other waters" are stream channels, drainages, open water habitats, and other surface water features that do not support positive indicators for the three mandatory technical criteria. The jurisdictional wetland delineation report is included in **Appendix D**. The delineation was conducted using methods specified in the Corps 1987 guidelines (Environmental Laboratory 1987).

On July 8, 2004, the delineation was verified by the Corps (File No. 28083N) (see **Appendix D**). The jurisdictional wetland delineation report is intended for use by the Corps in determining the location and extent of Section 404 jurisdiction. Reclamation will continue to coordinate with the Corps to determine the appropriate permit for the project, as well as potential mitigation measures. It is anticipated that the proposed project can be permitted under Nationwide Permit Number 27 (Wetland and Riparian Restoration and Creation Activities).

U.S. Fish and Wildlife Service / NOAA Fisheries

Section 7 of the ESA requires federal agencies, in consultation with the Secretary of the Interior, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of designated critical habitat for these species. Reclamation, as the federal lead agency for this project, is required to consult with NOAA Fisheries concerning project effects to federally-threatened, SONCC ESU coho salmon and their designated critical habitat. Based on discussions with NOAA Fisheries, certain non-flow measures, including the mechanical rehabilitation projects, were considered in the 2000 Biological Opinion prepared by NMFS for the Trinity River Mainstem Fishery Restoration for the Reclamation and USFWS. In 2004, NOAA Fisheries confirmed that the incidental take statement in the biological opinion was adequate and included the activities associated with the mechanical rehabilitation projects. In fact these mechanical rehabilitation projects were specifically included as reasonable and prudent measures (RPM) in the opinion.

Additional RPM's are described in **Chapter 1** as they are incorporated into the proposed project. As a result of the informal consultation between Reclamation and NOAA Fisheries, NOAA Fisheries determined that re-initiation of consultation was unnecessary.

Informal consultation with the USFWS concerning effects to listed terrestrial species such as the northern spotted owl was conducted by Reclamation. Based on this informal consultation, the USFWS determined that a biological assessment was not required since the proposed project would have no effect on northern spotted owl or their critical habitat.

NOAA Fisheries – Magnuson-Stevens Fishery Conservation and Management Act

The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures designed to identify, conserve, and enhance EFH for those species regulated under a federal FMP. For the Pacific Coast (excluding Alaska), there are three FMPs covering groundfish coastal pelagic species, and Pacific salmon. For the proposed project, Reclamation, as the federal lead agency, will need to consider the impact of the proposed action on EFH for both SONCC ESU coho and Chinook salmon in the Trinity River, pursuant to the Pacific Coast Salmon FMP.

EFH refers to those waters and substrates necessary for the spawning, breeding, feeding, or growth to maturity. “Waters” include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; “substrate” includes sediment, hard bottom, structures underlying the waters, and associated biological communities; “necessary” means the habitat required to support a sustainable fishery and the managed species’ contribution to a healthy ecosystem; and spawning, breeding, feeding, or growth to maturity covers a species’ full life cycle. “Adverse effect” means any impact that reduces the quality and/or quantity of EFH, and may include direct, indirect, site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

The MSA requires federal agencies to consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH (MSA §305[b][2]). A component of this consultation process is the preparation and submittal of an EFH Assessment. The length of the EFHA will vary based on project complexity and magnitude of potential impacts to EFH, but all EFHAs must include the following information: 1) a description of the proposed action; 2) an analysis of the effects, including cumulative effects, of the proposed action on EFH, the managed species, and associated species, such as major prey species, including affected life history stages; 3) the federal agency’s views regarding the effects of the proposed action on EFH; and 4) proposed mitigation, if applicable. In instances where MSA and ESA issues overlap, NOAA Fisheries encourages an integrated approach for consultation.

In an effort to integrate the consultation process with the environmental review process, this EA/DEIR, specifically **Section 3.6**, has been prepared to satisfy the requirements of the MSA.

California Department of Fish and Game

Streambed Alteration Agreement

Any entity subject to California law proposing an activity that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the CDFG, must receive a discretionary Streambed Alteration Agreement permit from the CDFG (Region 1 for the proposed project). Generally, this requirement applies to any work undertaken within the 100-year floodplain of a stream or river containing fish or wildlife resources. Construction cannot be initiated at the project site until a Streambed Alteration Agreement has been issued to the applicant by CDFG. DWR, as the CEQA lead agency, will submit an application to CDFG for a streambed alteration agreement the year that construction is expected to commence. The contractor will be required to sign the Section 1602 Streambed Alteration Agreement.

California Endangered Species Act

State-listed species are fully protected under the mandates of the CESA. In 2000, the California Fish and Game Commission (Commission) received a petition to list coho salmon north of San Francisco as an endangered species under provisions of the California Endangered Species Act (CESA). The Commission required that a comprehensive, state-wide coho salmon recovery strategy and plan be developed while they considered the petition. The coho recovery plan was adopted by the Commission in February 2004 (California Department of Fish and Game 2004). However, the Commission declined to list the coho under CESA in June 2004 on a split vote, noting that existing federal protections and voluntary conservation measures and efforts guided by the recovery plan appear sufficient at this time to stem declines of coho in California. On August 5, 2004, the Commission voted to list the coho as threatened, from Punta Gorda, north to the Oregon border. This listing is subject to a 60-day review period. In the event the status of this species changes during the public comment period for this EA/DEIR, the EA/Final EIR will incorporate any new information.

California State Lands Commission

Since the State of California maintains ownership of the bed of the Trinity River, placement of structures in the river may require a public agency lease issued by the State Lands Commission (SLC). The SLC did review the NOP for the project in May 2004 during the scoping process. Since the state interest has not been defined (jurisdiction has not been determined for the project area), a lease application from the SLC project would not be required. The SLC did suggest that a retroactive lease application may be required if, in the future, jurisdiction is determined for the area in question. In short, no further action is necessary with the SLC for the proposed project.

California Regional Water Quality Control Board

The RWQCB requires that a project proponent obtain a Section 401 (CWA) water quality certification or waiver for Section 404 permits granted by the Corps. Since the project would have potential to impact water quality within the Trinity River, the NCRWQCB is likely to impose water quality limitations on the project either through water quality certification, a waste discharge requirement, or a conditional waiver.

Reclamation will prepare and submit to the NCRWQCB a request for water quality certification or waste discharge requirements upon adoption of the environmental document under CEQA. The request will be submitted to the NCRWQCB when the pre-construction notification is sent to the Corps. A likely condition of the NCRWQCB is the preparation of an erosion and sedimentation control plan and spill prevention and containment plan.

California Reclamation Board

The Trinity River Basin does not have any flood control project levees and floodways within the watershed. As such, the California Reclamation Board does not have jurisdictional authority over the Trinity River. No encroachment permit will be required for this project.

Trinity County Ordinances

The Trinity County Floodplain Management Ordinance, found in Section 29.4 of the County Zoning Ordinance, requires a Floodplain Development Permit for projects that alter the Trinity River floodplain on private lands within the jurisdiction of Trinity County. The principal requirement of the permit is certification by a registered professional engineer or architect that construction will not adversely affect the flood-carrying capacity of any altered portion of the watercourse, and will not cumulatively raise the 100-year floodplain elevations by more than one foot in the project area. The Ordinance also requires notification of adjacent communities, the CDFG, the Corps, the NCRWQCB, and the DWR prior to any alteration or relocation of a watercourse, and the submission of evidence of such notification to the Federal Insurance Administration and the FEMA.

5.3.3 CONSISTENCY DETERMINATIONS

Provided below is a summary of governing laws for which a consistency determination will need to be made.

Federal Emergency Management Agency

Trinity County implements FEMA's NFIP through its Floodplain Management Ordinance contained in Section 29.4 of the Zoning Ordinance (Ordinance No. 315). County participation in the NFIP is voluntary, but if the County elected to not participate, landowners in Trinity County would be ineligible for flood insurance, and the County would be ineligible for disaster relief payments when flood or other damages occur to facilities such as County roads.

Under the County Floodplain Management Ordinance, projects are not to increase the 100-year flood elevations, otherwise known as the BFE by more than 12 inches. The general concept of the mechanical channel rehabilitation is to remove the berms and lower the floodplain elevations in a manner that allows the river to regain some degree of alluvial form and function (build point bars and scour pools). At the level of engineering analysis associated with this EA/DEIR, the alternatives that remove material from the floodplain and place in upland locations would result in lowering or having no detrimental effects on the BFE within the ESL of the proposed project. Prior to issuance of a Floodplain Development Permit for

the proposed project, the County must receive engineering data to certify that the project will not negatively affect the BFE by more than 12 inches.

Section 106 of the National Historic Preservation Act

Section 106 of the NHPA requires federal agencies to evaluate the effects of federal undertakings on historical, archaeological, and cultural resources. Agencies are required, within the vicinity of proposed projects, to identify historical or archeological properties, including properties on the NRHP, and those that the agency and the SHPO agree are eligible for listing in the national register. If the federal project is determined to have an adverse effect on National Register properties or those eligible for listing in the National Register, the agency is required to consult with the SHPO and the ACHP to develop alternatives or mitigation measures to allow the project to proceed.

An archeological survey report and historic property survey report have been prepared for the proposed project. This report document the findings of the cultural resources reconnaissance, which was conducted according to protocol outlined in the *Programmatic Agreement among the U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, U.S. Bureau of Land Management, Hoopa Valley Tribe, California State Historic Preservation Office, and the Advisory Council on Historic Preservation Regarding Implementation of the Trinity River Mainstem Fishery Restoration* (U.S. Fish and Wildlife Service et al. 2002), included as **Appendix K**. The conclusion of this evaluation was that the features within the ESL established for the proposed project do not meet the criteria of eligibility for inclusion on the NRHP. No cultural resources were identified within the project APE.

Federal Wild and Scenic Rivers Act

The federal WSRA designates qualifying free-flowing river segments as wild, scenic, or recreational. The WSRA establishes requirements applicable to water resource projects affecting wild, scenic, or recreational rivers within the National Wild and Scenic Rivers System, as well as rivers designated on the National Rivers Inventory. Under the WSRA, a federal agency may not assist the construction of a water resources project that would have a direct and adverse effect on the free-flowing, scenic, and natural values of a wild or scenic river. If the project would affect the free-flowing characteristics of a designated river or unreasonably diminish the scenic, recreational, and fish and wildlife values present in the area, such activities should be under-taken in a manner that would minimize adverse impacts, and should be developed in consultation with the administering agency. The Trinity River is designated for its outstandingly remarkable anadromous fishery values and has been classified as a Recreational River from Cedar Flat to Lewiston Dam. **Appendix E** provides the information necessary for the BLM to comply with their Resource Management Plan.

State Wild and Scenic Rivers Act

Under the California WSRA, the segment of the Trinity River associated with the proposed project is designated as “scenic” and “recreational.” This classification was designated in 1980, a year prior to the federal designation. The *Public Resources Code* (5093.53[b]) defines “scenic rivers” as being “those rivers or segments of rivers that are free of impoundments, with shorelines or watersheds still largely

primitive and shorelines largely undeveloped, but accessible in places by roads." "Recreational rivers" are defined in the *Public Resources Code* (5093.53[c]) as being "those rivers or segments of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment of division in the past. There are no permits required specifically under the state WSRA. However, in conjunction the federal WSRA, other permits or agreements may be required to comply with other laws.

While there are no separate reporting requirements to address wild and scenic rivers, the environmental document shall discuss the issue, summarize coordination among participating agencies, evaluate impacts to qualities that support the river's designation, and propose suitable mitigation measures as warranted. These may include the CWA Section 404 Permit, 401 Certification, NPDES Permit, Fish and Game Code Section 1602 Streambed Alteration Agreement, or ESA Section 7 Consultation for endangered species that would be affected. Specifically with regards to 1602 Streambed Alteration Agreements on Wild and Scenic Rivers, projects are reviewed by the State Resources Agency for consistency with the state WSRA and additional conditions may be placed on the 1602 Agreement for consistency with the WSRA. **Appendix E** provides the information necessary for the State Resources Agency to make a determination on the project's compliance with the State WSRA.

5.3.4 Federal Executive Orders

The proposed project is required to comply with the following federal executive orders and implementing policies.

Executive Order 11990 for Wetlands

Executive Order 11990 requires federal agencies to prepare wetland assessments for federally funded projects located within or affecting wetlands. Agencies must avoid undertaking new construction located in wetlands unless no practicable alternative is available and the proposed action includes all practicable measures to minimize effects to wetlands. The proposed project as described in **Chapter 2** will affect a small area of riparian wetland and riverine habitat that qualify as jurisdictional waters. The loss of wetland habitat can be avoided through avoidance, habitat restoration within area temporarily disturbed during construction, and habitat creation for riparian wetland permanently lost. Reclamation will continue to coordinate with the Corps regarding the Section 404 permit and potential mitigation measures.

Executive Order 11988 for Floodplain Management

Executive Order 11988 requires federal agencies to prepare floodplain assessments for proposals located within or affecting floodplains. If an agency proposes to conduct an action within a floodplain, it must consider alternatives to avoid adverse effects and incompatible development of the floodplain. If the only practicable alternative involves siting in a floodplain, the agency must minimize potential harm to or within the floodplain and explain why the action is proposed in the floodplain. As discussed in **Section 3.4**, Water Resources, and **Appendix F**), the hydraulic information indicates that the proposed project would not constitute a significant encroachment on the base floodplain.

Executive Order 12898 for Environmental Justice

Executive Order 12898 requires federal agencies to identify and address disproportionately high and adverse human health and environmental effects of federal programs, policies, and activities on minority and low-income populations. Federal agencies are required to provide opportunities for input in the NEPA process by affected communities and to evaluate significant and adverse effects of proposed federal actions on minority and low-income communities during the preparation of NEPA documents. The NEPA scoping process can be used to solicit information on the concerns of minority and low-income populations. If a proposed federal action will not result in significant adverse impacts on minority and low-income populations, the environmental document must describe how Executive Order 12898 was addressed during the NEPA process. For the proposed project, Reclamation will circulate a public notice in the local newspaper soliciting input from the public regarding potential adverse effects of the project on minority and low-income populations as part of the overall 45-day comment period for the EA/DEIR. **Section 3.13** of the EA/DEIR contains specific section on environmental justice, including details on federal responsibilities. The preliminary findings indicate the proposed project will not have an adverse effect on minority and low-income populations.

Executive Order 13007 for Indian Sacred Sites on Federal Land

Executive Order 13007 provides that each federal agency with statutory or administrative responsibility for management of federal lands shall, to the extent practicable and as permitted by law, accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners, and shall avoid adversely affecting the physical integrity of such sacred sites. The potential for any such sites occurring within the ESL established for the proposed project is discussed in **Section 3.11**, Cultural Resources. The preliminary findings indicate the proposed project will not have an adverse effect on Indian Sacred Sites on federal land.

Executive Order 12373 for State, Area-wide, and Local Plan and Program Consistency

Agencies must consider the consistency of a proposed action with approved state and local plans and laws. In accordance with Executive Order 12372, this EA/DEIR has been prepared with input from the cooperating, responsible, and trustee agencies. Additionally, those policies within Trinity County that affect or would be affected by any of the alternatives are discussed. During the review period, the EA/DEIR will be circulated to the appropriate state and local entities to satisfy review and consultation requirements.

Indian Trust Assets

The United States Government's trust responsibility for Indian trust assets requires federal agencies to take measures to protect and maintain trust assets. These responsibilities include taking reasonable actions to preserve and restore tribal resources. Indian Trust Assets (ITAs) are legal interests in property and rights held in trust by the United States for Indian tribes or individuals. This EA/DEIR contains a specific section on Tribal Trust (**Section 3.10**) that details federal responsibilities with regard to the Hoopa Valley and Yurok tribal resources. The preliminary findings indicate the proposed project will not have an adverse effect on ITAs.

CHAPTER 6

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CHAPTER 7

List of Acronyms and Abbreviations

List of Acronyms and Abbreviations

°C	degrees Celsius
°F	degrees Fahrenheit
ACHP	Advisory Council on Historic Preservation
ADT	average daily traffic
AEAM	Adaptive Environmental Assessment and Management
af	acre-feet
afa	acre feet annually
a.m.	morning
APE	Area of Potential Effect
BA	Biological Assessment
Basin Plan	Water Quality Control Plan for the North Coast Region, as amended June 28, 2001
BA/EFHA	Biological Assessment/Essential Fish Habitat Assessment
BEA	U.S. Bureau of Economic Analysis
BFE	base flood elevation
BIA	U.S. Bureau of Indian Affairs
BLM	U.S. Bureau of Land Management
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDF	California Department of Forestry and Fire Protection
CDFA	California Department of Food and Agriculture
CDFG	California Department of Fish and Game
CED	Center for Economic Development
Census	U.S. Bureau of the Census
CEQ	President's Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CHP	California Highway Patrol

CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
Commission	California State Fish and Game Commission
Corps	U.S. Army Corps of Engineers
County	Trinity County
CRA	California Resources Agency
CRHR	California Register of Historic Resources
CTR	California Toxics Rule
CUPA	Certified Unified Program Agency
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
CWA	Clean Water Act
d_{50}	mean diameter of channel bed material
dB	logarithmic decibel
dBA	"A-weighted" decibel scale
DOI	U.S. Department of the Interior
DTSC	Department of Toxic Substances Control
DWR	California Department of Water Resources
EA	Environmental Assessment
EA/DEIR	Environmental Assessment/Draft Environmental Impact Report
EDD	California Employment Development Department
EFH	essential fish habitat
EFHA	Essential Fish Habitat Assessment
e.g.	for example
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESL	Environmental Study Limit
ESU	Evolutionarily Significant Unit
et al.	and others
et seq.	the following ones
FDA	Food and Drug Administration
FEIS/EIR	Final Environmental Impact Statement/Environmental Impact Report
FEMA	Federal Emergency Management Agency
FHO	Flood Hazard Overlay
FIRM	Flood Insurance Rate Maps
FMP	Fishery Management Plan
FONSI	Finding of No Significant Impact
ft	feet
ft^2	square feet

ft^3/s	cubic feet per second
FY	fiscal year
GIS	geographic information system
H_2S	hydrogen sulfide
HEC-RAS	Hydraulic Engineering Center River Analysis System
Hg	mercury
HVT	Hoopa Valley Tribe
i.e.	that is
ISMS	Interagency Species Management System
JCVFD	Junction City Volunteer Fire Department
KFMC	Klamath Fishery Management Council
kg	kilogram
KMP	Klamath Mountains Province
KOP	key observation point
L_{dn}	day-night average sound level
L_{eq}	equivalent noise levels
LWD	large woody debris
m	meter
MBTA	Migratory Bird Treaty Act
maf	million acre-feet
MCE	maximum credible earthquake
MCL	maximum contaminant level
MDB&M	Mount Diablo Base and Meridian
mg	milligram
ml	milliliters
MMRP	Mitigation Monitoring and Reporting Program
MOU	memorandum of understanding
mph	miles per hour
MSA	Magnuson-Stevens Fishery Conservation and Management Act
msl	mean sea level
NAAQS	National Ambient Air Quality Standards
NAD	North American Datum
NAHC	Native American Heritage Commission
NCAB	North Coast Air Basin
NCRWQCB	North Coast Regional Water Quality Control Board

NCUAQMD	North Coast Unified Air Quality Management District
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service (now NOAA Fisheries)
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NO_X	nitrogen oxide gases
NO_2	nitrogen dioxide
NOD	Notice of Determination
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NSR	North State Resources, Inc.
O_3	ozone
OES	Office of Emergency Services
OHP	Office of Historic Preservation
ORVs	Outstandingly Remarkable Values
OSHA	Occupational Safety and Health Administration
PA	Programmatic Agreement
Pb	Lead
PFMC	Pacific Fishery Management Council
p.m.	night
$PM_{2.5}$	fine particulate matter (particulate matter less than 2.5 microns in aerodynamic diameter)
PM_{10}	particulate matter less than 10 microns in aerodynamic diameter
ppb	parts per billion
ppm	parts per million
Q	flow rate (typically expressed in cfs)
Q_{50}	50-year flood flow
Q_{100}	base or 100-year flood flow
Q_{max}	maximum unobstructed flow
Q_{MCR}	maximum controlled-flow release
Q_{1997}	estimated flow during 1/1/97
RCRA	Resource Conservation and Recovery Act
Reclamation	U.S. Bureau of Reclamation
REIS	Regional Economic Information System
RM	River Mile
RMP	Resource Management Plan
ROD	Record of Decision
ROW	right-of-way
RPM	reasonable and prudent measures

RVD	Recreational Visitor Day
RWQCB	Regional Water Quality Control Board
SCH	State Clearinghouse
SEIS	Supplemental Environmental Impact Statement
SHPO	California State Historic Preservation Officer
SLC	California State Lands Commission
SO_2	sulfur dioxide
SMARA	Surface Mining and Reclamation Act
SONCC	Southern Oregon/Northern California Coasts
SR	State Route
SRA	shaded riverine aquatic
STAR	Southern Trinity Area Rescue
STNF	Shasta-Trinity National Forest
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TCLP	Toxicity Characteristic Leaching Procedure
TCRCD	Trinity County Resource Conservation District
TCSD	Trinity County Sheriff's Department
TMDL	Total Maximum Daily Load
TRD	Trinity River Diversion
TRFE	Trinity River Flow Evaluation
TRFES	Trinity River Flow Evaluation Study
TRRP	Trinity River Restoration Program
TRSSH	Trinity River Salmon and Steelhead Hatchery
USC	United States Code
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VAU	visual assessment unit
VRM	Visual Resource Management
WCB	California Wildlife Conservation Board
WDRs	Waste Discharge Requirements
WMA	Weed Management Area

CHAPTER 8

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List of Preparers

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CHAPTER 9

Distribution List

Distribution List

9.1 Federal Agencies

- U.S. Army Corps of Engineers
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service
- U.S. Department of Interior, Bureau of Land Management
- NOAA Fisheries
- U.S. Forest Service
- Natural Resource Conservation Service

9.2 State Agencies

- California Department of Fish and Game
- California Regional Water Quality Control Board, North Coast Region
- California State Lands Commission
- California Department of Transportation
- California Department of Water Resources

9.3 Local Agencies

- Humboldt County Public Works
- North Coast Unified Air Quality Management District
- Trinity County Planning Department

9.4 Other Agencies, Organizations, and Individuals

- Hoopa Valley Tribe
- Yurok Tribe
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- Jack Eggleston
- Kirk Shubat
- Sandra Solbos
- Juliana Krause
- Jim Smith
- Michael Fornaciari
- Christine Camera
- Chagdud Gonpa Foundation

Hocker Flat Rehabilitation Site

Trinity River Mile 78 to 79.1

Environmental Assessment/
Draft Environmental Impact Report

Volume 3
Appendices

August 2004

State Clearinghouse
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Prepared for:
Trinity River Restoration Program

Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

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Appendix A

UNITED STATES DISTRICT COURT

EASTERN DISTRICT OF CALIFORNIA

WESTLANDS WATER DISTRICT, SAN LUIS & DELTA-MENDOTA WATER AUTHORITY, and SAN BENITO COUNTY WATER DISTRICT, Plaintiffs, SACRAMENTO MUNICIPAL UTILITY DISTRICT, Plaintiff-Intervenor, NORTHERN CALIFORNIA POWER ASSOCIATION, Plaintiff-Intervenor v. UNITED STATES DEPARTMENT OF THE INTERIOR, ET AL, Defendants, HOOPA VALLEY TRIBE, Defendant-Intervenor, YUROK TRIBE, Defendant-Intervenor. _____

))CIV-F-00-7124 OWW DLB MEMORANDUM DECISION AND ORDER RE: CROSS-MOTIONS FOR SUMMARY JUDGMENT (DOCS. 233, 238, 243, 247, 252)

Before the court are cross-motions for summary judgment pursuant to Rule 56 of the Federal Rules of Civil Procedure. Oral argument was heard August 20, 2002.

Plaintiffs Westlands Water District, San Luis & Delta Mendota Water Authority and San Benito County Water District were represented by Daniel O=Hanlon, Esq. Plaintiff Intervenor, Sacramento Municipal Utility District, was represented by Steve Saxton, Esq., and David Lindgren, Esq. Northern California Power Association, Plaintiff Intervenor, was represented by T. Ronald Lapheimer, Esq. Defendant United States

Department of the Interior and all other named Federal defendants, were represented by Charles Shockey, Esq. The Hoopa Valley Tribe, Defendant-Intervenor, was represented by Thomas Schlosser, Esq. The Yurok Tribe was represented by Scott Williams, Esq.

I. FACTUAL AND PROCEDURAL BACKGROUND

This suit involves the United States Department of Interior=s (AInterior@) administration of the Trinity River Division (ATRD@) of the Central Valley Project (ACVP@) and Interior=s implementation of Section 3406(b)(23) **of the Central Valley Project Improvement Act (ACVPIA@), to restore and maintain the Trinity River fishery.**

II. UNDISPUTED FACTS

The TRD was authorized by an Act of Congress on August 12, 1955. Among the purposes of the TRD Act are that the Secretary provide necessary and beneficial services such as water supply and power and that the Secretary operate the TRD to effectuate the fullest, most beneficial and most economic utilization of the River and adopt appropriate measures to protect fish and wildlife in the Trinity River basin. Trinity River Act of 1955 '2. Construction of the TRD was completed and operations commenced in 1964. The TRD transfers water from the Klamath River Basin, which includes the Trinity River, in Trinity County, California, to the Sacramento River Basin. Its primary function is to store Trinity River

water for regulated diversion to California's Central Valley for agricultural, municipal, and industrial uses. It also produces electrical power. The TRD accounts for twenty-five percent (25%) (500 megawatts (Mw)) of the 2000 Mw of CVP-generated electric power.

The Trinity River Basin is home to protected fish species:

> The native anadromous salmonid species of interest in the mainstem Trinity River and its tributaries include chinook salmon, coho salmon, and steelhead. Of the three species, there are two spawning populations of chinook salmon (spring and fall) and two spawning populations of steelhead (winter and summer). All anadromous species begin their life in fresh water, then migrate to the ocean to mature, and return to spawn in fresh water.

DEIS at 3-151 to 3-152. The spring-run chinook migrates in the spring to summer, spawns in the early fall, rears in winter-spring-summer, and makes its habitat for feeding in shallow, slow-moving waters adjacent to higher water velocities. The fall-run chinook migrates in the fall, spawns in the fall, rears in winter-spring-summer, and makes its habitat in the same areas as the spring-run chinook. The winter steelhead migrates in the fall to winter, spawns between February and April, rears year-round, and makes its habitat in areas of clean cobble where there is refuge from high river flow velocities. The summer steelhead migrates in the spring to summer, spawns between February and April, rears year-round, and makes its habitat in the same area as its related species.

The Hoopa Valley and Yurok Reservations were established in those Tribes= aboriginal lands in the Klamath and Trinity River basins. Since prehistoric times, the fishery resources of the Klamath and Trinity Rivers have been the mainstay of Native American culture and life in the area.

The TRD's construction and operation resulted in the diversion of up to ninety percent (90%) of the average annual discharge into the Trinity River at Lewiston Dam (1,234,000 AF of the 1,396,000 AF inflow), and blocked access to 109 miles of steelhead and salmon spawning and rearing habitat. In response to declining fisheries and degraded habitat conditions, Interior decided in 1981 to increase flows into the Trinity River ranging from 140,000 AF to 340,000 AF annually. In addition, the United States Fish and Wildlife Service (AUSFWS@) was directed to undertake a Flow Evaluation Study to assess fish habitat at various flows, summarize the effectiveness of other instream and watershed restoration activities, and recommend appropriate flows and other measures necessary to better maintain favorable habitat conditions. The study began in October 1984 and was completed by a June 1999 report.

In October 1984, Congress enacted the Trinity River Basin Fish and Wildlife Management Act (A1984 Act@) to restore fish and wildlife populations to pre-TRD levels. The 1984 Act found that the TRD had contributed to a Adrastic reduction in the anadromous fish populations.@

Public Law 98-541, Section 1(1). It directed that the restoration program include:

> (1) The design, construction, operation, and maintenance of facilities to --
> (A) rehabilitate fish habitats in the Trinity River between Lewiston Dam and Weitchpec;
> (B) rehabilitate fish habitats in tributaries of such river below Lewiston Dam and in the south fork of such river; and
> (C) modernize and otherwise increase the effectiveness of the Trinity River Fish Hatchery.
> (2) The establishment of a procedure to monitor (A) the fish and wildlife stock on a continuing basis, and (B) the effectiveness of the rehabilitation work.
> (3) Such other activities as the Secretary determines to be necessary to achieve the long-term goal of the program.

Public Law 98-541, Section 2(a).

In 1991, the Secretary of the Interior increased the minimum flows in the Trinity River to 340,000 AF/year until the Trinity River flow study was completed. The 340,000 AF number was the third-lowest unregulated flow on record.

In 1992, Congress enacted the CVPIA to annually redirect part of the CVP=s water to the environment. CVPIA ' 3406(b)(23) specifically authorizes and directs Interior to restore the Trinity River. It requires that not less than 340,000 AF of water be released into the Trinity River each year for water years 1992-1996 in order to meet federal trust responsibilities to the Hoopa Valley Tribe <u>and to meet the restoration goals of the 1984 Act</u>. CVPIA ' 3406(b)(23). It directs the Secretary of the Interior (ASecretary@), after consultation with the Hoopa Valley Tribe to complete the Trinity River Flow

Evaluation Study (ATRFES@), which had already begun pursuant to the January 14, 1981 Secretarial Decision, no later than September 30, 1996. CVPIA ' 3406(b)(23)(A). The TRFES was to be performed Ain a manner which insures the development of recommendations, based on the best available scientific data, regarding permanent instream fishery flow requirements and Trinity River Division operating criteria and procedures for the restoration and maintenance of the Trinity River fishery.@ *Id.* Section 3406 then directs the Secretary to forward the TRFES recommendations to several congressional committees no later than December 31, 1996. CVPIA ' 3406(b)(23)(B). If the Secretary and the Hoopa Valley Tribe concurred in the TRFES recommended increases for Trinity River instream fishery flow releases established under CVPIA '3406(b)(23)(B), such restoration flows were to be implemented accordingly. *Id.* If they did not concur, the 340,000 AF minimum flows must remain in effect unless increased by an act of Congress, appropriate judicial decree or agreement between the Secretary and the Hoopa Valley Tribe. *Id.*

In 1996, Congress amended the 1984 Act by the Trinity River Basin Fish and wildlife Management Reauthorization Act of 1995, Pub. L. No. 104-408, 110 Stat. 1338 (1996). The TRFES was not timely completed. Congress directed that Trinity River restoration be measured not only by returning adult anadromous fish spawners, but also by the ability of dependant tribal,

commercial, and sport fisheries to participate fully, through in-river and ocean harvest opportunities, in the benefits of the restoration. Pub. L. No. 104-408. Congress also included language amending the activities to be undertaken by the Secretary. *Id.* The original language directed the Secretary to Amodernize and otherwise increase the effectiveness of the Trinity River fish hatchery. The 1996 Act adds Aso that it can best service its purpose of mitigation of fish habitat loss above Lewiston Dam while not impairing efforts to restore and maintain naturally reproducing anadromous fish stocks within the basin.@ *Id.*

In January 1998, the draft Trinity River Flow Evaluation Report (TRFER) was released. In June 1999, Interior, in consultation with the Hoopa Valley Tribe, published the Trinity River Flow Evaluation Final Report (ATRFEFR@). The TRFEFR recommends permanently increasing the Trinity River fish flows from the statutorily mandated 340,000 AF/year to between 368,900 and 815,200 AF/year, as follows:

Recommended Water Releases Water-Year Class Instream Volume (x 1000 acre-feet) Probability of Occurrence Extremely Wet 815.2 0.12 Wet 701.0 0.28 Normal 646.9 0.20 Dry 452.6 0.28 Critically Dry 368.6 0.12 Weighted Average 594.5

TRFEFR ' 8.1, p. 241.

On October 19, 1999, the United States Bureau of Reclamation (ABureau@) and the USFWS released the draft

ATrinity River Mainstem Fishery Restoration Environmental Impact Statement/Report@ (ADEIS@), which described alternate approaches for restoring and maintaining the Trinity River fishery. Interior published the availability of the draft EIS/EIR and the commencement of a public comment period scheduled to end on December 8, 1999. 64 Fed. Reg. 56364, 1999 WL 827447 (Oct. 19, 1999). The public comment period was extended until January 20, 2000. 64 Fed. Reg. 67584, 1999 WL 1078497 (Dec. 2, 1999); 64 Fed. Reg. 72357, 1999 WL 1247501 (Dec. 27, 1999).

On January 20, 2000, San Luis & Delta-Mendota Water Authority (ASan Luis@) submitted written comments criticizing the DEIS, noting, *inter alia*, that the DEIS failed to analyze the preferred alternative's potential adverse environmental impacts on federally listed endangered or threatened fish species within the Sacramento River system and the Sacramento-San Joaquin Delta (ADelta@), and also failed to analyze how these adverse impacts, if any, could be minimized or avoided. Doc. 35 at && 39-40 & Ex. A.

On March 10, 2000, Westlands Water District (AWestlands@) and San Luis sent a sixty-day notice of intent to sue to Interior, threatening suit if Interior did not undertake a formal ESA consultation on the TRFEFR. On March 29, 2000, Interior forwarded the TRFEFR to Congress, pursuant to CVPIA ' 3406(b)(23) (Athe Secretary shall forward the recommendations of the

Trinity River Flow Evaluation Study . . . to the Committee on Energy and Natural Resources and the Select Committee on Indian Affairs of the Senate and the Committee on Interior and Insular Affairs and the Committee on Merchant Marine and Fisheries of the House of Representatives. If the Secretary and the Hoopa Valley Tribe concur in these recommendations, any increase to the minimum Trinity River instream fishery releases established under this paragraph and the operating criteria and procedures referred to in subparagraph (A) shall be implemented accordingly.@).

On May 8, 2000, Interior responded to San Luis: letter, acknowledging that ESA A' 7 consultation over potential effects to species listed as either threatened or endangered under the ESA . . . must be accomplished as part of the process of making a decision on the Program.@ It reassured that Ano final decision on the Program will be made until both the USFWS and NMFS have issued biological opinions regarding implementation of the Program, and that these opinions will be taken into consideration in making such decisions.@

On October 12, 2000, the National Marine Fishery Service (ANMFS@) formally issued the ABiological Opinion for the Trinity River Mainstem Fishery Restoration EIS and Its Effects on Southern Oregon/Northern California Coast Coho Salmon, Sacramento River Winter-run Chinook Salmon, Central Valley Spring-run Chinook Salmon, and Central Valley Steelhead@ (ABioOp.@). This BioOp

recognizes that implementation of the report will affect many aspects of the river, including decreased water flows, and discusses reasonable and prudent measures (ARPMs@) to minimize or avoid the preferred alternative's impacts on Afederally listed@ fish.

Also on October 12, 2000, the USFWS issued ARe[-]initiation of Formal Consultation: Biological Opinion of the Effects of Long-term Operation of the Central Valley Project and State Water Project as Modified by Implementing the Preferred Alternative in the Draft Environmental Impact Statement/Environmental Impact Report for the Trinity River Mainstem Fishery Restoration Program@ (AUSFWS BioOp@). On November 17, 2000, Interior published notice of the availability of the final EIS/EIR (AFEIS@). 65 Fed. Reg. 69512, 2000 WL 1711646 (Nov. 17, 2000).

On December 14, 2000, Westlands filed suit against defendants, alleging three claims:

(1) Amaladministration@ of the Endangered Species Act (AESA@) by the USFWS;

(2) maladministration of the ESA by NMFS; and,

(3) violation of NEPA by all defendants.

Doc. 1 at 15-24. That same day, Westlands sought an emergency court order to enjoin the defendant, Bruce Babbitt (as Secretary of the Interior), from executing a Record of Decision (AROD@) with the Hoopa Valley Tribe, scheduled to be signed on Tuesday, December 19, 2000. On

December 15, the Hoopa Valley Tribe intervened as a defendant in the case.

The motion for a Temporary Restraining Order ("TRO") was denied in open court on the afternoon of December 15, 2000, and the confirming written order was entered on January 30, 2001. Doc. 85. The application for a TRO was denied because at the time of the December 15 hearing, Secretary Babbitt had not yet signed the ROD. The signing was scheduled for December 19, 2000. Until the ROD was signed, there was no Afinal agency action@ that Westlands could challenge and no authority existed to enjoin the Executive from implementing the statutory function of reaching agreement with the Indian Tribes on the Trinity River Restoration Plan. *Id.* at 4-5.

On December 18, 2000, the Hoopa Valley Tribe concurred in the TRFES recommendations. On December 19, 2000, Secretary Babbitt and the Senior Chairman of the Hoopa Valley Tribal Council signed the ROD. The ROD directs Interior's agencies Ato implement the Preferred Alternative as described in the FEIS/EIR and as provided below,@ and Ato implement the reasonable and prudent measures described in the NMFS and [USFWS] Biological Opinions.@

The ROD=s stated purpose is: restoration and perpetual maintenance of Trinity River=s fishery resources by rehabilitating the river and restoring attributes of a healthy, functioning alluvial river system. AR 17694-95. The essential components to do so are:

1. **Permanently increase variable annual flows for the Trinity River;**
2. **Rehabilitate physical channels, remove riparian berms and establish side channel habitat;**
3. **Sediment management to increase spawning gravels and reduce fine sediments;**
4. **Restore the watershed damage by land use practices;**
5. **Improve infrastructure, including bridges and other structures affected by peak flows.**

On January 5, 2001, Westlands and two new plaintiffs, the San Luis and Delta-Mendota Water Authority, and the San Benito County Water District (collectively Awater districts@), filed a first amended complaint against the federal defendants, alleging four causes of action:

(1) maladministration of the ESA by the USFWS, claiming that by Aissuing a non-jeopardy biological opinion that requires a major change in CVP operations [*i.e.*, preventing any upstream movement of 0.5 km or more of the X2 water quality standard], the USFWS has exceeded its authority under the Endangered Species Act;@

(2) maladministration of the ESA by NMFS, claiming that NMFS acted arbitrarily and capriciously and in excess of its authority under the ESA by issuing a biological opinion that internally conflicts, because it states on one hand that ANMFS does not

anticipate that implementation of the proposed flow schedules will incidentally take any SONCC coho salmon,@ and on the other hand, prescribes RPMs to deal with incidental take;

(1) (3) violation of NEPA by all defendants, claiming that: (a) the draft and final EIS/EIRs do not analyze the impacts of implementing the requirements of the USFWS and NMFS biological opinions; (b) the final EIS/EIR does not adequately describe what CVP operational changes will occur to protect or mitigate the adverse effect upon listed fish, upon which the draft EIS/EIR acknowledges implementation of the preferred alternative may have a significant adverse impact, and simply defers mitigation consideration until later; (c) because the biological opinions modified the proposed action by creating new environmental impacts (or new circumstances and information), the defendants failed to supplement the EIS/EIRs to analyze these impacts and publish the analysis for public comment; (d) the draft and final EIS/EIR do not fairly evaluate alternatives, and are in essence a Apost hoc rationalization to justify a course of action decided upon before NEPA review even began;@ (e) the EIS/EIRs utilize improper definitions of proper purpose by using the Ahealthy river@ standard rather than an objective standard; and, (f) the final EIS/EIR, or a supplement thereto, does not analyze

the impact of implementation of the preferred alternative on California's current energy crisis; and,

(4) violation of the Administrative Procedure Act (AAPA@), claiming that the TRFEFR's recommendations adopted by the ROD are not based on the best available scientific data in violation of CVPIA ' 3406(b)(23)(A), and its conclusions are arbitrary and capricious.

Doc. 35. The Yurok Tribe intervened as a defendant on January 19, 2001. On February 8, 2001, the Northern California Power Agency (ANCPA@) and the Sacramento Municipal Utility District (ASMUD@) intervened as plaintiffs over the opposition of the Hoopa Valley and Yurok Tribes.

The water districts filed a motion for preliminary injunction on January 5, 2001 and NCPA and SMUD moved for a preliminary injunction on February 6, 2001. A preliminary injunction issued on March 22, 2001 limiting the amount of water releases under the ROD to a total of 368,600 AF. All other aspects of the ROD=s Trinity River restoration plan were not enjoined. The decision, made without a complete administrative record, found plaintiffs were likely to succeed on the merits of their claim because the two BioOps imposed significant environmental impacts that were not analyzed in a supplemental EIS/EIR (ASEIS@) and the California energy

crisis was a changed circumstance that should have been evaluated, but was not.

On September 7, 2001, the United States, the water districts, NCPA, and SMUD, but not the Tribes, entered into and filed a stipulation to stay the proceedings in this case until Interior issued a revised ROD following completion of an SEIS. The federal defendants and plaintiffs agreed that the preliminary injunction would remain in place unless otherwise ordered by the court. The defendant-intervenor Tribes did not oppose the stay order, but did not join the stipulation because of paragraphs eight and nine which they believed demanded actions not required by law. However, they found the proposed order Aunobjectionable.@ On October 8, 2001, the court signed the stay order.

On March 14, 2002, the Tribes moved to modify the preliminary injunction for water year 2002 alleging changed circumstances. On April 19, 2002, the preliminary injunction was modified to authorize the release of 468,600 AF of water into the Trinity River for the purposes of fishery protection and restoration for water year 2002. All other aspects of the Trinity River restoration plan were not subject to the injunction. The order modifying the preliminary injunction also vacated the stay and set a schedule for disposition of the case on the merits. To the court=s knowledge, work on the SEIS ceased.

On June 11, 2002 the water districts, NCPA, SMUD, the federal defendants, and the Hoopa Valley Tribe filed cross-motions for summary judgment. The Yurok Tribe did not file a cross-motion for summary judgment but opposed the water districts=, NCPA=s, and SMUD=s motions.

III. LEGAL STANDARD

Summary judgment is warranted only Aif the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact.@ Fed. R. Civ. P. 56(c); *California v. Campbell*, 138 F.3d 772, 780 (9th Cir. 1998). The evidence must be viewed in light most favorable to the nonmoving party. *Indiana Lumbermens Mut. Ins. Co. v. West Oregon Wood Products, Inc.*, 268 F.3d 639, 644 (9th Cir. 2001), *amended by* 2001 WL 1490998 (9th Cir. 2001).

The moving party bears the initial burden of demonstrating the absence of a genuine issue of fact. *Devereaux v. Abbey*, 263 F.3d 1070, 1076 (9th Cir. 2001). If the moving party fails to meet this burden, Athe nonmoving party has no obligation to produce anything, even if the nonmoving party would have the ultimate burden of persuasion at trial.@ ***Nissan Fire & Marine Ins. Co., Ltd. v. Fritz Cos., Inc.*, 210 F.3d 1099, 1102-03 (9th Cir. 2000)**. However, if the nonmoving party has the burden of proof at trial, the moving party must only show "that there is an absence of evidence to support the

nonmoving party's case." *Celotex Corp. v. Catrett*, 477 U.S. 317, 325 (1986).

Once the moving party has met its burden of proof, the non-moving party must produce evidence on which a reasonable trier of fact could find in its favor viewing the record as a whole in light of the evidentiary burden the law places on that party. *Triton Energy Corp. v. Square D Co.*, 68 F.3d 1216, 1221 (9th Cir. 1995). The nonmoving party cannot simply rest on its allegations without any significant probative evidence tending to support the complaint. ***Devereaux***, 263 F.3d at 1076.

> **[T]he plain language of Rule 56(c) mandates the entry of summary judgment, after adequate time for discovery and upon motion, against a party who fails to make a showing sufficient to establish the existence of an element essential to the party's case, and on which that party will bear the burden of proof at trial. In such a situation, there can be Ano genuine issue as to any material fact,@ since a complete failure of proof concerning an essential element of the nonmoving party's case necessarily renders all other facts immaterial.**

***Celotex Corp.*, 477 U.S. at 322-23.**

IV. DISCUSSION

Plaintiffs and plaintiff-intervenors move for summary judgment on five NEPA issues: 1) the Preferred Alternative=s impact on the ESA-listed species in the Sacramento River and Delta were not adequately assessed; 2) the impacts of mitigation measures mandated by the BioOps were not properly assessed; 3) the impact of the Preferred Alternative on power system reliability was not adequately assessed; 4) Interior improperly applied an

unreasonably narrow definition of EIS purpose and artificially restricted the range of alternatives considered under NEPA; and 5) Interior=s environmental assessment was too late. They also move for summary judgment on two ESA issues: 1) the USFWS BioOp unlawfully mandates major changes to CVP operations; 2) the NMFS BioOp arbitrarily mandates implementation of the ROD flows in the absence of the lethal take of Trinity River fish. Finally, plaintiffs move for summary judgment arguing the Secretary=s actions in authorizing the ROD flows were arbitrary and capricious in that there was no adequate basis in experience or science for determining that the adopted permanent flows are necessary or beneficial.

The Hoopa Valley Tribe opposes Plaintiffs= summary judgment motions arguing: 1) further NEPA review is irreconcilable with the CVPIA; and 2) the ROD is neither arbitrary, capricious, nor contrary to law. The Tribe also argues that the CVPIA and equity principles limit the available remedies.

The federal defendants move for summary judgment arguing they have complied: 1) with NEPA; and, 2) with the ESA. The Yurok Tribe argues that the federal government=s trust responsibility requires restoration be given Aparamount consideration.@

A. <u>APPLICABILITY OF FURTHER NEPA REVIEW UNDER CVPIA '3406(b)(23)</u>

The Hoopa Tribe contends that the Secretary has no discretion to delay implementing the flow study recommendations because the Tribe formally concurred in those recommendations in December 2000 and under CVPIA ' 3406(b)(23) the Secretary no longer has discretion after such a concurrence.

NEPA requires federal agencies, to the fullest extent possible, to Ainclude in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment,@ an environmental impact statement that includes the impacts of and alternatives to the proposed action. 42 U.S.C. ' 4332(2)(C). NEPA is given the broadest possible interpretation. *Westlands Water Dist. v. Natural Resources Defense Council*, 43 F.3d 457, 460 (9th Cir. 1994). The phrase Ato the fullest extent possible@ is not Aaccidental nor hyperbolic.@ *Flint Ridge Dev. Co. v. Scenic Rivers Ass=n of Oklahoma*, 426 U.S. 776, 787 (1976). Instead it directs that environmental factors be considered and Anot be shunted aside in the bureaucratic shuffle.@ *Id.*

There are however, exceptions to this rule. Where there is a clear and unavoidable conflict in statutory authority, NEPA gives way. *Id.* at 788. The test is Awhether, assuming an environmental impact statement would otherwise be required in this case, requiring the Secretary to prepare such a statement would create an irreconcilable and fundamental conflict with the

Secretary=s duties.@ *Id.*; *Westlands*, 43 F.3d at 460 (AOnly if there is an ›irreconcilable= conflict between the statute and NEPA will the requirements of NEPA not apply.@).

The Hoopa Valley Tribe contends that there are two ways in which NEPA is irreconcilable with CVPIA ' 3406(b)(23): 1) the statutorily mandated time period is too short to allow compliance; and 2) the Secretary lacks discretion.

1. Statutorily Mandated Time Frame

There is an irreconcilable conflict when a statute mandates a fixed time period for implementation and this time period is too short to allow the agency to comply with NEPA. *Flint Ridge*, 426 U.S. at 791; *Westlands*, 43 F.3d at 460. In *Flint Ridge*, the Supreme Court found that a 30-day window within which the Secretary of Housing and Urban Development had to act, was too short to allow compliance with NEPA and this caused irreconcilable conflict. In *Westlands*, the Ninth Circuit held CVPIA '' 3406(b)(2) and (d)(1) were irreconcilable with NEPA because upon enactment, the statute directed the Secretary to take immediate action. *Westlands*, 43 F.3d at 460.

Section 3406(b)(23) of the CVPIA provides:

> (A) by September 30, 1996, the Secretary, after consultation with the Hoopa Valley Tribe, shall complete the Trinity River Flow Evaluation Study currently being conducted by the United States Fish and Wildlife Service under the mandate of the Secretarial Decision of January 14, 1981 . . . ; and

> (B) not later than December 31, 1996, the Secretary shall forward the recommendations of the Trinity River Flow Evaluation Study, referred to in subparagraph (A) of this paragraph, to [Congress]. If the Secretary and the Hoopa Valley Tribe concur in these recommendations, any increase to the minimum Trinity River instream fishery releases established under this paragraph and the operating criteria and procedures referred to in subparagraph (A) shall be implemented accordingly. If the Hoopa Valley Tribe and the Secretary do not concur, the minimum Trinity River instream fishery releases established under this paragraph shall remain in effect unless increased by an Act of Congress, appropriate judicial decree, or agreement between the Secretary and the Hoopa Valley Tribe.

Pub. L. No. 102-575, ' 3406(b)(23), 106 Stat. 4600, at 4720-21. The Hoopa Tribe concedes that the four years between the 1992 enactment of the CVPIA and the 3406(b)(23)(A) September 30, 1996 deadline provide sufficient time for the Secretary to comply with NEPA. The Tribe argues that implementation of restoration action cannot be further postponed for additional NEPA review because: 1) the deadlines in Section 3406(b)(23) have already passed; and 2) Congress directed that review should end once the Tribe concurred in the recommendation.

In *Flint Ridge*, the Supreme Court held the phrase Ato the fullest extent possible@ in 42 U.S.C. ' 4332 was not to be used to shunt aside consideration of environmental factors Ain the bureaucratic shuffle.@ *Flint Ridge*, 426 U.S. at 787. AThe purpose of the new language is to make it clear that each agency of the Federal Government Shall comply with the directives set out in (' 102(2)) Unless

[sic] the existing law applicable to such agency's operations expressly prohibs [sic] or makes full compliance with one of the directives impossible . . . [T]he language in section 102 is intended to assure that all agencies of the Federal Government shall comply with the directive set out in said section 'to the fullest extent possible' under their statutory authorizations and that no agency shall utilize an excessively narrow construction of its existing statutory authorizations to avoid compliance." *Id.* at 787-88 (quoting 115 Cong.Rec. 39703 (1969) (House conferees)).

Section 3406(b)(23), enacted in 1992, gave the Secretary four years to complete and present to Congress a flow and restoration study of the Trinity River originally called for by 1984 legislation, which had been in progress for eleven years (since 1981 when the original restoration studies commenced). By the 1996 statutory deadline, the Secretary had taken 15 years to prepare for and complete the NEPA process. As the federal defendants admitted at oral argument, CVPIA ' 3406(b)(23) does not Airreconcilably and fundamentally conflict@ with NEPA nor is there a clear or unavoidable conflict. *See Jones v. Gordon*, 792 F.2d 821, 826 (9th Cir. 1986) (A*Flint Ridge* applies only when a conflict is ›clear and unavoidable= and ›irreconcilable and fundamental.=@). Compliance with both statutes was entirely possible. The delay or inactions of the federal defendants cannot create a statutory conflict. *See*

Forelaws on Board v. Johnson, 743 F.2d 677, 683-85 (9th Cir. 1984) (holding that agency=s failure to initiate EIS within 9-month statutory deadline for action did not excuse NEPA compliance under *Flint Ridge*).

If the requirements of NEPA are to have meaning, federal agencies cannot be excused from compliance simply because they move at glacial speed. To apply the *Flint Ridge* exception to this case, where the federal agency had four years to comply with NEPA and there was well-known statutory concern for compliance with environmental laws, would negate NEPA review whenever there is a statutory time deadline for action. Federal agencies could avoid NEPA compliance simply by waiting long enough. This defeats the congressional public scrutiny and participation purposes embodied in NEPA. The *Flint Ridge* exception does not apply.

The Hoopa Tribe argues that once it concurred in the recommendations, immediate implementation was mandatory, and under *Westlands* there was no more time to comply with the NEPA requirements. Section 3406(b)(23) is not directly analogous to Sections 3406(b)(2) and (d)(1). Sections (b)(2) and (d)(1) require the Secretary to take action to operate the CVP as directed immediately upon enactment. Section (b)(23) gave the Secretary four years to act. The Tribe argues that the correct performance time period is not the time between enactment and the deadline, but between the Tribe=s concurrence, signing of the ROD and implementation of the flow and restoration

recommendations. This argument ignores that the Secretary had ample time to complete the NEPA analysis within the statutorily allotted time. If it was possible for the Secretary to perform a NEPA analysis, NEPA and *Flint Ridge* require it be done. That the deadline passed does not abrogate this duty. *See Forelaws*, 743 F.2d at 683-86 (holding EIS required despite the fact that the statutory deadline for action had passed). *Flint Ridge* does not apply to this case. Section (b)(23) requires both the Hoopa Valley Tribe=s and the Secretary=s concurrence. If the Secretary did not lawfully concur, the prerequisites for increasing flows under (b)(23) were not met, whether or not the Hoopa Valley Tribe concurred. Even if (b)(23) did preclude further NEPA analysis after concurrence, joint concurrence was required.

2. <u>Secretarial Discretion</u>

The Tribe maintains the Secretary has no discretion not to implement the flow recommendations after the Tribe concurred. Where a federal agency lacks the ability to meaningfully influence a particular action, the procedural requirements of NEPA do not apply. *Sierra Club v. Babbitt*, 65 F.3d 1502, 1512-13 (9th Cir. 1995). A[NEPA=s] procedural requirements are triggered by a discretionary federal action.@ *Id.* at 1512.

Section 3406(b)(23) has several requirements: 1) the TRFES had to be completed by September 30, 1996; 2) not later than December 31, 1996 the Secretary had to

forward the TRFES recommendations to several congressional committees; 3) if the Secretary and the Hoopa Valley Tribe concurred in the recommendations they were to be implemented accordingly. The automatic, non-discretionary language was only operative after both the Hoopa Valley Tribe and the Secretary concurred. The Secretary had full discretion under Section 3406(b)(23), before any concurrence, to scope, analyze, and decide what flow recommendations to make to Congress. During the four year statutorily authorized period for study and formulation of such recommendations there was ample time to conduct a NEPA review. The TRFER was not completed until June 1999. The EIS process commenced in 1986. The DEIS was released October 19, 1999; public comment was extended through January 20, 2000. The TRFER was forwarded to Congress March 10, 2000; Biological Opinions were issued October 12, 2000, and the FEIS/R was completed and published November 17, 2000. The tribe signed the ROD December 19, 2000. The lack of discretion exception to NEPA compliance does not apply. The Secretary was required to comply with NEPA before making flow recommendations, a major federal action which had the potential to adversely effect the environment.

There was adequate time to complete NEPA review before the ROD was signed. The TRFER could not be implemented before that time. The Hoopa Valley Tribe=s motion for summary judgment, on the issue that compliance

with NEPA is not required because '3406(b)(2) is irreconcilably inconsistent with NEPA, is DENIED.

B. <u>NEPA CLAIMS</u>

NEPA is the Athe basic national charter for protection of the environment.@ *Churchill County v. Norton*, 276 F.3d 1060, 1072 (9th Cir. 2001), *amended by* 282 F.3d 1055 (9th Cir. 2002) (quoting *Blue Mountains Biodiversity Project v. Blackwood,* 161 F.3d 1208, 1215 (9th Cir. 1998)). It is designed to ensure that federal agencies will have available, and carefully consider, detailed information concerning significant public impacts. *Id.* It Aguarantees that the relevant information will be made available to the larger public audience.@ *Id.* (quoting *Robertson v. Methow Valley Citizens Council,* 490 U.S. 332, 349 (1989)). ANEPA also >emphasizes the importance of coherent and comprehensive up-front environmental analysis to ensure informed decision making to the end that the agency will not act on incomplete information, only to regret its decision after it is too late to correct.'" *Id*. at 1072-73 (quoting *Blue Mountains*, 161 F.3d at 1216)(internal citation omitted).

NEPA requires federal agencies to prepare an EIS for Aevery recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment.@ 42 U.S.C. ' 4332(2)(C). Because NEPA does not contain a

judicial review provision, an agency=s compliance with NEPA is reviewed under the Administrative Procedure Act (AAPA@), 5 U.S.C. ' 706(2)(A). *Ka Makani `O Kohala Ohana Inc. v. Water Supply*, 295 F.3d 955, 959 (9th Cir. 2002). A decision not to prepare an EIS is reviewed under the arbitrary-and-capricious standard, unless the agency does not perform an environmental assessment. *Id.; Churchill County,* 276 F.3d at 1071. If there is no environmental assessment, the reasonableness standard is used. *Ka Makani*, 2002 WL 1401978A at *2.

The adequacy of an EIS is reviewed under the Arule of reason@ standard. *Churchill County,* 276 F.3d at 1071. AUnder this standard, we ask >whether an EIS contains a reasonably thorough discussion of the significant aspects of the probable environmental consequences.@ *Id.* (quoting *Trout Unlimited v. Morton*, 509 F.2d 1276, 1283 (9th Cir. 1974)). To determine whether an EIS was reasonably thorough courts must make Aa pragmatic judgment whether the EIS=s form, content and preparation foster both informed decision-making and informed public participation.@ *Id.* (quoting *California v. Block*, 690 F.2d 753, 761 (9th Cir. 1982)).

When deciding NEPA claims, a court may not impose its own notion of which procedures are best. *Id.* at 1072. Instead, a court=s role is to take Aa hard look.@ *Id.* A[NEPA] is not meant to >mandate particular results= but to provide a process to ensure that federal agencies take a >hard look= at the environmental consequences of

proposed acts. When an agency makes a decision subject to the NEPA's procedural requirements, ›the only role for a court is to insure that the agency has considered the environmental consequences; it cannot interject itself within the area of discretion of the executive....=@ *Tillamook County v. U.S. Army Corps of Engineers*, 288 F.3d 1140, 1143-44 (9th Cir. 2002) (quoting *Strycker's Bay Neighborhood Council, Inc. v. Karlen*, 444 U.S. 223, 227 (1980)). Courts must strictly interpret the procedural requirements of NEPA A›to the fullest extent possible= consistent with the policies embodied in NEPA.@ *Churchill,* 276 F.3d at 1072.

Plaintiffs move for summary judgment on six NEPA issues: 1) the Preferred Alternative=s impact on the ESA-listed species in the Sacramento River and Delta was not adequately assessed; 2) the impacts of mitigation measures mandated by the BioOps were not properly assessed; 3) the impacts of the Preferred Alternative on power system reliability were not adequately assessed; 4) Interior improperly applied a wrongfully narrowed EIS purpose to artificially restrict the range of alternatives considered under NEPA; 5) Interior failed to consider and adopt an integrated management alternative; and, 6) the EIS was performed too late.

1. <u>Assessment of Sacramento River and Delta ESA-Listed Species</u>

The claim the DEIS does not analyze the effects of the Preferred Alternative on endangered fish species in the Sacramento River and Delta, and that the issuance of the BioOps did not cure the violation, centers on the contention the public did not have an opportunity to review and comment on the BioOps' analyses. The Preferred Alternative recognizes two overriding objectives: increasing anadromous natural fish production and allowing continued water exports and flood control. EIS 2-3. One screening opportunity adopted as part of the Preferred Alternative is to balance environmental and social beneficial and adverse impacts across the Trinity River Basin, Lower Klamath River Basin, Coastal Area, and Central Valley Basin. *Id.* Plaintiffs advance three contentions: 1) the DEIS did not discuss the Preferred Alternative's direct effects and significance on the Sacramento River and Delta ESA-listed species; 2) when notified of the deficiency, Interior failed to recirculate or adequately supplement the DEIS; and, 3) the addition of language from the BioOps to the FEIS did not cure the DEIS' deficiencies. The federal defendants and the Hoopa Tribe argue the DEIS contained adequate analysis of the Preferred Alternative's impact on the Sacramento ESA-listed species, that the DEIS did not need to be recirculated, and that the inclusion of additional information in the FEIS was sufficient.

a. **DEIS Analysis on Sacramento ESA-Listed Species**

Plaintiffs claim, Awhile the DEIS admits that the Preferred Alternative could cause ›significant impacts= associated with the ›increased frequency of Sacramento basin temperature and carryover storage violations,= the DEIS does not analyze those impacts. 18 AR 10653. Rather, it states that these impacts ›would need to be evaluated by the NMFS pursuant to ESA.=@ 18 AR 10653.@ Doc. 244 at 5:3-6 (NCPA P & A=s). Defendants point to numerous sections of the DEIS that analyze these impacts.

There is some merit to each position. The DEIS does analyze the impact of the Preferred Alternative on the ESA-listed species in the Sacramento River and Delta. DEIS at 3-167-169 3-172-173, 3-175-177, 3-179-184, B-60-61, B-65, B-74-75, B-77-78, B-89-90. ACompared to existing conditions, the Preferred Alternative would adversely affect fall, winter, and spring chinook salmon by significantly increasing mortality of early life stages of these species within the upper Sacramento River.@ DEIS, at 3-178. A[D]uring all months from February through June, Delta outflows were greater than 10 percent of the years simulated (Table 3-16). Those reductions in Delta outflow may be significant and may adversely affect habitat for Delta species.@ DEIS, at 3-184. The DEIS does not consider or identify mitigation measures for the admitted significant impacts to those species, except to specify Amitigation for impacts to the

Delta smelt and Sacramento splittail would consist of consulting with the Service on impacts and implementing any ›required conservation measures.=@ DEIS, at 3-184. This defers consideration of mitigation efforts to the BioOps. AIn that the potential adverse effects to listed species identified in the DEIS/EIR are the subject of consultation under Section 7 of the Endangered Species Act (ESA), with both the U.S. Fish and Wildlife Service (Service) and National Marine Fisheries Service (NMFS), it was entirely appropriate to defer describing specific minimization actions until the consultations had been completed.@ FEIS, D2-65. Consideration of the impacts, not only on Delta species, but all other secondary impacts which would result, were necessarily deferred to future analysis.

The Council on Environmental Quality (CEQ) regulations, which implement NEPA, require a DEIS be prepared and circulated prior to the issuance of an FEIS. 40 C.F.R. 1502.9(a). The DEIS Amust fulfill and satisfy to the fullest extent possible the requirements established for final statements.@ *Id.* AIf a draft statement is so inadequate as to preclude meaningful analysis, the agency shall prepare and circulate a revised draft of the appropriate portion.@ *Id.* The CEQ regulations further direct that a DEIS or FEIS be supplemented if Athere are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.@ 40 C.F.R.

' 1502.9(c)(ii). CEQ regulations provide that A[t]o the fullest extent possible, agencies shall prepare draft environmental impact statements concurrently with and integrated with environmental impact analyses and related surveys and studies required by . . . the Endangered Species Act of 1973, and other environmental review laws and executive orders.@ 40 C.F.R. ' 1502.25(a).

The question here is whether the DEIS=s deferral to future BioOps, rather than identifying impacts and discussing mitigation measures in the DEIS, fails to provide Ameaningful analysis.@ An EIS must contain a discussion of possible mitigation measures. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 351-52 (1989); *Okanogan Highlands Alliance v. Williams*, 236 F.3d 468, 473 (9th Cir. 2000); *Neighbors of Cuddy Mountain v. U.S. Forest Service*, 137 F.3d 1372, 1380 (9th Cir. 1998). AImplicit in NEPA=s demand that an agency prepare a detailed statement on ›any adverse environmental effects which cannot be avoided should the proposal be implemented,= is an understanding that the EIS will discuss the extent to which adverse effects can be avoided.@ *Robertson*, 490 U.S. at 351-52 (quoting 42 U.S.C. ' 4332(C)(ii)) (internal citations omitted). AWithout such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects.@ *Id.* Failure to discuss possible mitigating measures precludes the

parties from meaningful analysis and Interior did not circulate a revised draft.

b. Timing of the EIS

Plaintiffs= assertion that a final EIS should have been completed before the Trinity River flow study was submitted to countered is answered by Interior=s position that the EIS was programmatic and project specific and centered on the recommendations for restoring Trinity River flows and related measures to rehabilitate the fishery, which in turn had to be reviewed by Congress and then concurred in by the Hoopa Valley Tribe. FEIS pp. 1-3. Title 40 C.F.R. '1508.25(a)(2) authorizes a programmatic EIS for A[cumulative actions, which, when viewed with other proposed actions, have cumulatively significant impacts and therefore should be discussed in the same impact statement.@ Interior correctly maintains that the flow study was one of several related actions appropriately discussed in a single FEIS which incorporated all components of the Trinity River restoration plan and culminated in the ROD, for which the FEIS was prepared. Requiring a separate EIS for each component of a single major federal action could unduly delay and overtax governmental resources. *March v. Oregon Natural Resources Council*, 490 U.S. 360-71 (1989).

However, where, as here, most of the Agency=s discussion and response to disputed issues of impacts is not presented until long after the public comment period

on the DEIS closed and substantial issues were raised which were not subjected to informed public participation, the NEPA process broke down.

c. Inclusion of Mitigation Factors in FEIS

Plaintiffs argue that the inclusion of mitigation factors in the FEIS did not correct the deficiency in the DEIS because the FEIS mitigation factors were taken from the two BioOps which were excluded from public scrutiny and not subjected to public comment. Plaintiffs request the ROD be set aside.

NEPA serves dual purposes: AIt ensures that the agency, in reaching its decision, will have available, and will carefully consider, detailed information concerning significant environmental impacts; it also guarantees that the relevant information will be made available to the larger audience that may also play a role in both the decisionmaking process and the implementation of that decision.@ *Robertson*, 490 U.S. at 349 (AIt gives the public the assurance that the agency has indeed considered environmental concerns in its decisionmaking process, and, perhaps more significantly, provides a springboard for public comment.@) (internal quotations and citations omitted); *Northwest Res. Info. Ctr., Inc. v. Nat=l Marine Fisheries Serv.*, 56 F.3d 1060, 1064 (9th Cir. 1995) (AThe purposes of an EIS are to provide decisionmakers with sufficiently detailed information to aid in determining whether to proceed with

the action in light of its environmental consequences and to provide the public with information and an opportunity to participate in the information gathering process.@).

Inclusion of new information in the FEIS (bypassing public input) does not automatically invalidate the FEIS. The CEQ regulations provide a procedure by which new information in an FEIS may be subjected to NEPA review. 40 C.F.R. ' 1502.9(c). That procedure determines whether information is significant enough to warrant additional public comment, as part of the flexibility agencies have in responding to public concerns. *See California v. Block*, 690 F.2d 753, 771 (9th Cir. 1982) (ATo effectuate [the purpose of public comment], agencies must have some flexibility to modify alternatives canvassed in the draft EIS to reflect public input.@).

Section 1502.9(c) provides that an agency shall prepare a supplement to a draft or final EIS if: 1) there are substantial changes in the proposed action that are relevant to the environmental concerns; or 2) there are environmentally relevant, significant, new circumstances or information that bear on the proposed action or its impacts. 40 C.F.R. ' 1502.9(c)(1). A[A]n agency need not supplement an EIS every time new information comes to light after the EIS is finalized. To require otherwise would render agency decisionmaking intractable, always awaiting
updated information only to find the new information outdated by the time a decision is made.@ *Marsh v. Oregon*

Natural Res. Council, 490 U.S. 360, 373 (1989). However, A[i]f there remains major Federal action to occur, and the new information is sufficient to show that the remaining action will affect the quality of the human environment in a significant manner or to a significant extent not already considered a supplemental EIS must be prepared.@ ***Id.*** at 374.

New information is significant where it Aprovides a seriously different picture of the environmental landscape.@ ***City of Olmsted Falls, Ohio v. Fed. Aviation Admin.***, 292 F.3d 261, 274 (D.C. Cir. 2002); ***see also Davis v. Latschar***, 202 F.3d 359, 369 (D.C. Cir. 2000) (A[O]nly those changes that cause effects which are significantly different from those already studied require supplementary consideration.@) (internal quotations omitted). A[T]he key to whether a Supplemental Environmental Impact Statement is necessary is . . . whether the proposed [work] will have a significant impact on the environment in a manner not previously evaluated and considered.@ ***South Trenton Residents Against 29 v. Fed. Highway Admin.***, 176 F.3d 658, 663 (3d Cir. 1999).

An agency decision to forego completing an SEIS will not be set aside unless it is arbitrary and capricious. ***Friends of the Clearwater v. Dombeck***, 222 F.3d 552, 556 (9th Cir. 2000). AReview under this standard is to be searching and careful, but remains narrow, and a court is not to substitute its judgment for that of the agency.@

Id. (quoting *Mt. Graham Red Squirrel v. Espy*, 986 F.2d 1568, 1571 (9th Cir. 1993).

Here, as discussed below, Interior decided all the Anew@ information was not significant enough to warrant a supplemental EIS or Arecirculation.@ ANormally, an agency rule would be arbitrary and capricious if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.@ *Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983); *O'Keeffe's, Inc. v. U.S. Consumer Product Safety Comm'n*, 92 F.3d 940, 942 (9th Cir. 1996). A[T]he agency must examine the relevant data and articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made.@ *Motor Vehicle Mfrs*., 463 U.S. at 43*; Dioxin/Organochlorine Ctr. v. Clarke*, 57 F.3d 1517, 1525 (9th Cir. 1995).

In this case, Interior discussed in the FEIS whether an SEIS was necessary based on the new information. It concluded without analysis or factual support, that the new information in the FEIS was Amainly for clarification purposes and does not represent significant new information requiring recirculation.@ FEIS D2-71. Evaluating the significance of the new information under

the Aseriously different picture@ standard, Interior concluded that Anone of the new information in the Final EIS rises to that level.@ FEIS D2-72. This legal conclusion is wrong for the DEIS as to Delta-Sacramento River species, BioOp RPMs, range and substance of a reasonably integrated management alternative, and hydropower impacts, and because the DEIS deferred all these issues, the public notice and comment period closed January 20, 2000, and the FEIS issued November 17, 2000, does not take a hard look at any of the issues raised. Interior does not discuss why it believes that the Anew information@ is not significant and none of its responses in the FEIS analyzes the merits of new mitigation measures; instead it offers an argumentative justification for avoiding supplemental considerations by its legal conclusion that all the issues raises are insignificant. Plaintiffs gave notice of concerns about impacts on such species and related issues in the public comment period. 18 AR 10653, 29 AR 17492-93, 19537-38. Because Interior did not critically examine the relevant data or articulate the basis for its decision not to supplement the EIS, which did not identify any specific mitigation measures or probable secondary effects of flow increases on Sacramento River and Delta species, but rather deferred to future BioOps and/or ESA reconsultations, the significance of this failure must be analyzed.

Block v. California **analyzes the need for a supplemental DEIS to address information discussed for the first time in an FEIS and holds that although agencies must have some flexibility in modifying alternatives contained in a DEIS, an EIS must provide the public with sufficient information to permit meaningful consideration.** ***Block*****, 690 F.2d at 771-72. AThe EIS process should serve both to alert the public of what the agency intends to do and to give the public enough information to be able to participate intelligently in the EIS process.@** ***Id.*** **at 772.**

Here the additional information, added after the DEIS was circulated, addressed mitigation factors. The DEIS does not discuss mitigation factors related to the Sacramento River and Delta ESA-listed species nor the secondary effects of increased flows on other CVP-water users. An EIS must contain a discussion of possible mitigation measures. ***Robertson,*** **490 U.S. at 351-52;** ***Okanogan,*** **236 F.3d at 473;** ***Neighbors of Cuddy Mountain,*** **137 F.3d at 1380;** ***see also*** **40 C.F.R. ' 1502.14(f) (mitigation measures shall be included in discussion of alternatives); 40 C.F.R. ' 1502.16(h) (mitigation measures required). AImplicit in NEPA=s demand that an agency prepare a detailed statement on >any adverse environmental effects which cannot be avoided should the proposal be implemented,= is an understanding that the EIS will discuss the extent to which adverse effects can be avoided.@** ***Robertson*****, 490 U.S. at 351-52 (quoting 42**

U.S.C. ' 4332(C)(ii)) (internal citations omitted). A[O]mission of a reasonably complete discussion of possible mitigation measures would undermine the >action-forcing= function of NEPA. Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects.@ *Id.*

Block requires that a supplemental EIS be prepared if the public was not given sufficient information to intelligently participate in the NEPA process. *Block*, 690 F.2d at 771-72. *Robertson* holds that failure to include mitigation measures prevents the public from properly evaluating the proposed action. *Robertson*, 490 U.S. at 351-52. Under the *Block* test, the inclusion of previously undisclosed mitigation measures is significant enough to require an SEIS.

Courts have also determined that an SEIS is required if the changes cause effects which are significantly different from those already studied. *Davis*, 202 F.3d at 369. Here, the DEIS recognized that the impact on Sacramento River and Delta ESA-listed species, salmon, Sacramento splittail, and Delta smelt, was significant, but deferred determination of any mitigation measures for future consideration. The failure to analyze, or even identify, mitigation measures to address changes that will be caused by the new flow regime and their effects, have an undetermined potential to be different from those already studied. *See Robertson*, 490 U.S. at 352 (AAn

adverse effect that can be fully remedied by, for example, an inconsequential public expenditure is certainly not as serious as a similar effect that can only be modestly ameliorated through the commitment of vast public and private resources.@). The omission of discussion of mitigation measures foreclosed any public input on the issues of whether and what CVP operations management alternatives existed and were feasible; and whether alternate water sources existed or if reduced flows could reduce the impact on species and other CVP users.

Two of the factors listed in 40 C.F.R. ' 1508.27, that affect whether action is significant, are the likelihood that the action will be highly controversial, 40 C.F.R. ' 1508.27(b)(4), and the degree to which the action may adversely affect an endangered species, 40 C.F.R. ' 1508.27(b)(9). Interior knew that any decision it made relating to increased permanent Trinity River flow releases and its effects on the Sacramento and Delta ESA-listed species and secondary effects on power generators, municipal, industrial, and agricultural water users, was going to be controversial and significant within the meaning of 40 C.F.R. '1502.9(b)(2), (3), (4), and (7). Prior to the issuance of the BioOps or the FEIS, San Luis submitted comments criticizing the DEIS on these grounds and Westlands sent a 60-day notice of intent to sue unless formal ESA Section 7 consultation was undertaken. Interior also had specific knowledge

that the new information was related to how Sacramento river and south of the Delta endangered species would be affected by increased TR flows.

Defendants= collective response in contending Interior was not arbitrary or capricious, is to ignore the absence of consideration of mitigation measures in the DEIS: their identity, significance, effectiveness, effects, and controversy over their substance and range. Any discussion was included for the first time in the FEIS without public input and used as a post hoc rationalization for the decision not to supplement the EIS on the grounds that species= and other impacts resulting from the Preferred Alternative are not significant. Applicable NEPA regulations require more, see 40 C.F.R. ' 1502.9(c), and as to revised portions of the DEIS, *see* 40 C.F.R. ' 1502.9(a).

Anecdotal evidence indicates Interior chose to assume the risk of apparent NEPA violations after the March 10, 2000, ESA notice. 7 AR 3865, 3894, 10 AR 20174, (Ex. A to Robinson Dec.). Interior as much as admits it could not cure the NEPA violations that had occurred as of that time.

2. <u>Effect of BioOps</u>

Plaintiffs argue that the ROD should be set aside because: 1) Interior failed to assess the environmental impacts of the BioOps= mitigation measures in the FEIS; and, 2) even if Interior did analyze the RPMs, inclusion

in the FEIS requires an SEIS. Plaintiffs argument implicates two of the BioOps= reasonable and prudent measures (ARPMs@):

1) The USFWS= RPM:

> Reclamation shall minimize the effects of reoperating the CVP resulting from the implementation of the Preferred Alternative within the Trinity river basin on listed fish in the Delta. . . . These terms and conditions are non-discretionary. To implement Reasonable and Prudent Measure number one Reclamation must implement the following:
>
> $ If Reclamation in its annual operations planning process detects that implementation of the Preferred Alternative will result in an upstream (eastward) movement of X2 in any month between February 1 through June 30 of 0.5 km, Reclamation shall incorporate within its operating plan measures that can and will be implemented to minimize or eliminate such upstream movements.

AR 17537-38 (footnote added).

2) The NMFS= RPM:

> 7. In dry and critically dry water year types, Reclamation and USFWS shall work cooperatively with the upper Sacramento River Temperature Task Group to develop temperature control plans that provide for compliance with temperature objectives in both the Trinity and Sacramento rivers . . .
>
> The USFWS and Reclamation must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.
>
> . . . .
>
> 7.a. Be prepared to make use of auxiliary bypass outlets on Trinity Dam as needed . . . .

AR 17493-94. These RPMs were incorporated into the FEIS, pages 2-43-45, and the ROD, AR 17703.

a. <u>Assessment of BioOps in FEIS</u>

Plaintiffs argue that the BioOps RPMs are Aconnected actions@ that had to be considered in an FEIS and are invalid because Interior did not do so. Defendants respond that these mitigation measures were analyzed in the FEIS and that the actions are not connected.

i. Connected Actions

Section 1508.25 of Title 40, C.F.R. defines Aconnected actions@ as those that Aare closely related and therefore should be discussed in the same impact statement.@ 40 C.F.R. ' 1508.25(a). Actions are connected if they:

> (i) Automatically trigger other actions which may require environmental impact statements.
> (ii) Cannot or will not proceed unless other actions are taken previously or simultaneously.
> (iii) Are interdependent parts of a larger action and depend on the larger action for their justification.

Id. The federal defendants argue that the BioOps and the EIS are not Aconnected actions,@ but are rather Aa single federal action, approval of the ROD to approve fishery restoration measures.@ Doc. 258 at 20:16-21:1. Section 1502.4(a) provides that A[p]roposals or parts of proposals which are related to each other closely enough to be, in effect, a single course of action shall be evaluated in a single impact statement.@ 40 C.F.R. ' 1502.4(a). Whether the actions are Aconnected actions@ as argued by NCPA, or Aa single action@ as argued by the federal defendants, the result is the same: they should be evaluated in a single EIS. The March 22, 2001 memorandum decision notes:

AThere is no question that the two BioOps are ›interdependent parts of a larger action,: . . . depending on implementation of the preferred alternative for their justification, because the only reason for the X2 measure is that the ROD=s implementation of the FEIS=s preferred alternative . . . reduces the water now flowing. . . .@ Doc. 136 at 47 n.49. The Aactions@ which caused the need for the BioOps are the increase of flows in the Trinity River to re-establish and maintain the fishery which results in less water reaching the Sacramento Delta. The ROD and the FEIS adopted and incorporated the BioOps= RPMs as mitigation measures. Whatever nomenclature is applied to the relationship between the BioOps= RPMs, the EIS, and the ROD, the end result is that they are inextricably intertwined as part of the same action to restore Trinity River fishery, which in turn requires they be analyzed in the same EIS. Interior admits it was required to comply with NEPA and the ESA in implementing '3406(b)(23), but argues issuing the ROD, a single federal action, was not a series of connected, independent actions which required two separate FEISs. The distinctions made by the parties are without meaningful difference. Interior rejoins that the FEIS, App. D-2 at pp. 65-66, discusses impact on species and ways to minimize incidental takings. The ROD is the end result of an integrated series of actions, which did not require a separate EIS for each action.

ii. <u>Central Valley Species</u>

The October 12, 2000, Reinitiation of Formal Consultation and Biological Opinion authored by USFWS focused on status of species including Delta smelt (AR 17518) and Sacramento splittail. (AR 17520). Analysis of the implementation of the Preferred Alternative on Delta smelt and Sacramento splittail appears at AR 17532-34 and its cumulative effects at AR 17535-36. The effects analysis focuses on temperature changes, entrainment by pumps during diversions of water, moving fish habitat upstream in times of decreased outflows, effects of toxic substances on spawning habitat, state or local levee maintenance, introduction of exotic species, wave action in water channels, degrading banks or channels, and changes in flow levels. The cumulative effects are considered Anot likely@ to jeopardize continued existence of the smelt or splittail or to result in the destruction or adverse modification of critical habitat. The ITS recognizes Delta smelt and Sacramento splittail may be harmed, harassed, injured, or killed by direct entrainment, but implementation of the Preferred Alternative flow levels on incidental take is expected to remain at the level of the March 6, 1995, Biological Opinion. The USFWS RPMs do not specify what CVP operational measures will be implemented to minimize or eliminate upstream X2 movement greater than .5km in any month between the period from February 1st through June 30th. Reporting about take or suspected take will be continuous.

The NMFS Biological Opinion of October 12, 2000, identifies coho salmon, chinook salmon, and steelhead as Central Valley and Sacramento River endangered or threatened species, and analyzes effects of Preferred Alternative on these species at AR 17472 to 17489. Extended temperature analysis is performed using temperature criteria and reservoir carryover storage. Increased temperature violations are recognized at AR 17482 and use of Trinity Dam auxiliary outlets to improve temperature conditions by bypass operations from July to October are recommended. NFMS concludes that with auxiliary bypasses, Trinity River temperature criteria can be achieved 95% to 96% of the time without altering the timing of exports to the Sacramento River. The analysis opines that changes to X2 location under the proposed action are not likely to adversely affect winter run chinook salmon in the Delta, AR 17484, referring to Table 3-15 of the TRMFR DEIS, the upper Sacramento River, AR 17485, and reaches the same conclusion for Central Valley steelhead. AR 17485-86. The NMFS BioOp summary finds no change to temperature-related mortality of spring-run chinook salmon and steelhead, no effect in the Delta on smelt survival, and no appreciable diminution of critical habitat that affect fish mortality. The NMFS BioOp analyzes cumulative effects on the Central Valley species at AR 17489 and concludes at AR 17490, that the Preferred Alternative is not likely to jeopardize continued existence of any salmon species nor is it

likely to destroy or adversely modify critical habitat. What the NMFS BioOp does not do is to analyze what effect on power generation the bypass alternative will have or whether there will be related CVP reoperations such as reallocation of additional CVP water.

iii. Were the RPMs Analyzed in the EIS?

Plaintiffs argue that the impacts of the mitigation measures specified by the BioOps and incorporated by the FEIS were not analyzed in the EIS nor subjected to public comment. They maintain that it was impossible to do so, because the BioOps were not issued until shortly before the FEIS was released. Defendants rejoin that the mitigation measures were analyzed in the FEIS, albeit without public participation.

A. Auxiliary Bypass RPM

The impact of the mitigation measure to use the auxiliary bypass outlets at Trinity Dam was discussed in the FEIS. The APowerplant Bypass@ thematic response refers to temperature control benefits and costs to CVP power customers of using the auxiliary bypass outlets. FEIS at D2-79-90. Interior discussed the relation of CVP power generation to total California powers generation and demand, but does not break out Northern California effects. *Id.* at D2-91-101. It concluded any CVP power supply was not critical to the total California electrical demand. *Id.* at D2-91-92. It is not disputed that the DEIS and public comment phase did not analyze

power impacts except from a socioeconomic standpoint. 22 AR 13320.

As to temperature control ramifications, Interior relies on the upper Sacramento River Temperature Task Group Ato develop future temperature controls and flows,@ without specific analysis of what means will be utilized to achieve temperature objectives or the resulting impacts. A nondiscretionary condition to Amake use of auxiliary bypass outlets on Trinity Dam, as needed@ is imposed. 27 AR 17492-494. No reference is made to whether additional CVP water will be needed for any auxiliary bypass.

The applicable Arule of reason.@ *Churchill County,* 276 F.3d at 1071, asks Awhether an EIS contains a reasonably thorough discussion of the significant aspects of the probable environmental consequences.@ *Id.* (quoting *Trout Unlimited v. Morton*, 509 F.2d 1276, 1283 (9th Cir. 1974)). There was no public input in the discussion in the FEIS related to the impact of using the auxiliary bypass outlets. The FEIS did not need to specifically name the BioOps as plaintiffs contend, if it discussed the subject matter of the impact of the BioOps RPMs with reasonable thoroughness, however, the FEIS does not perform such an analysis.

B. <u>X2 RPM</u>

As to the X2 RPM, the parties= arguments highlight different understandings of what has to be analyzed. As

defendants argue, the FEIS discussed the impact of X2 movement on Delta ESA-listed species. The Preferred Alternative does not mandate moving the measurement location for X2, nor does it change the X2 standard. It is not possible to know the effect that X2 RPM compliance will have, because defendants did not identify or analyze the impact of any mitigation measures which actually will be used to address X2 effects. Rather, defendants respond, based on USFWS and FMS input, that effects of X2 compliance are insignificant, and if X2 measures are needed, AESA reconsultation will be reinitiated.@ There is no discussion of where additional water will come from, or what quantity will be needed to maintain the X2 standard within or close to 0.5km of its required location. Implementation of the Preferred Alternative admittedly will affect the Sacramento River and Delta ESA-listed species to some degree. The FEIS incorporates future unspecified mitigation measures to lessen these effects. These mitigation measures in turn cause effects; impacts, direct or indirect, and their significance must be analyzed. 40 C.F.R. '' 1502.16(a)-(b).

The RPMs only describe procedures not what specific actions Interior will actually take, or what effects such actions will have. Defendants argue that the X2 RPM Amost emphatically did not require that Reclamation take any and all measures to ensure that the X2 location did not change. Instead, FWS instructed Reclamation as part of

the ›operations planning process,‹ to ›incorporate within its operating plan measures‹ that ›minimize or eliminate‹ upstream movement.‹@ Doc. 258 at 16:14-17 (Fed. Def.‹s Opp‹n). From this, defendants conclude, because (1) there is no qualitative difference between the existing Water Quality Control Plan (AWQCP@) X2 standard and the X2 RPM and, (2) the X2 RPM only requires that Reclamation consult if there is a change greater than 0.5 km, there are no significant impacts to analyze. Whether this failure to assess the impact of the X2 RPM violates NEPA is determined under the Arule of reason@ standard; *Churchill County,* 276 F.3d at 1071, which asks, Awhether an EIS contains a reasonably thorough discussion of the significant aspects of the probable environmental consequences.@ *Id.* (quoting *Trout Unlimited v. Morton*, 509 F.2d 1276, 1283 (9th Cir. 1974)). The thoroughness of an EIS is decided by Aa pragmatic judgment whether the EIS‹s form, content and preparation foster both informed decision-making and informed public participation.@ *Id.* (quoting *Block*, 690 F.2d at 761).

Plaintiffs maintain that X2 RPMs result in a de facto change in the current X2 standard under the Water Quality Control Plan (AWQCP@), which itself makes such RPMs significant. Defendants rejoin that X2 RPMs do not change the current X2 standard. Their experts say otherwise. Michael G. Thabault, declares:

> Section 7 of the endangered Species At of 1973 (as amended) (Act) requires the Service to evaluate the effects of the actions of Federal agencies on species listed pursuant to Section 4. As part of this evaluation the Service must

> consider the direct, indirect, interrelated, and interdependent effects of the action, as well as including cumulative effects to listed species. This analysis must be considered in the context of the environmental baseline for the species. The environmental baseline is defined at [50 CFR '402.02] as:
>
> > Athe past and present impacts of all Federal, State, or private actions and other human activities in an action area, the anticipated impacts of all proposed Federal projects in an action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions that are contemporaneous with the consultation in process.@
>
> It is essentially the status of the health of the species at a snapshot in time. The current operation of the CVP and SWP have resulted in an environmental baseline condition that exceeds (i.e., is better for the species) the standards established in the WQCP. . . . The Service evaluated the effects of the Preferred Alternative on listed species and how the action may affect Reclamation=s ability to maintain the environmental baseline. The Service concluded that there would be affects to the location of X2 which may effect distribution, spawning, rearing, and foraging abilities of the delta smelt. Also, reduction in flows may, at times, effect the spawning and rearing opportunities for the Sacramento splittail. The Service subsequently developed a Term and Condition and associated Reasonable and Prudent Measure (RPM) that could minimize the effects, and in some instances eliminate the effects of the action, <u>within the confines of Reclamation=s CVP operations</u>. (Emphasis added.)

Doc. 75 at 5:6-28. According to Mr. Thabault, the baseline against which the X2 RPM is measured exceeds the minimum X2 requirement under the WQCP. The X2 RPM provides: AIf Reclamation in its annual operations planning process detects <u>that implementation of the Preferred Alternative will result in an upstream (eastward) movement of X2</u> in any month between February 1 through June 30 <u>of 0.5 km, Reclamation shall incorporate</u>

within its operating plan <u>measures that can and will be implemented</u> to minimize or eliminate such upstream movements.@ AR 17493-94 (emphasis added). Implementation of this RPM is nondiscretionary. *Id.*

Based on its plain wording, the X2 RPM requires Interior to incorporate within its CVP operating plan measures that will minimize or eliminate eastward movement of X2 exceeding 0.5km. This requires more than consultation and goes beyond prescribing the process to be followed; it requires affirmative federal action. Mr. Thabault states that the X2 Aterm and condition does not modify the already stated commitment of the Bureau of Reclamation to avoid and minimize the effects to species protected pursuant to the Act by minimizing the effect of incidental take (water) as measured by X2. The term and condition merely sets the threshold for when those actions developed and committed to by the Bureau of Reclamation should be implemented.@ That is precisely plaintiffs= point; the X2 RPM creates an absolute standard defining when Reclamation must act. Mr. Thabault=s declaration recognizes that the present location of the X2 from which movement is measured under the RPM already exceeds the WQCB standard.

Chester Bowling, Operations Manager of the Central Valley Operations Office for the Bureau, declares that Reclamation determined that although implementation of the Preferred Alternative would not violate the WQCP; simulations show that in some years X2 will move upstream

in excess of 0.5km. Doc. 290 at &8. Other than ESA reconsultation no specific mitigation action is identified.

Plaintiffs argue that this new standard is significant, defendants argue that it is not. Mr. Bowling and plaintiffs' expert, James Snow, agree that there are months in some years in which computer simulations indicate that X2 will move upstream in excess of 0.5km invoking the X2 RPM's requirement for action. Doc. 281 at &10; Doc. 290 at &8. Specifically, the X2 will move eastward more than 0.5km in 20 percent of all Junes, and in four years, X2 will move 0.5km in more than one month. Doc. 281 at &10.

Mr. Snow calculates the cost in water to comply with the RPM in the four years where the X2 RPM standard is exceeded in more than one month, at 410,000 AF; 370,000 AF; 270,000 AF and 260,000 AF. Doc. 281. In these calculations, Mr. Snow assumed that the X2 movement was to be eliminated. However, the RPM does not require elimination, it calls for minimization <u>or</u> elimination. While it is possible the effect of the X2 RPM may be as great as Mr. Snow opines, it is also possible that it would be significantly less. Mr. Bowling expresses his understanding that Reclamation must, in the event X2 moves upstream in excess of 0.5km, coordinate with the USFWS to determine what, if any, action is required. Doc. 290 at &7.

If changes in operations, such as additional upstream releases or reduced pumping, are necessary, Reclamation will determine if the changes are Aminor.@ *Id.* If they are more than minor, Reclamation will request reinitiation of formal consultation with the USFWS. Mr. Bowling notes that it Ais possible that the X2 RPM could require major changes in CVP operations.@ *Id.* Plaintiffs rely on the USFWS conclusion, that by using an Interagency team to evaluate and recommend changes in operations, Athe service has concluded there will not be an adverse modification or destruction of habitat for Delta smelt.@ USFWS BioOp, p. 30 (80-12-00). The defendants in substance say Atrust us.@ Yet Mr. Bowling declares, based on his experience, changes necessitated by the RPM X2 measures could include major changes in the dedication and management of (b)(2) water, in actions implemented with CALFED EWA, and that could impact available CVP operational flexibility. *Id.* at &8. Whether a major change in CVP operations will further directly impact south-of-delta water users through increased upstream releases and reduced delta pumping, or will impact other environmental programs or species through the use of the limited (b)(2) water account, remains undetermined. However, it is certain that potential major changes in CVP operations will occur in 20 percent of all Junes.

Water in the CVP is a limited resource, the right to which is constantly disputed. There are sixteen pending

lawsuits in this court, alone, in which numerous CVP stakeholders dispute their respective rights to annual CVP water allocations. Whenever CVP water is diverted to a different use, an impact is experienced throughout the system. The effects on the Preferred Alternative from the X2 RPM pose potential unquantified but significant environmental and other consequences. The conflict between USFWS= Ainsignificance@ opinion and the Bureau=s views of the FEIS=s X2 RPM consequences expressed by Mr. Bowling, are not addressed or resolved by defendants, making impossible a finding that further analysis of X2 RPMs was not required. It was arbitrary and capricious for the EIS and FEIS not to address impacts of X2 RPMs and CVP re-operation.

b. <u>Supplemental EIS</u>

Plaintiffs argue that the ROD should be set aside because Interior failed to prepare an SEIS assessing the BioOps= mitigation measure impacts, which were incorporated into the ROD and FEIS. An agency decision to forego completing an SEIS will not be set aside unless it is arbitrary and capricious. *Friends of the Clearwater,* 222 F.3d at 556. The applicable standard is whether the decision not to complete an SEIS was Abased on a consideration of the relevant factors and whether there has been a clear error of judgment.@ *Id.* AReview under this standard is to be searching and careful, but remains narrow, and a court is not to substitute its judgment for that of the agency.@ *Id.* (quoting *Mt. Graham Red*

Squirrel*, 986 F.2d at 1571).** A**This is especially appropriate where . . . the challenged decision implicates substantial agency expertise.@** ***Id.

A**Normally, an agency rule would be arbitrary and capricious if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.@** ***Motor Vehicle Mfrs. Ass'n,* 463 U.S. at 43; *O'Keeffe's,* 92 F.3d at 942.** A**[T]he agency must examine the relevant data and articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made.@** ***Motor Vehicle Mfrs*., 463 U.S. at 43*; Dioxin/Organochlorine Ctr.,* 57 F.3d at 1525.**

Here, Interior did not articulate a satisfactory explanation for its decision not to conduct an SEIS. After the October 12, 2000, BioOp Interior did not have time to do so. It simply rationalized that the new information included in the FEIS was Amainly for clarification purposes and does not represent significant new information requiring recirculation.@ FEIS D2-71. FEIS D2-72. Interior does not discuss why it believes that the Anew information@ is not significant. The expected effects of the X2 RPM and auxiliary bypass at the Trinity Dam RPM were not considered and the reason

for not doing so is implausible, which makes the action arbitrary and capricious. These RPMs must be considered in an SEIS which includes public participation.

Section 1502.9(c) provides that an agency shall prepare a supplement to a draft or final EIS if: 1) there are substantial changes in the proposed action that are relevant to the environmental concerns; or 2) there are environmentally relevant significant new circumstances or information that bear on the proposed action or its impacts. 40 C.F.R. ' 1502.9(c)(1). A[W]hether to prepare a supplemental EIS is similar to the decision whether to prepare an EIS in the first instance: If there remains ›major Federal actio[n] to occur, and if the new information is sufficient to show that the remaining action will ›affec[t] the quality of the human environment› in a significant manner or to a significant extent not already considered, a supplemental EIS must be prepared.@ *Marsh*, 490 U.S. at 374. A[T]he key to whether a Supplemental Environmental Impact Statement is necessary is . . . whether the proposed [work] will have a significant impact on the environment in a manner not previously evaluated and considered.@ *South Trenton,* 176 F.3d at 663.

The Bureau recognizes the X2 RPM, as described by the FEIS and the ROD, is a significant change. If the federal defendants had attempted to change the X2 standard as a separate action, an EIS would have been required. X2 has major environmental consequences, which

will require CVP reoperation if its limits are exceeded under the RPM. Interior cannot circumvent the requirement that an EIS recognize and analyze a major change by inserting it into an FEIS without analysis of, or public input on, its impacts. An SEIS must be completed analyzing all effects of the X2 RPM. In at least twenty percent (20%) of all water years, the X2 standard will be violated, necessitating CVP reoperation. What will be the RPMs? Where will the water come from to address the RPMs to mitigate the condition? How much CVP water will be required and how will such water be managed? What will be the likely impacts of required CVP reoperation on south-of-Delta species and what will other impacts be on the human environment and from reallocation of CVP water among other users?

C. Auxiliary Outlet Bypasses (Temperature and Power Ramifications)

The impacts of the auxiliary outlet bypass RPM to assist temperature control objectives were discussed in the FEIS, Appendix D 29, 79-91, in response to NCPA=s objection that the original Appendix F (addressing power impacts) failed to address power impacts of Aauxiliary outlet releases at Trinity Dam.@ The question is whether the information included in the FEIS represented a Asubstantial change@ or Asignificant new circumstances or information@ that Aprovides a seriously different picture of the environmental landscape.@ *City of Olmsted Falls, OH v. F.A.P.,* 292 F.3d 261, 274 (D.C. Cir. 2002); A[A]n

agency need not supplement an EIS every time new information comes to light after the EIS is finalized. To require otherwise would render agency decisionmaking intractable, always awaiting updated information only to find the new information outdated by the time a decision is made.@ *Marsh v. Oregon Natural Resources Council,* 490 U.S. 360, 373 (1989). Plaintiffs argue that the impact of the auxiliary outlet bypass RPM was not sufficiently analyzed because the effect of the loss of energy on reliability of the California grid was not discussed. Plaintiffs are mistaken in part. The FEIS did cover and analyze ACVP Generation in Relation to Total California Generation and Demand.@ Appendix D2, 91-101. It did not do so specifically for the effect of Trinity Dam bypasses on Northern California CVP power supply and reliability.

Interior addressed the related issue of water temperature impacts from bypass operations to protect Trinity and Sacramento River fisheries. NCPA=s concern about bypassing the Trinity powerplant is specifically mentioned in Appendix D2, p. 81. An SEIS is required for the Trinity Dam bypass RPM because Interior did not analyze or address the measure and its impacts on Northern California poewr supply and reliability in the DEIS. Although the FEIS mentions the issue, it concludes without analysis, such operations will not cumulatively have adverse impacts, the unsupported conclusion is a post hoc rationalization. A hard look was required but not taken.

3. <u>Analysis of Preferred Alternative Effect on Power System Reliability</u>

The DEIS was published in October 1999 and the public comment period extended through January 20, 2000. All plaintiffs submitted comments. No public comments were permitted by Interior in the NEPA process after January 20, 2000. On June 28, 2000, the California Independent System Operator (AISO@) declared a Stage One Electrical Emergency for the third consecutive day. On August 3, 2000, the ISO declared a Stage Two Electrical Emergency for the fourth consecutive day, as part of a California energy crisis.

On August 23, 2000, the U.S. Department of Energy=s Western Area Power Administration (AWAPA@) wrote to Interior providing notice that Interior=s impact analysis for the Trinity River EIS and the CVPIA Programmatic EIS (APEIS@) only Afocused on the potential economic impacts to CVP power.@ AR 3923. It went on to state that A[t]hese impacts were studied with the implicit assumption that long-term power system reliability would not be a concern.@ *Id.* WAPA communicated its Abelief it was prudent to re-examine the work conducted in order to assess potential reliability impacts.@ *Id.* WAPA=s letter evaluated reliability impacts: from June to October of an average year, on-peak energy reductions would range from 27,000 MWh to 47,000 MWh compared to the No-Action alternative; in a dry year the reduction ranged from 2,000

MWh in October to 79,000 MWh in July. *Id.* at 3923-24. WAPA concluded: ADuring the critical summer months, the data indicates that as much as 124 MW of capacity supported with energy may be lost in September (of an average year) and up to 324 MW may be lost in July (of a dry year), as a result of reoperating the CVP to meet the requirements associated with both the PEIS and the Trinity River EIS/EIR.@ *Id.* at 3924. This power impact was characterized as Astriking@ by the Department of Energy. *Id.* at 3924.

On October 20, 2000 Interior published the FEIS. Five days later Interior rescinded the FEIS Notice of Availability and republished the FEIS November 17, 2000. On December 7, 2000 the California ISO declared a Stage Three Electrical Emergency. On December 10 and 11, 2000 the ISO declared Stage Two Electrical Emergencies. On December 14, 2000, the Department of Energy (ADOE@) declared an energy emergency in California and ordered electrical generation facilities to generate and transmit electric energy when and in such amounts as requested by the ISO. On December 19, 2000 the ISO declared a Stage Two Electrical Emergency and invoked its powers under the December 14, 2000 DOI order. On the same day, the Secretary of the Interior signed the ROD implementing the Preferred Alternative.

On January 17, 2001, the ISO declared a Stage Three Electrical Emergency followed by rolling blackouts January 17, 18, and March 19 and 20, 2001. The ISO declared a

Stage One Electrical Emergency July 9, 2002, and a State Two Electrical Emergency on July 10, 2002.

Plaintiffs argue that the ROD should be set aside because the FEIS does not realistically assess the impacts of the Preferred Alternative on power system reliability, requiring an SEIS. Defendants assert the FEIS and DEIS did analyze power system reliability and that no SEIS is required.

a. Discussion of Power Impacts in FEIS

The FEIS contains a section in its Power Analysis Thematic Response entitled ACVP Generation in Relation to Total California Generation and Demand.@ Appendix D2, 91-101. In this section, the FEIS opines that TRD-generated power produces capacity to supply approximately 1 percent of current California demand and will account for less than 1 percent of the projected 2010 demand. D2, 91-2. It also states that although demand growth has outstripped supply growth, completion of additional powerplants is anticipated to help avoid electrical emergency alerts in the future. The power generators argue Adetailed assessment@ of the impact of CVP power supplies on the greater California region was not conducted for the DEIS/EIR, other than presented in the socioeconomics section. 22 AR 13320, 13888.

The ROD states that Aoperating criteria will be developed@ to allow WAPA to respond to emergencies per obligations to the North American Electric Reliability

Council and Presidential Memo, of August 3, 2000, providing federal agencies work with California to develop backup power generation for power shortage emergencies. The thematic response concluded that: A[i]t is anticipated that as demand for power increases, additional power supplies will be built to meet the increase in total California demand. As this occurs, the CVP=s current total contribution of meeting 4 or less percent of total California electrical demand will constitute a decreasing proportion of the state=s overall power generation supply.@ FEIS, D2-92.

Other than this discussion, the only information that relates to the California energy crisis is the analysis included in both the DEIS and FEIS about the extent of decrease in power production under the various options to the State as a whole. This discussion was not related to system reliability, but to socioeconomics. The ROD results in decreased value of CVP power production of $5,564,000 annually under the Preferred Alternative, a 3% decrease of $9,024,000 annually. ROD at p. 22. Appendix F to the DEIS addresses power impacts as does Table 3-49 to the FEIS. See also TRFEFR, Appendix A, p.A.-12, Table 4, p.A.-17, which review the 1981 Secretarial Decision. The FEIS discusses the California power crisis; the issue is whether Interior took a Ahard look.@

EIS review is under the Arule of reason@ standard; *Churchill County,* 276 F.3d at 1071: AUnder this standard, we ask >whether an EIS contains a reasonably thorough

discussion of the significant aspects of the probable environmental consequences.@ *Id.* (quoting *Trout Unlimited,* 509 F.2d at 1283). To determine whether an EIS is reasonably thorough, courts must make Aa pragmatic judgment whether the EIS=s form, content and preparation foster both informed decision-making and informed public participation.@ *Id.* (quoting *Block*, 690 F.2d at 761).

When deciding NEPA claims, a court may not impose its own notion of which procedures are best. *Id.* at 1072. Instead, a court=s role is to insure the agency has taken Aa hard look.@ *Id.* A[NEPA] is not meant to >mandate particular results= but to provide a process to ensure that federal agencies take a >hard look= at the environmental consequences of proposed acts. When an agency makes a decision subject to NEPA's procedural requirements, >the only role for a court is to insure that the agency has considered the environmental consequences; it cannot interject itself within the area of discretion of the executive....=@ *Tillamook County,* 288 F.3d at 1143-44 (quoting *Strycker's Bay Neighborhood Council,* 444 U.S. at 227). Courts must strictly interpret the procedural requirements of NEPA A>to the fullest extent possible= consistent with the policies embodied in NEPA.@ *Churchill,* 276 F.3d at 1072. Pro forma compliance is not enough. *Id.*

Interior was informed by WAPA that Interior=s previous analysis of the power impacts was based upon an assumption that was no longer valid. Further analysis was

recommended. WAPA provides its own analysis in its letter that discusses the impacts of the Trinity River EIS and the FEIS. Interior responded to the WAPA letter, with a Amemorandum to file@ to document its position on the California power crisis: Ain 1999, all of the power generated by the Trinity River Division (TRD) relative to the total of recent power consumption in California shows that the TRD accounted for less than 0.70% than [sic] the total consumption and the change in power generated would result in an average decrease of 0.041% in an average water year, before accounting for new generating capacity.@ AR 17676. It noted that although implementation of the Preferred Alternative would result in only insignificant effects on power generation within California, the ROD must include a direction to Interior and WAPA to develop coordination measures to allow for increased generation of power during periods of critical shortfalls in California. AR 17677. Interior addressed WAPA=s concerns, determined that the impact of implementing the Preferred Alternative on the California energy crisis was minimal, but provided the ROD include a condition to develop measures for increased power generation during critical periods of energy shortfall. None of this additional Aconsideration@ was subject to public participation.

Interior took a look at the issue. Title 40 C.F.R. '1502.14 requires the look be reasonably thorough. Interior cannot be required to adopt measures other

stakeholders believe are prudent, except if reason and science make the agency=s choice arbitrary, capricious, or unlawful. Interior does not provide an analysis of the net effect of power impacts on Northern California in implementing the Prepared Alternative. Its process thwarted public participation and informed decision-making on power capacity and reliability issues. *Greenpeace Action v. Franklin*, 14 F.3d 1324, 1336 (9th Cir. 1992). Although Appendix D responds to many issues raised by the power generator plaintiffs, ultimately, Interior=s finding that the Preferred Alternative=s effect on California power generation from the CVP will be minimal and that its response to power emergency situations will comply with the Presidential Memo of 8/3/00, cannot be tested based on the AR. A Ahard look@ at relevant power supply and reliability consequences requires an SEIS.

The power generator plaintiffs also argue that the DEIS analysis of the Preferred Alternative did not focus on its impact on power system reliability. Not surprisingly, the electricity power grid in California is a function of power supply and demand. The government submits a declaration from Mr. Marcus, responding to Mr. Dame=s declaration on behalf of the power generator plaintiffs. Even if both declarations are considered because they aid in understanding the complex and technical issues surrounding the way in which hydroelectric poewr generating capacity of the CVP is affected by the Preferred Alternative, both as it relates

to state-wide power demand and Northern California power demand, such information needed to be part of the NEPA review. Defendants point to Appendix F and attachment F1, which analyze the impact of the Trinity River alternatives on the balance between power supply and demand, as evidence the capacity issue was considered. The analysis includes changes to CVP supply (project capacity) and CVP demand (project use) and considers the effect of dry-year monthly capacity changes. The DEIS observes that peak power loads occur in summer months, which are most sensitive to reduced capacity. Additional months, January - March and December are also periods of increased power use. The DEIS concludes the Preferred Alternative would increase dry year capacity on the average 6.5 Mw over the No Action Alternative. The most significant month, December, shows a reduction of capacity by 85 Mw, in excess of the 50Mw level of significant change in capacity, which is provided for in the FEIS and ROD by an emergency provision. Contrary to Plaintiffs' assertion, Interior did consider evolving circumstances as pertinent to power generation and reliability, revised the ROD accordingly, but acknowledged regional and local effects require further analysis. 27 AR 17676-89, 17691-92; May 23, 2002, California energy Commission letter.

Extra-record references are made to a briefing memo prepared for the Secretary of the Interior as of December, 2000, and California Energy Commission Scoping Comments, which identify 2592 Mw of new power generating capacity in

operation (not dependent upon hydro power) and another 13,867 Mw of power generation capacity under construction, 3,213 Mw of which are expected to be operational by the end of 2002. An additional 9,980 Mw of power generation capacity are in licensing. Marcus Dec. & 21, California Energy Commission Comments pp. 6-7. The experts do not agree. Their differing opinions reflect contrary scientific viewpoints that do not require a choice. Interior=s conclusion that negative impacts on power generation capacity will be offset by resource development may be valid, however, it was not subjected to public scrutiny.

Friends of the Clearwater v. Dombeck, 222 F.3d 552, 558 (9th Cir. 2000), involved a 10 year old, out-of-date EIS. Here the lawsuit was initiated upon completion of the FEIS and before the ROD was signed. Interior should have performed an SEIS to address the effect on Northern California power supply and reliability resulting from implementation of the Preferred Alternative in view of major changes associated with the California energy crisis.

b. <u>Supplemental EIS re: Energy Impacts</u>

An agency decision to forego completing an SEIS will not be set aside unless it is arbitrary and capricious. *Friends of the Clearwater,* 222 F.3d at 556. The court must consider whether the decision not to complete an SEIS was Abased on a consideration of the relevant factors and

whether there has been a clear error of judgment.@ *Id.* AReview under this standard is to be searching and careful, but remains narrow, and a court is not to substitute its judgment for that of the agency.@ *Id.* (quoting *Mt. Graham Red Squirrel*, 986 F.2d at 1571). AThis is especially appropriate where . . . the challenged decision implicates substantial agency expertise.@ *Id.*

The FEIS discusses the impact of implementing the Preferred Alternative on the developing California energy crisis. The agency determined that Ain 1999, all of the power generated by the Trinity River Division (TRD) relative to the total of recent power consumption in California accounted for less than 0.70% of the total consumption and the change in power generated would result in an average decrease of 0.041% in an average water year, before accounting for new generating capacity. AR 17676. Interior decided that despite the seriousness of the 2001 energy crisis, it was not a significant new circumstance because any reduction in energy production which would be caused by implementation of the Preferred Alternative would be so small. Interior=s determination that the 2001 California energy crisis was not a sufficiently significant factor as to require a supplement to the DEIS, can only be overturned if it was a clear error in judgment. A court may not substitute judicial judgment for that of the agency.

The information in the FEIS is not sufficient to permit informed analysis of the ultimate effects of the California energy crisis. All the information bearing on the analysis is extra-record and has been submitted in the form of conflicting declarations in the lawsuit. The CVP makes an allegedly Aminor@ contribution to the annual California energy supply and implementing the Preferred Alternative is alleged to have less than a .05% effect on the California power supply. Interior=s view that ongoing new development of California power generation capacity will ameliorate reduction in CVP power generation capacity caused by implementing the ROD is not challenged. Defendants= extra-record arguments about evolving knowledge of alleged market fraud and manipulation by power suppliers in 2000-2001 were not known or available to Interior in December 2000 and cannot be considered.

Even though supplemental analysis would likely favor Interior=s position that CVP power supply impacts are not significant, for the additional reason that the California power shortages were, in some measure, caused by fraud and market manipulation, the Administrative Record has not been supplemented. Even if the parties= declarations are considered for technical assistance, they are not dispositive. AThe complete record@ does not assuage the concerns about significant change wrought by the energy crisis or the need for an SEIS on the power effects issue.

Plaintiffs= motion for summary judgment on the issue of the federal defendants= failure to comply with NEPA

based on analysis of the Preferred Alternative=s effect on power system supply and reliability is GRANTED. The federal defendants= motion on the same issue is DENIED.

4. <u>Timing of EIS and the Trinity River Flow Evaluation Final Report</u>

Plaintiffs argue that an FEIS should have been completed on the TRFES before the final report on the study was published. Resolution of this issues raises two questions: 1) was the Trinity River Flow Evaluation Final Report (ATRFEFR@) a major federal action; and, 2) if so, was the FEIS prepared in a timely manner.

a. <u>Major Federal Action</u>

NEPA requires that an EIS be prepared for all Amajor federal actions.@ 42 U.S.C. ' 4332(2)(C). A*Major Federal action* includes actions with effects that may be major and which are potentially subject to Federal control and responsibility.@ 40 C.F.R. ' 1508.18 (emphasis in original). It includes, *inter alia*, A[a]doption of formal plans, such as official documents prepared or approved by federal agencies which guide or prescribe alternative uses of federal resources, upon which future agency actions will be based.@ *Id.* at 1508.18(b)(2).

The first seven chapters of the TRFEFR include the introduction, background, historical perspective, study approaches, results, and restoration strategies. Chapter Eight is entitled Arecommendations.@ The executive summary

of the TRFEFR describes the purposes of each chapter. Chapter 8 contains recommendations Ato utilize an Adaptive Environmental Assessment and Management (AEAM) approach to guide future management and ensure the restoration and maintenance of the fishery resources of the Trinity River@ and to use Ainstream flow, channel-rehabilitation, and fine and course sediment@ recommendations in order to implement Chapter Seven=s Aconclusion that a modified flow regime, a reconfigured channel, and strategy for sediment management are necessary to have a functioning alluvial river . . . that will provide the diverse habitats required to restore and maintain the fishery resources of the Trinity River.@ TRFEFR at 227, 230. The summary of the recommendations chapter also describes the integration of these three primary actions: ARehabilitation of the mainstem Trinity River and restoration and maintenance of its fishery resources requires (1) increased annual instream volumes and variable reservoir release schedules, (2) fine and coarse sediment management, and (3) mainstem channel rehabilitation. *Id.* at 233. The first of these recommendations are the increased flows adopted in the DEIS, FEIS, and ROD.

CVPIA Section 3406(b)(23) required Interior to complete the TRFES and make recommendations to Congress and the Hoopa Tribe for permanent instream fishery flows by fall 1996. The government cannot plausibly argue that the TRFEFR, which compiled all the data regarding the Trinity River restoration and recommended a modified flow

regime that reallocates up to over 815,000 AF of CVP water to the Trinity River, does not constitute a recommendation on a proposal for major federal action. Doc. 136 at 42:21-43:1. Section 3406(b)(23) directs that the Secretary make recommendations for increased flows. After forwarding the recommendations to Congress, the Secretary had two options: 1) to concur; or, 2) not to concur. If the Secretary and the Hoopa Valley Tribe (with whom the Secretary must consult on the TRFES) concurred, the recommendations were to be implemented. The recommendations of the TRFEFR were designed to guide how Interior uses federal resources; and future agency action was likely to be based upon these recommendations. The TRFEFR constitutes the A[a]doption of [a] formal plan[], such as [an] official document[] prepared or approved by [a] federal agenc[y] which guide[s] or prescribe[s] alternative uses of federal resources, upon which future agency actions will be based.@ *See* 40 C.F.R. ' 1508.18(b)(2). This is major federal action; Interior recognized its responsibility to prepare an EIS and did so.

b. <u>Timeliness of EIS Preparation</u>

CEQA regulations address the time for EIS preparation. AAn agency shall commence preparation of an environmental impact statement as close as possible to the time the agency is developing or is presented with a proposal (' 1508.23) so that preparation <u>can be completed</u>

in time for the final statement to be included in any recommendation or report on the proposal. The statement shall be prepared early enough so that it can serve practically as an important contribution to the decisionmaking process and will not be used to rationalize or justify decisions already made.@ 40 C.F.R. ' 1502.5 (emphasis added). APreparation of an environmental impact statement on a proposal should be timed (' 1502.5) so that the final statement may be completed in time for the statement to be included in any recommendation or report on the proposal.@ 40 C.F.R. ' 1508.23. Here, the draft TRFEFR (a report on a proposal) was released in January 1998 and the final TRFEFR was published in June 1999. Four months later, in October 1999, the DEIS was released. The public comment period on the DEIS extended to January 20, 2000. On March 29, 2000, Interior forwarded the TRFEFR to Congress pursuant to CVPIA ' 3406(b)(23). Eight months later, on November 17, 2000 the FEIS was published. On December 18, 2000, the Hoopa Valley Tribe concurred in the TRFEFR=s recommendations and on December 19, 2000, the Secretary and the Hoopa Valley Tribe signed the ROD.

Section 3406(b)(23)=s requirements made the flow recommendations in the TRFEFR a critical decisionmaking point. Once the Secretary made recommendations in the TRFEFR, the Tribe could concur in them (and they would be implemented), or not concur, which would leave flows at the statutory minimum level (340,000 AF) pending further legislative or judicial action. The point in time at

which the Secretary had the broadest discretion to determine flow levels was the point at which the TRFEFR recommendations were made. That was the point in time at which the FEIS should have been completed so that the EIS could have had an effect on the decisionmaking. The government argues an FEIS was not required before the TRFEFR was submitted to Congress because it was a programmatic and project-specific EIS. FEIS pp. 1-3.

ANEPA procedures must insure that the environmental information is available to public officials and citizens before decisions are made and before actions are taken.@ 40 C.F.R. ' 1500.1(b); *Northwest Res. Info. Ctr.,* 56 F.3d at 1064 (AThe purposes of an EIS are to provide decisionmakers with sufficiently detailed information to aid in determining whether to proceed with the action in light of its environmental consequences and to provide the public with information and an opportunity to participate in the information gathering process.@). The FEIS was not prepared before the Final Flow Recommendations were submitted to Congress. All components of the Flow Study and Restoration Plan were incorporated into the ROD and the FEIS. When the TRFEFR was submitted in March 2000, Congress had the DEIS, but not the FEIS. It was not required that a separate EIS be completed at every stage of the project. At least two of Plaintiffs= major concerns, power impacts and Integrated Management Alternative were not fully considered in the DEIS provided to Congress. A related contention, that Interior

improperly narrowed the range of alternatives considered to meet the initial 1996 statutory deadline is treated below. 2 AR 632, 659.

5. EIS Alternatives

Plaintiffs complain the EIS violated NEPA because it did not examine a reasonable range of alternatives and that the ROD must therefore be set aside. This argument has four premises: 1) the various laws applicable to the management of the CVPIA and the restoration of the Trinity River require that only enough water be devoted to accomplish Trinity River fishery restoration as necessary and no more; 2) based on this interpretation of the governing law, Interior failed to consider a reasonable range of alternatives; 3) an AIntegrated Habitat and Fishery Management@ alternative is an important reasonable alternative, used on other rivers, that must be considered; and, 4) the EIS unlawfully constrained the range of options by concentrating on increased water flows and channel restoration to ignore any integrated management alternative that incorporated non-flow management measures.

a. Statutory Mandate

Plaintiffs argue that CVPIA Ageneral@ provisions in Sections 3402 and 3406 limit Section 3406(b)(23) water releases to only the amount necessary to achieve the restoration purposes of the 1984 Act and Ato the extent

restoration reasonably can be accomplished by means other than flows, the Secretary must at least *consider* utilizing such other means,@ but did not do so. (Emphasis in original). Doc. 233 at 17:11-14 (SMUD motion).

i. Statutory History

The Trinity River Division was authorized in 1955 by Public Law 84-386 (A1955 Act@). AFor the principal purpose of increasing the supply of water available for irrigation and other beneficial uses in the Central Valley of California, the Secretary of the Interior, acting pursuant to the Federal reclamation laws . . ., is authorized to construct, operate, and maintain, as an addition to and an integral part of the Central Valley Project, California, the Trinity River division . . .@ Pub. L. No. 84-386, 69 Stat. 719 (1955). Section 2 of the 1955 Act provides:

> Subject to the provisions of this Act, the operation of the Trinity River division shall be integrated and coordinated, from both a financial and an operational standpoint, with the operation of other features of the Central Valley Project, as presently authorized and as may in the future be authorized by Act of Congress, in such manner as will effectuate the fullest, most beneficial, and most economic utilization of the water resources hereby made available: *Provided*, that the Secretary is authorized and directed to adopt appropriate measures to insure the preservation and propagation of fish and wildlife, including, but not limited to, the maintenance of the flow of the Trinity River below the diversion point at not less than one hundred and fifty cubic feet per second . . .

Id. at ' 2 (emphasis added). The Senate Report on the 1955 Act notes that the Adevelopment of the Trinity River was planned with a view to maintaining and improving

fishery conditions. . . and requires that the project be operated so as to insure the preservation and propagation of fish and wildlife.@ S. Rep. No. 84-1154, at 5 (1955); H. Rep. No. 84-602, at 4 (1955).

In 1984, Congress passed the Trinity River Basin Fish and Wildlife Management Act (A1984 Act@) to restore fish and wildlife populations to pre-TRD levels. The 1984 Act found Athe construction of the Trinity River division of the Central Valley Project in California, authorized by the Act of August 12, 1955 (69 Stat. 719), has substantially reduced the streamflow in the Trinity River Basin thereby contributing damage to pools, spawning gravels, and rearing areas and to a drastic reduction in the anadromous fish populations. . . .@ Pub. L. No. 98-541 ' 1(1) (1984). It recognizes the 1955 Act directed the Secretary of the Interior Ato take appropriate actions to ensure the preservation and propagation of such fish and wildlife.@ *Id.* at ' 1(3). In order to restore the fish populations to the levels approximating those that existed immediately prior to TRD construction, the Secretary was directed to formulate and implement a fish management program that would include the following components:

> (1) The design, construction, operation, and maintenance of facilities to --
> (A) rehabilitate fish habitats in the Trinity River between Lewiston Dam and Weitchpec;
> (B) rehabilitate fish habitats in tributaries of such river below Lewiston Dam and in the south fork of such river; and
> (C) modernize and otherwise increase the effectiveness of the Trinity River Fish Hatchery.

> (2) The establishment of a procedure to monitor (A) the fish and wildlife stock on a continuing basis, and (B) the effectiveness of the rehabilitation work.
> (3) Such other activities as the Secretary determines to be necessary to achieve the long-term goal of the program.

Id. at ' 2(a).

In 1992, Congress enacted the CVPIA. Pub. L. No. 102-575, 106 Stat. 4600 (1992):

> (a) to protect, restore, and enhance fish, wildlife, and associated habitats in the Central Valley and Trinity River basins of California;
> (b) to address impacts of the Central Valley Project on fish, wildlife and associated habitats;
> (c) to improve the operational flexibility of the Central Valley Project;
> . . . .
> (f) to achieve a reasonable balance among competing demands for use of Central Valley Project water, including the requirements of fish and wildlife, agricultural, municipal and industrial and power contractors.

Pub. L. No. 102-575, ' 3402 (1992).

Section 3406(a) amended the CVP Authorization Act of August 26, 1937 by, *inter alia*, inserting the following sentence: AThe mitigation for fish and wildlife losses incurred as a result of construction, operation, or maintenance of the Central Valley Project shall be based on the replacement of ecologically equivalent habitat. . . .@ It also added the mitigation, protection and restoration of fish and wildlife as one of the purposes of the CVP.

CVPIA Section 3406(b) addresses fish, wildlife, and habitat restoration. It begins with a general statement that: AThe Secretary . . . shall operate the Central Valley Project to meet all obligations under State and

Federal law, including but not limited to the Federal Endangered Species Act, 16 U.S.C. 1531, et seq., and all decisions of the California State Water Resources Control Board establishing conditions on applicable licenses and permits for the project.@ *Id.* at ' 3406(b). It then lists twenty-three specific actions the Secretary is to take.

Section 3406(b)(23) provides that an instream flow of not less than 340,000 AF of water shall be released each year from the Trinity River Division for the purposes of fishery restoration, propagation, and maintenance. Section (b)(23) directs the Secretary to complete the TRFES Ain a manner which insures the development of recommendations, based on the best available scientific data, regarding permanent instream fishery flow requirements and Trinity River Division operating criteria and procedures for the restoration and maintenance of the Trinity River fishery.@ Pub. L. No. 102-575 ' 3406(b)(23)(A). Section (b)(23)(B) directs the Secretary to forward the TRFES to Congress and if the Secretary and the Hoopa Valley Tribe concur in the TRFES= recommendations, to implement the instream fishery releases to meet the fishery restoration goals of the 1984 Act. Section (b)(23) has an express, further purpose to meet federal trust responsibilities to the Hoopa Valley Tribe.

In 1996, Congress amended the 1984 Act. Congress directed that Trinity River restoration was to be measured

not only by returning adult anadromous fish spawners, but also by the ability of dependant tribal, commercial, and sport fisheries to participate fully, through in-river and ocean harvest opportunities, in the benefits of the restoration. Pub. L. No. 104-408 (1996). Congress added language that amended the activities that were to be undertaken by the Secretary. *Id.* The original language directed the Secretary to Amodernize and otherwise increase the effectiveness of the Trinity River Fish hatchery. The 1996 Act added Aso that it can best service its purpose of mitigation of fish habitat loss above Lewiston Dam while not impairing efforts to restore and maintain naturally reproducing anadromous fish stocks within the basin.@ *Id.*

Contrary to the EIS management team=s scope definition, the restoration of the TR fishery goes beyond the Trinity mainstem fishery to fish stocks within the Trinity River basin and to habitats in tributaries and the south fork of that river below Lewiston Dam. ' 2(a)(1)(B).

ii. <u>Plaintiffs= AOnly Enough Necessary@ Argument</u>

Plaintiffs argue the various laws applicable to CVP management and TR restoration require that <u>only</u> enough water be devoted to TR restoration as <u>necessary</u> and no more. Specifically, they contend that CVPIA sections 3402(f) and 3406(b) require balancing all the competing interests of CVP water users and such balancing

necessarily limits the amount of CVP water restored to Trinity River. Section 3402 and the prefatory provisions of Section 3406(b) are general provisions, controlled by the more specific provisions found in the subsections of Section 3406(b). *Westlands*, 43 F.3d at 461-62. Section 3406(b)(23) directs that the TRFES be completed and that it make recommendations, based on the best available scientific data, for permanent fishery flow requirements. The volume of flows is to be determined by the Secretary.

What water is necessary for restorative instream flows is not a subject to be second-guessed by a court unless Interior=s decision is arbitrary, capricious, or unlawful. *Morongo Band of Mission Indians v. Fed. Aviation Admin.*, 161 F.3d 569, 576 (9th Cir. 1998) (A[W]here an issue requires ›a high level of technical expertise, we must defer to the informed discretion of the responsible federal agencies.=@) (quoting Marsh, 490 U.S. at 377). SMUD argues that the limited alternatives considered, impermissibly constrained Interior from formulating and analyzing a multi-purpose alternative: restore the fishery and secondarily protect the needs of all other CVP users. Citing *Greenpeace v. Nat=l Marine Fisheries Servs.*, 55 F.Supp.2d 1248 (W.D. Wa. 1999) (EIS/R that did not evaluate as an alternative, integrated total allowable fish catch with other management measures; such as location and timing of fishery, year types and groupings, product quality, habitat alteration, and

markets, prevented decision-makers from making fully informed choice).

SMUD=s fourth and fifth claims assert Interior abdicated its obligations under the CVPIA and other federal reclamation law to manage the Trinity River division for multiple purposes to effectuate the most beneficial and economic utilization of Trinity River water; to meet requirements of the 1984 TR Management Act; and to achieve reasonable balance among multiple interests that depend on CVP water. CVPIA ' 3406(2)(f). The first assertion that permanent annual flow volumes cannot be Ascientifically justified@ is not supported by science or history. The Trinity River has been actively studied for over 20 years and the proposed implementation of flow volumes to restore the river is variable to the extent of the water year class. Habitat restoration focuses on channel rehabilitation efforts.

The ROD=s permanent variable annual aggregate flow volume is fixed without regard to actual future experience. Interior is the manager of the CVP and has discretion to determine the timing and volume of water releases throughout the water year; to incorporate additional objectives beyond restoring and maintaining the fishery; i.e., to meet reservoir storage requirements; management of peak flows for hydropower production, flood control releases to serve safety; and to manage annual available CVP water supply to satisfy contractual obligations. The adoption of finite annual

aggregate flow release volumes to be retained within the Trinity Basin is rationally related to the Bureau=s management function to restore the fishery and facilitates planning and annual publication of available water from all CVP storage reservoirs.

Choosing a new flow regime that divides approximately 50% of Trinity River flows north of Lewiston Dam between the Trinity and Sacramento River Basins, instead of the historical average of 75% to 90% diversion to the Sacramento Basin and south, since TRD completion in 1964, is not per se irrational, arbitrary, or capricious to implement the congressional mandate to restore and maintain the Trinity River fishery. The adopted schedule retains approximately 48% of Trinity River water for restoration in the Trinity mainstem between Lewiston Dam and Weitchpec, with 52% released to the Sacramento River Basin for the benefit of Central Valley species and users, including SMUD. The restoration standard has been set to approximate pre-TRD conditions. The ultimate NEPA issue centers on whether the intentional narrowing of the EIS purpose to concentrate on increased water flows and channel rehabilitation prevented the decision-maker and the Court from assessing the utility of a variable flow alternative that uses non-flow measures to serve all the statutory objectives of the 1984 Act as amended, the CVPIA, and the secondary purposes of minimizing effects on all other CVP water users.

c. <u>Legal Interpretation at EIS Purpose</u>

SMUD recounts the dispute over the purpose of the EIS that developed within the Management Team. In essence, the view that prevailed was based on a legal interpretation of the 1984 Act and the CVPIA, separating the CVPIA flow minimums and final study requirements to the exclusion of P.L. 98-541's requirement to modernize and otherwise increase the effectiveness of the Trinity River hatchery as part of the broad objective to formulate and implement a fish and wildlife management program for the Trinity River basin to restore fish and wildlife populations to the levels approximating those which existed immediately prior to the start of construction of the Trinity River Division.

Contrary to the constricted EIS purpose used, the 1984 Act, Pub. L. 98-541, ' 1(5), 99 Stat. 2721 (October 24, 1984) directed a A[Trinity River] Basin-wide fish and wildlife management program,@ to be achieved by formulating and implementing a plan to restore fish and wildlife populations to pre-Trinity River Division levels. The October 30, 1992, CVPIA mandated minimum annual 340,000 AF flows Ato meet the fishery restoration goals@ of the 1948 Act and a completed Trinity River Flow Evaluation Study by December 1996, through recommendations for permanent instream fishery flow requirements and Trinity River Division Operating Criteria and Procedures to restore and maintain the Trinity River fishery. ' 3406(b)(23)(A). Unambiguous statutory language requires

permanent Trinity River restoration flows and TRD operating criteria and procedures. The 1984 Act was reauthorized in 1996 by statutory amendment.

As a matter of statutory interpretation, the CVPIA specific minimum flows and direction to formulate permanent TR restoration flows and TRD operating criteria and procedures, take precedence over more general language of the 1984 Act. *Edmund v. United States*, 520 U.S. 651, 657 (1997); *In re Padilla*, 222 F.3d 1184, 1192 (9th Cir. 2000) (where specific and general statute addresses same subject matter, specific takes precedence regardless of sequence of enactment and must be applied first). However, the ›84 Act goal of achieving pre-TRD levels of fish and wildlife in the Trinity Basin, not just the Trinity River mainstem, was not repealed or modified and was re-emphasized and further defined in the 1996 Act. The CVPIA includes a balancing of competing demands for use of CVP water objectives, which, although secondary to the more specific restoration goals of (b)(23), should have been given consideration in the NEPA review because (b)(23) also refers to the ›84 Act as restoration authority. The management team=s pre-litigation legal interpretation, narrowing the EIS purpose, is entitled to no judicial deference, because it is not reasonable and ignores the additional statutory goals of improving not only the mainstem, but also tributaries and south fork, and balancing competing CVP uses. The CVPIA does not narrow the legislative purpose of Trinity River

restoration, which remains basin-wide, and does not include only the TR mainstem between Lewiston Dam and Weitchpec.

b. Range of Alternatives

Plaintiffs argue that Interior=s EIS did not consider a sufficient number of different alternatives. This issue turns in part on the purpose of the EIS, which, according to Interior, is Ato carry out the Congressional directive in subsection (b)(23) of the CVPIA to assess environmental issues, alternatives and impacts associated with the restoration of natural production of anadromous fish on the Trinity River mainstem downstream of Lewiston Dam.@ Aug. 20, 2002 hearing at 6:1-6 (Mr. Shockey).

SMUD agrees that the EIS=s purpose is to restore anadromous fish in the Trinity River and that the directive is to accomplish this goal by increased flows, as (b)(23) provides for permanent instream fishery flow requirements. SMUD argues that the range of alternatives, to achieve this purpose was too narrow and arbitrary because lower flows could have been recommended if non-flow restoration measures were integrated with flow measures. SMUD complains the TRFES wrongfully adopts an Aecological perspective philosophy@ which abandons basin-wide considerations to concentrate on maximized fixed flow requirements which prevent applying integrated management measures to address constantly changing hydrological conditions.

The Water Districts argue that Interior improperly substituted the statutory goal of restoring the fishery with a Adynamic alluvial river objective.@ Aug. 20, 2002 hearing at 18:5 (Mr. O=Hanlon). The water districts= argument is essentially that added Ariver objectives@ are not required in the selection of alternatives. They argue this caused Interior to only consider flow-related alternatives to the exclusion of an Integrated Management Alternative proposed by SMUD=s expert. This part of the controversy centers on the Arestore and maintain a ›healthy= Trinity River in part by establishing ›healthy river= objectives based on ›known and presumed attributes of the pre-dam Trinity River.=@ DEIS 1, 12-13.

C. <u>Legal Interpretation of EIS Purposes</u>

SMUD points to the early dispute over the purpose of the EIS that developed within the EIS Management Team. The approach that prevailed was based on the team=s legal interpretation of the 1984 Act, CVPIA, and 1996 Act, that separated the CVPIA flow minimums and final study requirements, to the exclusion of the ›84 and ›96 Acts= broader purposes, which include an integrated 16-point Trinity River Fish and Management program covering water flows, sediment management, tributaries rehabilitation, hatchery modification, and stream and land use management. The adopted EIS purpose also rejected the statutory direction to modernize and otherwise increase the effectiveness of the Trinity River hatchery as part of the

broad statutory objective to formulate and implement a fish and wildlife management program for the Trinity River basin, (AR 27289) which would restore the fish and wildlife populations in the basin to the levels approximating those which existed immediately prior to the start of construction of the Trinity River Division.

SMUD points to letters and memoranda evidencing that legal advisors to the EIS management team intentionally narrowed and limited the scope and content of the EIS to ultimately focus only on increased flows and channel restoration of the mainstem Trinity River below Lewiston Dam and Weitchpec, purposefully ignoring the rest of the Trinity River basin, tributaries, south fork, and impacts on other CVP uses and users. In intentionally limiting the scope of the EIS, the EIS managers recognized time was short and they improperly sought to attenuate the range of alternatives considered to restrict public participation and to permit completion of the ROD within the then-perceived 1996 time deadline.

SMUD further argues that by seizing on the reference to Anatural@ fish restoration, which appears in (b)(23) the legal advisors manipulated the EIS= focus to ignore Trinity River Fish Hatchery improvements, measures other than flow releases, and
improperly locked-in an excessive permanent flow regime adopted by the ROD, ignoring non-flow alternatives as additional means to achieve restoration. Defendants acknowledge that the ROD relies on experimental, untested

methodology, which Awill be evaluated in the future.@ (AR 623, 587-90, 92-94, 623-24, 632, 636-37, 639-40, 643, 652, 661, 733, 770, 778, 804-07).

SMUD asserts no deference is owed to the pre-litigation legal position here taken by Interior, even if it interprets legislation the agency implements. *Gilliland v. E.J. Bartells Co., Inc.*, 270 F.3d 1259, 1262 (9th Cir. 2001) (litigation position entitled to deference only if reasonable). Ultimately, the narrowing and limitation of the alternatives considered to increased permanent flows, channel restoration, minor watershed protection, consisting of sediment-control measures already in place and road de-commissioning, resulted in an EIS that did not adequately or honestly consider whether an integrated management alternative, based on stream restoration science presently utilized by Interior that integrates multiple approaches to fishery restoration that would take into account the overall effect on other CVP users.

SMUD contends that the ROD is arbitrary and capricious because its recommended permanent flows are hypothetical, untested, and unreliable. No matter what actual experience and adaptive management proves, the ROD has permanently locked-in and prohibits change in flow volumes below its established minimum flows for each annual hydrologic year-type. Interior neither explains nor analyzes the failure to consider an integrated

management alternative with secondary objectives to minimize impacts on other CVP users.

i. <u>The Law</u>

An EIS must discuss reasonable alternatives to a proposed action. *American Rivers v. Fed. Energy Regulatory Comm=n*, 201 F.3d 1186, 1201 (9th Cir. 1999); 42 U.S.C. ' 4332(2)(C)(iii). Section 1502.14 of the CEQ regulations requires agencies to A[r]igorously explore and objectively evaluate all reasonable alternatives,@ to include a Ano action@ alternative, and a preferred alternative. 40 C.F.R. ' 1502.14. However, agencies are not required to include Aevery alternative device and thought conceivable by the mind of man.@ *Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc.*, 435 U.S. 519, 551 (1978). AThe range of alternatives that must be considered in the EIS need not extend beyond those reasonably related to the purposes of the project.@ *Laguna Greenbelt, Inc. v. Dep=t of Transp.*, 42 F.3d 517, 524 (9th Cir. 1994).

When determining whether a reasonable range of alternatives was considered, the Atouchstone@ is whether the EIS's Aselection and discussion of alternatives fosters informed decision-making and informed public participation.@ *Headwaters, Inc. v. Bureau of Land Management, Medford Dist.*, 914 F.2d 1174, 1180 (9th Cir. 1990) (quoting *Block*, 690 F.2d at 767). NEPA does not require the consideration of alternatives: whose effect

cannot be reasonably ascertained; whose implementation is remote or speculative; which are infeasible, ineffective, or inconsistent with basic policy objectives; or which are not significantly distinguishable from alternatives actually considered, or; which have substantially similar consequences. *Id.* at 1180-81. However, Aan agency cannot define its objectives in unreasonably narrow terms@ to restrict the range of reasonable alternatives. *City of Carmel-By-The-Sea v. Dep:t of Transp.*, 123 F.3d 1142, 1155 (9th Cir. 1997). The Arule of reason@ guides both the choice of alternatives and the extent to which an EIS must discuss each alternative. *American Rivers,* 201 F.3d at 1201.

Interior observes it has concurrent discretion to determine how best to restore the Tribes: reserved fishing rights in the Trinity River as part of the express federal trust obligation to the Indian Tribes, in part defined in the 1996 amendment of the 1984 Act. *Parrows v. Babbitt*, 70 F.3d 539, 542 (9th Cir. 1995).

ii. <u>Alternatives Considered</u>

The DEIS identified four alternatives to meet the statutory purpose, goals, and objectives: 1) Maximum Flow, dedicating all Trinity River flows above Trinity Dam to fishery restoration; 2) Flow Evaluation, utilizing managed flows and mechanical rehabilitation; 3) Percent Inflow reducing released water into the Trinity River at forty per cent of the rate it flows into the Trinity Reservoir;

and 4) Mechanical Restoration, using mechanical means to alter the river channel and create fish protection habitat. DEIS at 2-1. In addition to these four alternatives, measures including ANo Action,@ Amaintaining the status quo,@ and AState Permit,@ reducing annual 340,000 AF flows to 120,500 AF, the level specified in Interior=s 1959 water permits, were also analyzed. *Id.* The State Permit Alternative was analyzed as a standard against which to compare other alternatives, because it is the baseline for state permitting purposes. *Id.* However, it is not viable as it calls for flows less than the statutory minimum.

The Maximum Flow Alternative Awould use all of the Trinity River inflows above Trinity Dam to restore the river ecosystem through managed flows, which would include periodic peak flow releases.@ DEIS at 2-11. No mechanical restoration would be carried out. *Id.* at 2-12. The Flow Evaluation Alternative is based on the TRFES recommendations. *Id.* at 2-16. Forty-seven mechanical rehabilitation projects would be constructed under this alternative. *Id.* at 2-21. The Percent Inflow Alternative Awould approximate natural flow patterns, at a reduced scale, by releasing water into the Trinity River at a proportion of the rate it flows into Trinity Reservoir.@ *Id.* at 2-22. The water released would approximate 40 percent of the previous week=s inflow. This option would include the same mechanical channel restoration projects as the Flow Evaluation Alternative. *Id.* at 2-25. The

Mechanical Restoration Alternative maintains instream flows at 340,000 AF/year and depends on mechanical means to restore the fish population. *Id.* at 2-26. It would include watershed protection measures, forty-seven channel rehabilitation projects, and dredging of ten potential pools. *Id.* at 2:29-30. The State Permit Alternative would reduce the flows to 120,500 AF/year as specified in Reclamation=s state water permits. *Id.* at 2-31. No mechanical restoration projects would be undertaken. *Id.* The No Action Alternative Arepresents ongoing activities and operations@ and reflects conditions in the year 2020. *Id.* at 2-4. It assumes ongoing watershed protection measures will continue and that current habitat improvement projects and programs, including the maintenance of twenty-seven existing channel rehabilitation projects, will also continue. *Id.* at 2-7-8.

In addition to the alternatives discussed in the DEIS, the agency severally considered and discussed, but rejected without detailed analysis, the following measures: 1) removal of Trinity and Lewiston Dams; 2) harvest management; 3) fish passage facilities; 4) trucking fish around the dams; 5) predator control; 6) increased hatchery production; 7) pumped storage; and, 8) channel augmentation using Weaver Creek. DEIS at 2-35-42. Removal of the dams was not considered viable because of environmental impacts and foregone benefits and costs. The Harvest Management Alternative was rejected because

habitat, and not the number of spawning adults, was the limiting factor in natural production of anadromous fish. Even with harvesting restrictions and increased spawning escapement, natural fish production declined. *Id.* at 2-39. The Predator Control Alternative was rejected for the same reason. *Id.* at 2-40. Increased hatchery production was rejected because it did not increase the number of Anaturally@ reproducing anadromous fish. *Id.* at 2-41. SMUD complains it was error to separately analyze and reject each management measure as a stand-alone alternative and not as an integrated plan.

The Preferred Alternative was the Flow Evaluation Alternative with additional watershed improvements described in the Mechanical Restoration Alternative. DEIS at 2-3. The Preferred Alternative was selected using six screening criteria: 1) substantially increases natural production of anadromous fish on the Trinity River; 2) substantially restores both inriver and ocean fishing opportunities; 3) improves tribal access to trust resources; 4) balances environmental and social impacts; 5) allows for continued operation of the TRD; and, 6) limits flooding. *Id.*

iv. <u>Were Sufficient Alternatives Considered?</u>

Plaintiffs contend the EIS too narrowly focused on alternatives designed to increase flows, improve habitat

and summarily rejected alternatives that could not by themselves restore fish populations.

A. Focus of EIS

Plaintiffs complain the lead agencies exclusively focused on alternatives designed to alter the geomorphic environment of the Trinity River. The purpose of the EIS is to Arestore and maintain the natural production of anadromous fish on the Trinity River mainstem downstream of Lewiston Dam.@ Plaintiffs are correct that the alternatives analyzed by the EIS are all directed at restoring the mainstem Trinity River fish habitat below Lewiston Dam. For instance, harvest management was rejected because the preliminary analysis showed that limited habitat, not harvest restrictions, was the reason for the fishery=s decline. AThe results of the analysis indicated that although spawner escapement increased due to increasing harvest restrictions, natural production, as indicated by the production index, actually decreased. . . . The lack of a positive response (i.e., increase in production) with increasing harvest restrictions was due to the current quantity and quality of anadromous fish habitat in the Trinity River.@ DEIS at 2-39. Predator control was rejected for the same reason. *Id.* at 2-40. Increased hatchery production was rejected because A[e]vidence shows that increasing hatchery production can significantly impair efforts to restore and maintain naturally reproducing fish stocks. *Id.* at 2-41.

Agencies are not required to consider options that conflict with basic policy objectives. *Headwaters,* 914 F.2d at 1180-81. Here, the purpose of the EIS was to restore Anaturally@ reproducing anadromous fish in the Trinity River mainstem downstream of Lewiston Dam, not just increase fish population. In addition, the 1996 Act limited the use of hatchery production by requiring that it not impair efforts to restore and maintain Anaturally@ reproducing anadromous fish stocks in the basin. Pub. L. No. 104-143, at ' 3(c). SMUD complains that science recognizes that integrated management applied in combination in limited degrees, including hatchery production, harvest management and predator control, will enhance fishery restoration efforts while affording protection to other CVP uses. Interior has the discretion not to use such measures as stand-alone alternatives; however, Plaintiffs are correct that Interior did not take a hard look at, or consider in depth, a fully integrated management alternative that reduced variable flow increases in conjunction with other management prescriptions. Because NEPA requires fair consideration of reasonable (feasible) alternatives, including discussion of the alternatives and opposing viewpoints, to avoid undue narrowing of the means of achieving the purpose of an EIS, an SEIS should have been prepared. *City of Carmel-by-the-Sea v. U.S. Dept. Transp.*, 123 F.3d 1142, 1155 (9th Cir. 1999); cited in *American Rivers v. F.E.R.C.*, 201 F.3d 1186, 1200 (9th Cir. 1999).

b. Rejection of Stand-Alone Alternatives that Could Not Restore Fish Populations

Plaintiffs complain the EIS considered each potential restorative alternative standing alone without combining them into an Integrated Management Plan. Specifically they object that the Harvest Management and the Hatchery Management alternatives were not combined with lower flows in a separate alternative. To the extent this argument is related to these two specific alternatives, they have been discussed.

c. Integrated Management Alternative

Plaintiffs argue, based on the post-ROD expert opinion of Dr. Hanson, that an Integrated Management Alternative was essential to reasonableness of the range of alternatives; should have been analyzed as a reasonable alternative; and failure to do so was arbitrary, capricious, or unlawful. Plaintiffs point to the 1984 Act which directs the Secretary to take an integrated approach to restoring the Trinity River. However, the disputed EIS is not the first EIS on the Trinity River restoration. An EIS was completed in 1983 on the Trinity River Basin Fish and Wildlife Management Program. DEIS at 1-12. The 1984 Act was passed to give the Secretary the authority to implement that plan. Pub. L. No. 98-541, at ' 1(6). This followed Interior=s Solicitor=s opinion, citing legislative

history, that the 1955 Act authorized the Permit, and required instream flow needs in the Trinity River Basin to be met before water was exported.

The current EIS evaluates and analyzes the mechanical river restoration projects and the TRFES= recommendation and alternatives. Interior objects to SMUD=s Integrated Management Alternative claiming it was not presented in the NEPA public comment period; *Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council*, 435 U.S. 519, 551-53 (1978), yet nonetheless responds on the merits. The declaration of Dr. Hanson is considered to aid the Court in understanding applicable river restoration science and to assist the evaluation whether Integrated Management alternative was reasonable and should have been considered and discussed.

When determining whether a reasonable range of alternatives was considered, the Atouchstone@ is whether the EIS's Aselection and discussion of alternatives fosters informed decision-making and informed public participation.@ *Headwaters,* 914 F.2d at 1180. NEPA does not require the consideration of alternatives whose effect cannot be reasonably ascertained; whose implementation is remote or speculative; which are infeasible, ineffective, or inconsistent with basic policy objectives, or; which are not significantly distinguishable from alternatives actually considered or which have substantially similar consequences. *Id.* at 1180-81. However, Aan agency cannot define its objectives in unreasonably narrow terms@ to

avoid a range of reasonable alternatives. *City of Carmel-By-The-Sea,* 123 F.3d at 1155. The EIS should analyze and consider the Afull spectrum.@ The Arule of reason@ guides the choice of alternatives. *American Rivers,* 201 F.3d at 1201.

The plaintiffs argue that the EIS had to consider an alternative that restored TR anadromous fish while minimizing the effect on competing CVP uses. Plaintiffs= proposed Integrated Management Alternative involves: A(1) instream and watershed habitat protection; (2) instream and watershed habitat restoration and improvement; (3) hatchery management and stock supplementation; (4) predator control; (5) inland and ocean harvest; (6) water quality control; and, (7) land management within the watershed and along the stream channel corridor, as well as other elements.@ Doc. 236 at & 4 (Hanson Decl.). SMUD=s comments on the DEIS raised 67 points. App. D3-2579 to 2646. Interior responded to each, either directly or by reference in thematic responses included in the FEIS, but as stand-alone measures, not as an integrated plan.

SMUD=s proposed alternative combines increased flows with a variety of mechanical restoration measures. The Preferred Alternative does combine increased variable annual flow releases from Lewiston Dam, coarse sediment introduction, mechanical channel rehabilitation and adaptive management, which includes watershed protection. All alternatives were analyzed assuming that the current

fish population management programs would continue. The relevant statutes and Interior=s preliminary findings limit the applicability of harvest management and hatchery management. Ultimately, plaintiffs seek the absolute minimum increase of flow and a greater proportion of mechanical restoration and watershed management through hatchery and harvest management, predator control and other non-flow means, in contrast with the Preferred Alternative. Interior disagrees and supports its opposing view with the Trush, & 4, and Polos declarations. The latest input purports to respond to plaintiffs= proposed alternatives, but not in the context of NEPA public comment to permit informed decision-making. The absence of public participation, full consideration, or discussion in the NEPA process of an Integrated Management Alternative, that sought to minimize impacts on other CVP users, requires an SEIS.

D. Method of Selection

Plaintiffs assert the method used to select the Preferred Alternative preordained the alternative chosen. Specifically, Interior used the Trinity River System Attribute Analysis Methodology (ATRSAAM@) to create the Preferred Alternative and then applied it to choose among options which included only one viable choice, the Preferred Alternative.

The fishery restoration analysis in the EIS used the same Ahealthy river@ attributes employed by the TRFES.

However, the EIS analyzed the alternatives not only against those attributes, but other criteria as well. The Preferred Alternative was selected using six screening criteria: 1) substantially increases natural production of anadromous fish on the Trinity River; 2) substantially restores both inriver and ocean fishing opportunities; 3) improves tribal access to trust resources; 4) balances environmental and social impacts; 5) allows for continued operation of the TRD; and, 6) limits flooding. DEIS at 2-3. Although Plaintiffs do not contend that the screening criteria used are arbitrary or irrational, nor that each criteria does not serve the statutory fishery restoration purpose; they msintain no realistic alternative was provided.

E. Reasonableness of Alternatives

Plaintiffs argue the only viable alternative analyzed was the Flow Evaluation Alternative, because the other Areasonable@ alternatives were Astrawmen.@ The EIS identified four Areasonable alternatives:@ Maximum Flow; Flow Evaluation; Percent Flow, and; Mechanical Restoration, along with a no action alternative. Eventually a combination of the Flow Evaluation and the Mechanical Restoration alternatives was selected as the Preferred Alternative. Plaintiffs contend the alternatives wrongfully focused solely on increased flows and flow-related measures to the exclusion of non- or reduced-flow alternatives.

The Maximum Flow Alternative would release all water that flows into the Trinity River above Lewiston Dam. Plaintiffs argue that this is a Astraw@ alternative because it is the functional equivalent of removing the Dam, which was rejected prior to analysis by the agency. All water that enters the reservoir would be released under this alternative, so the only difference between it and Trinity Dam removal is that the dam would remain in place. Interior determined removal of the dams was impractical because of environmental impacts, foregone benefits, and removal costs. Some of these concerns are the same as those raised by the Maximum Flow Alternative, but the costs related to the two alternatives are not co-extensive. While the Maximum Flow Alternative is at the end of the spectrum of reasonableness, it evaluates conditions under maximum potential flow condition.

Plaintiffs maintain the Percent Flow and Mechanical Restoration alternatives were not viable because they could not meet the ten attributes of a healthy river. The ten attributes of a healthy river were not the only criteria which drove selection of the Preferred Alternative. While the Flow Evaluation Alternative may have had an advantage under the healthy river criteria, other issues were considered. The Mechanical Restoration Alternative incorporates physical improvements to the river to maximize beneficial effects on fish habitat.

Plaintiffs suggest the Percent Flow Alternative was a Astrawman@ because it could not be implemented based on the

statutory requirement that a minimum of 340,000 AF of water be released into the Trinity River each year. Section (b)(23) provides that A[i]f the secretary and the Hoopa Valley Tribe concur in these recommendations, <u>any increase to the minimum Trinity River instream</u> fishery releases established under this paragraph and the operating criteria and procedures referred to in subparagraph (A) shall be implemented accordingly.@ The Percent Flow Alternative does not meet the 340,000 AF minimum in dry and critically dry years. At oral argument, the federal defendants argued that this did not make the option unreasonable because the Secretary could change the alternative by requiring that mandatory minimum flows be released during dry and critically dry years. The point of the EIS is to inform the public and the Secretary of the reasonable alternatives available and the impacts of those alternatives. A Percent Inflow Alternative that included 340,000 AF in dry and critically dry years is different from one that does not have this requirement. An EIS alternative that is inconsistent with and violates a statutory minimum flow mandate is not reasonable, because it assumes a flow condition that could not be implemented absent Congressional action to amend the CVPIA. This alternative was not reasonable because it could not be implemented.

f. <u>Lower Flow Evaluation Alternative</u>

Plaintiffs argue that the EIS itself suggests a lower flow alternative exists. The TRFEFR lists ranges of water flows that could possibly achieve the healthy river objectives. The report selected a number from within this range. Plaintiffs argue that there should have been more than one flow evaluation alternative analyzed in the EIS based on these numbers, i.e., one that was at the lower end of the range.

A[A]n agency's consideration of alternatives is sufficient if it analyzes an appropriate range of alternatives, even if it does not consider every available alternative.@ *Headwaters,* 914 F.2d at 1181. Alternatives that are not significantly distinguishable from an alternative already considered need not be analyzed. *Id.* The ranges contained in the TRFEFR are for peak flows in the various water year types. The difference between the lowest number in the range and the number selected by the TRFES is: 3,000 cfs in extremely wet years; 2,500 cfs in wet years; 1,000 cfs in normal years; 800 cfs in dry years, and; 200 cfs in critically dry years. These peak flows are to run for five-days under all water year types except in critically dry years in which the peak flow would run for 36 days. The total difference between the amount analyzed under the Flow Evaluation Alternative and the lowest possible flow alternative suggested by plaintiffs is 15,000 cfs in extremely wet years; 12,500 cfs in wet years; 5,000 cfs in normal years; 4,000 cfs in dry years, and; 7,200 cfs in critically dry years. In

aggregate terms, the increased flow volumes serve purposes in addition to fishery restoration and maintenance, including flood control, reservoir storage limits, and dam safety.

g. Conclusion - Range of Alternatives

Upon close analysis, Interior in actuality considered three options for Trinity River fishery restoration: The Maximum Flow Alternative (the maximum increase in CVP water to the Trinity River); the Flow Evaluation Alternative (mid-range alternative), and; the Mechanical Restoration Alternative (the minimum amount of water). This range of alternatives consisted of two extreme endpoints and one mid-range alternative, which pre-ordained the selection. Plaintiffs argue that there should have been more mid-range alternatives considered, i.e., at the least an alternative that utilized Integrated Management methods, including non-flow measures, based on available science and existing fishery restoration methods used in the Lower Mokelumne River Management Plan, the joint CALFED/SJRMP San Joaquin River Fishery Technical Team Workshop Report and other restoration planning on the Sacramento-San Joaquin Rivers and Delta. Such an analysis would have permitted a hard look at Plaintiffs' contention that an Integrated Management approach would best serve the interests of the Trinity River fishery, the CVP, and all other CVP stakeholders.

Considering only one reasonable alternative prevented Aselection and discussion of alternatives [to] enable informed decision-making and informed public participation.@ *Headwaters,* 914 F.2d at 1180; *California v. Block*, 690 F.2d 753, 766-67 (9th Cir. 1982). The selection criteria used to chose the Preferred Alternative, a flow-driven regime in the TR mainstem, which purposefully avoided restoration by non-flow methods, even if reasonably calculated to achieve the statutorily defined objective was premised on an unduly, narrowly-defined EIS purpose. Other reasonable options exist, as SMUD suggests lower flows combined with increased mechanical restoration, fishery management, predator control, harvest management, and related measures should have been the subject of a hard look. At oral argument the federal defendants raised another option, the Percent Inflow Alternative with the dry and critically dry year flows at the 340,000 AF floor.

The range of alternatives considered was not adequate. Developing fish passage facilities, trucking fish around dams, predator control, a pumped storage project and channel augmentation at Weaver Creek were considered, individually, and rejected as stand-alone measures under the soporific, such consideration achieved Aclarity,@ DEIS 2:2-3; Interior also avoided analysis of Ameasures that would be addressed by other natural resource agencies.@ FEIS D3:2587. DEIS 2, 35-42, FEIS App. 2, 49. The inclusion of one mid-range option with

two relatively unrealistic alternatives dictated the option selected. Plaintiffs= contention that the EIS should have been prepared with multiple purposes which included gauging permanent increases of CVP water allocated to the Trinity River to minimize impacts on all other CVP users has merit. Interior was required to take a hard look at such a reasonable alternative and it did not.

Ultimately, the amount of water permanently rededicated to the Trinity River to achieve fishery restoration is committed to the joint discretion of Congress, Interior, and the Tribes to be implemented under Interior=s CVP management operational discretion. Interior=s Preferred Alternative and ROD adopt a permanent and immutable dedication of CVP water to the Trinity River Mainstem, without the searching and objective analysis NEPA requires. If Interior is wrong, the permanent flows cannot be changed without Congressional action, if such flows are excessive or unnecessary. Harm is visited upon other CVP interests when water is reallocated. Although Interior did consider mechanical channel restoration, watershed restoration, and Aadaptive management,@ the public and all other CVP stakeholders were entitled to have their input timely considered and to have Interior take a hard look, at the least, at a multiple purpose alternative that integrated restoration management methods with secondary objectives set forth in the restoration statutes. The failure to do so violates NEPA.

Plaintiffs= motion for summary adjudication on the issue of the federal defendants= failure to reasonably scope the purpose of the EIS and to comply with NEPA based on the unreasonably narrow range of alternatives considered is GRANTED. Defendants= cross-motion on the issue is DENIED.

C. <u>ENDANGERED SPECIES ACT</u>

Section 7 of the ESA, 16 U.S.C. ' 1536, requires that federal agencies Ain consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined . . . to be critical, unless such agency has been granted an exemption. . . .@ 16 U.S.C. ' 1536(a)(2). When an agency requests formal consultation under Section 7(a)(2), a formal report, called a biological opinion, is prepared giving the USFWS=s or the NMFS=s opinion about whether the agency action is Alikely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of critical habitat.@ 16 U.S.C. ' 1536(b)(3); 50 C.F.R. ' 402.14(h). AJeopardize the continued existence of@ means engaging in Aan action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and

recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species.@ 50 C.F.R. ' 402.02. If jeopardy is likely, the report is called a Ajeopardy biological opinion.@ 50 C.F.R. ' 402.14(h)(3). If the action is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of critical habitat, the report is called a Ano jeopardy biological opinion.@ *Id.*

A jeopardy opinion must consider, and if lawful include, reasonable and prudent alternatives (ARPAs@). 16 U.S.C. ' 1536(b)(3)(A) (AIf jeopardy or adverse modification is found, the Secretary shall suggest those reasonable and prudent alternatives which he believes would not violate subsection (a) (2) of this section and can be taken by the Federal agency or applicant in implementing the agency action.@); 50 C.F.R. ' 402.14(h)(3). RPAs are Aalternative actions identified during formal consultation that can be implemented in a manner consistent with the intended purpose of the action; that can be implemented consistent within the scope of the Federal agency's legal authority and jurisdiction; that [are] economically and technologically feasible; and, that the Director believes would avoid the likelihood of jeopardizing the continued existence of listed species or result[] in the destruction or adverse modification of critical habitat.@ 50 C.F.R. ' 402.02.

Where the USFWS or NMFS concludes the agency action and any resultant incidental take will not violate Section 7(a)(2) of the ESA, the Service must include within the opinion an incidental take statement that, *inter alia*, specifies reasonable and prudent measures (ARPMs@) that are necessary or appropriate to minimize such impact. 16 U.S.C. ' 1536(b)(4)(C)(ii); 50 C.F.R. ' 402.14(i). The incidental take statement (ITS) must also specify Athe terms and conditions (including, but not limited to, reporting requirements) that must be complied with by the Federal agency or any applicant to implement the [RPMs].@ 50 C.F.R. ' 402.14(i)(1)(iv). RPMs are Aactions . . . necessary or appropriate to minimize the impacts, i.e., amount or extent, of incidental take.@ 50 C.F.R. ' 402.02. AReasonable and prudent measures, along with the terms and conditions that implement them, cannot alter the basic design, location, scope, duration, or timing of the action and may involve only minor changes.@ 50 C.F.R. ' 402.14(i)(2).

The issuance of biological opinions, RPMs and ITSs by Interior through the FWS, is final agency action under 16 U.S.C. ' 1536, subject to judicial review. Challenges to agency action under the ESA are governed by the APA. *Arizona Cattle Growers' Ass'n v. U.S. Fish & Wildlife*, 273 F.3d 1229, 1236 (9th Cir. 2001). An agency=s decision may not be overturned by the court unless it is arbitrary and capricious. *Id.* AAs long as the agency decision was based on a consideration of relevant factors and there is

no clear error of judgment, the reviewing court may not overturn the agency's action.@ *Id.*

Plaintiffs argue that the federal defendants committed two ESA violations: 1) the USFWS BioOp unlawfully mandates major changes in CVP operations, even if the Trinity River restoration actions will not jeopardize any listed species; and, 2) the NMFS BioOp arbitrarily mandates the implementation of the ROD=s instream flow releases in the absence of lethal take of Trinity River fish. Westlands contends NEPA compliance was required before biological opinions issued which authorized incidental take of Sacramento winter-run chinook salmon, Sacramento splittail, and delta smelt, citing *Ramsey v. Kantor*, 96 F.3d 434, 437, 444. Defendants correctly cite *Southwest Center for Biological Diversity v. Keasse*, CV-S-97-1969 GEB JFM (E.D. Ca 1998), which holds that FWS is not required to file NEPA documents every time it issues a biological opinion or an incidental take statement. *Id.* (*Ramsey* characterized the ' 7 ITS as the Afunctional equivalent@ of a ' 10 permit).

1. USFWS Biological Opinion

The USFWS BioOp is a Ano jeopardy opinion.@ AR 17536. After determining that the Preferred Alternative will not jeopardize listed species, the BioOp included, as required, an incidental take statement. The following RPM was a part of the incidental take statement:

> Reclamation shall minimize the effects of reoperating the CVP resulting from the implementation of the Preferred Alternative

> within the Trinity river basin on listed fish in the Delta. . . . These terms and conditions are non-discretionary. To implement Reasonable and Prudent Measure number one Reclamation must implement the following:
>
> $ If Reclamation in its annual operations planning process detects that implementation of the Preferred Alternative will result in an upstream (eastward) movement of X2 in any month between February 1 through June 30 of 0.5 km, Reclamation shall incorporate within its operating plan measures that can and will be implemented to minimize or eliminate such upstream movements.

AR 17537-38 (emphasis added). Contrary to the government=s contention that no requirement exists that Interior prevent upstream movement of X2, the need to control movement of X2 has the potential to require major changes in CVP operations with corresponding significant impacts. The parties do not dispute that an RPM may not mandate major changes. 50 C.F.R. ' 402.14(i)(2) (AReasonable and prudent measures, along with the terms and conditions that implement them, cannot alter the basic design, location, scope, duration, or timing of the action and may involve only minor changes.@) (emphasis added). An agency=s action may be set aside if it is not in accordance with the law. *In re Transcon Lines*, 89 F.3d 559, 563 (9th Cir. 1996). The USFWS exceeded its

authority in mandating the X2 RPM because it was not legally authorized to require implementation of an RPM that would result in the major changes Mr. Bowling recognizes re-operation of the CVP will necessitate in twenty percent of all water years. Interior provides no analysis of what the X2 RPMs will be or their consequences in those years. The X2 RPM is a major change that cannot lawfully be adopted by a BioOp without NEPA compliance.

Defendants also note that the RPM calls for FWS and the Bureau to work cooperatively in dry and critically dry years Ato develop temperature objectives in the Trinity and Sacramento Rivers, which will Anot mandate any operational changes.@ This is directly contradictory to Mr. Bowling=s opinion that major changes in CVP operations will be needed in short water years, which are 20% of water years. Plaintiffs= summary adjudication motion as to the X2 RPM in the USFWS BioOp is GRANTED, this RPM must be set aside. The federal defendants= motion on this issue is DENIED.

2. <u>NMFS Biological Opinion</u>

Plaintiffs argue that there are three problems with NMFS= BioOp: 1) under the ESA, RPMs can only be mandated if there was a finding of Aincidental take@ and that NMFS did not make such finding; 2) even if there was a finding of incidental take the RPMs are not reasonably calculated to reduce the take related to gravel placement; and, 3)

the RPMs cannot mandate the implementation of the action upon which the consultation is based.

a. <u>Finding of Incidental Take</u>

The NMFS may only impose RPMs when there is evidence that the agency action will result in a Atake.@ *Arizona Cattle Growers= Ass=n,* 273 F.3d at 1246 (A[A]n Incidental Take Statement must be predicated on a finding of an incidental take.@). AWithout evidence that a take would occur as a result of [the agency=s action], issuing an Incidental Take Statement imposing conditions on the otherwise lawful use of land was arbitrary and capricious.@ *Id.* at 1246. AIncidental take@ is defined as Atakings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant.@ 50 C.F.R. ' 402.2. ATake@ means Ato harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.@ 16 U.S.C. ' 1532(19).

The NMFS BioOp found:

> The NMFS does not anticipate that implementation of the proposed flow schedules will incidentally take any SONCC coho salmon. The NMFS does anticipate that SONCC coho salmon habitat adjacent to and downstream of the 47 channel rehabilitation projects may be temporarily degraded due to localized turbidity and potential fine sedimentation of channel substrate during construction activities. However, the amount of habitat temporarily degraded due to these localized effects is negligible compared to the long-term creation of additional suitable habitat along approximately 40 miles of the Trinity River. Although placement of spawning gravel in the Trinity River may temporarily displace (harass) an unknown number of juvenile coho salmon to

> alternative habitats, this is not expected to result in lethal take of these fish.

AR 17491. Plaintiffs argue that the NMFS findings do not show that the coho salmon would be Aharmed@ by implementation of the ROD. Defendants argue that the NMFS BioOp made a finding that ROD construction activities would result in either Aharm@ or Aharassment.@

i. <u>Harm</u>

Harm is defined as Aan act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including, breeding, spawning, rearing, migrating, feeding or sheltering.@ 50 C.F.R. ' 222.102.

Plaintiffs opine NMFS did not find that any coho salmon would be killed or injured by the proposed action; citing NMFS= conclusion that A[a]lthough there may be minor, short lived adverse effects to juvenile coho salmon as a result of the gravel supplementation projects, long-term results such as improved spawning habitat, improved salmonid over-wintering habitat, and a net increase in aquatic insect production in the immediate and downstream areas are expected to provide survival benefits to Trinity River coho salmon populations.@ AR 17478. Plaintiffs are correct that NMFS found that implementation of the Preferred Alternative would benefit coho salmon as a

whole. However, they confuse the benefit/harm to the coho salmon population as a whole with the benefit/harm to individual members of the species.

The NMFS found that the Preferred Alternative would not result in jeopardy, i.e., that the species as a whole would not be harmed. However, it also found that the mechanical restoration measures of the Preferred Alternative might Akill@ individual members of the species. A<u>Reduced egg to fry survival</u> may occur as a result of fine sediment deposition downstream of a project site.@ AR 17477. An incidental take statement and RPMs are concerned with reducing the number of individuals effected by the action, not the survival of the species as a whole.

ii. <u>Harassment</u>

AHarass@ as included in the definition of Atake@ is not defined by statute, but legislative history describes Congress= intent: A[Take] includes harassment, whether intentional or not. This would allow, for example, the Secretary to regulate or prohibit the activities of birdwatchers where the effect of those activities might disturb the birds and make it difficult for them to hatch or raise their young.@ H.R. Rep. 93-412, at 11 (1973). NMFS has not defined the meaning of Aharass,@ however the USFWS has. The USFWS defines Aharass@ as Aan intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which

include, but are not limited to, breeding, feeding, or sheltering.@ 50 C.F.R. ' 17.3.

The NMFS found: A[c]oho salmon fry and possibly late outmigrating smelts may be displaced from the gravel deposition site due to the placement of gravel into the river and/or the noise from heavy machinery. Displaced juveniles are expected to seek alternative downstream or upstream habitats for rearing.@ AR 17477-78. The NMFS also found A[a]lthough placement of spawning gravel in the Trinity River may temporarily displace (harass) an unknown number of juvenile coho salmon to alternative habitats, this is not expected to result in lethal take of these fish.@ AR 17491. The disruption of coho salmon to the extent that they migrate to another area of the river is sufficient to rise to the level of Aharassment.@ This is so even if the disruption is temporally limited. ATake@ is concerned with the effect on individual species members, not necessarily on the survival of the species as a whole.

Plaintiffs argue that defining Aharass@ to include habitat modification would make the use of the term Aharm@ in the statutory definition of Atake@ a nullity. Congress Aintended ›take= to apply broadly.@ *Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 704 (1995). A›Take= is defined . . . in the broadest possible manner to include every conceivable way in which a person can ›take= (harass) or attempt to ›take= any fish or wildlife.@ S. Rep. No. 93-307, 1973 U.S.C.C.A.N. 2989,

2995 (1973); H.R. Rep. No. 93-412, 11 (1973) (A›Take: is defined broadly.@).

Congress meant each term in the definition of Atake@ Ato serve a particular function in the ESA, consistent with, but distinct from, the functions of the other verbs used to define ›take.:@ *Sweet Home*, 515 U.S. at 702. In defining Aharm,@ the Supreme Court noted:

> In contrast, if the statutory term "harm" encompasses such indirect means of killing and injuring wildlife as habitat modification, the other terms listed in ' 3--"harass," "pursue," "hunt," "shoot," "wound," "kill," "trap," "capture," and "collect"--generally retain independent meanings. Most of those terms refer to deliberate actions more frequently than does "harm," and they therefore do not duplicate the sense of indirect causation that "harm" adds to the statute. In addition, most of the other words in the definition describe either actions from which habitat modification does not usually result (e.g., "pursue," "harass") or effects to which activities that modify habitat do not usually lead (e.g., "trap," "collect"). To the extent the Secretary's definition of "harm" may have applications that overlap with other words in the definition, that overlap reflects the broad purpose of the Act.

Id. at 698 n.11.

The use of the term Aharass@ in this situation does not make the term Aharm@ a nullity. AHarm@ is Aan act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including, breeding, spawning, rearing, migrating, feeding or sheltering.@ 50 C.F.R. ' 222.102. Harassment on the other hand occurs when an act annoys fish to the point where they significantly modify their

behavior. These definitions, while similar, are different. Although in certain circumstances the two definitions will overlap, mutual exclusivity of the terms defining Atake@ is not required. ATo the extent the Secretary's definition of ›harm= may have applications that overlap with other words in the definition, that overlap reflects the broad purpose of the Act.@ *Id.* at 698 n.11. A finding of Aharassment@ in this situation does not nullify Aharm.@ Interior did not err.

b. <u>Relation of RPM to ATake@</u>

Plaintiffs argue that the only incidental take found by NMFS was that related to gravel displacement and that Terms and Conditions 1.a. and 1.b. are not rationally related to reducing the take that would occur as a result. The first RPM in the NMFS incidental take statement requires Interior to A[i]mplement the flow regimes included in the proposed action (as described in TRMFR DEIS, page 2-19, Table 2-5) as soon as possible.@ AR 17492. To implement that RPM, Interior is directed to comply with three terms and conditions, the first two of which are in dispute here:

> 1.a. Following completion of the Record of Decision addressing the proposed action, Reclamation shall immediately implement the components of the proposed flow schedule (as described in the TRMFR DEIS, page 2-19, Table 2-5) equal to or less than 6,000 CFS, and implement the entire flow schedule as soon as possible (i.e., after infrastructure modifications are completed);
> 1.b. As necessary infrastructure modifications are made, Reclamation shall incrementally implement higher Trinity River flows (consistent with the proposed flow regime), e.g.,

> potentially release up to 8,500 CFS after some bridge modifications, but prior to completion of the ABucktail@ and APoker Bar@ bridge replacements.

AR 17493.

An incidental take statement may specify RPMs that the agency Aconsiders necessary or appropriate to minimize@ the incidental taking of the species. 50 C.F.R. ' 402.14(i)(1)(ii). Term and conditions that must be complied with in order to implement the RPMs must also be set out. 50 C.F.R. ' 402.14(i)(1)(iv). RPMs are only required if they are necessary or appropriate to minimize incidental take.

Here the incidental take will result from Atemporarily degraded [conditions] due to localized turbidity and potential fine sedimentation of channel substrate during construction activities.@ AR 17491. Plaintiffs argue that the first two terms and conditions do not address this harm. In doing so they note that the biological assessment performed by Reclamation and USFWS found that increased flows would actually increase Aturbidity.@ The biological assessment found Ahigher dam releases will produce a marked increase in sediment transport downstream resulting in increased turbidity levels due to scour.@ AR 18354. However, it also found that the Abench flows@ in the Preferred Alternative would Apromote[] transport of fine sediment.@ AR 18352. Although the prescribed terms and conditions may make one of the problems associated with channel rehabilitation worse, i.e., turbidity, they may improve sedimentation,

the other problem identified in the incidental take statement. On matters of scientific expertise courts should defer to the agency=s expertise. *Marsh*, 490 U.S. at 377 (ABecause analysis of the relevant documents >requires a high level of technical expertise,= we must defer to >the informed discretion of the responsible federal agencies.=@) (quoting *Kleppe v. Sierra Club*, 427 U.S. 390, 412 (1976)). NMFS=s opinion is entitled to deference as to take resulting from gravel displacement.

c. <u>Requiring Flow Increases as an RPM</u>

Plaintiffs object that the NMFS exceeded its authority by requiring, as an RPM, that the Preferred Alternatives= flows be implemented. The purpose of consulting with the NMFS was to comply with Section 7 of the ESA which requires agencies to, Ain consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined . . . to be critical, unless such agency has been granted an exemption. . . .@ 16 U.S.C. ' 1536(a)(2).

The disputed action is the implementation of the Preferred Alternative. Essentially what NMFS did was require that the Preferred Alternative be implemented to minimize the effects of implementing the Preferred

Alternative. This is not a permitted function of a RPM. Incidental take statements are intended to determine if an agency=s actions will jeopardize a listed species. The purpose of an RPM is not to require that an agency take the very action upon which consultation has been initiated. Moreover, the evidence in the record shows the Preferred Alternative was not necessary to mitigate the incidental take, which did not require all the flow volumes or rehabilitation measures it recommends.

By requiring the Preferred Alternative be implemented to minimize the effects of implementing the Preferred Alternative, the NMFS exceeded its statutory authority. That increased flows and channel rehabilitation may mitigate the effects of the preferred alternative is circular. Even if the evidence does not support a finding that recommended habitat improvement will be lethal to juvenile coho salmon, the AR does find evidence of harassment which qualifies as take. Although this is not a ground on which to invalidate the disputed RPM, no deference is owed to NMFS=s RPM that the Preferred Alternative be implemented. Plaintiffs= motion for summary adjudication to set aside the RPM in the NMFS BioOp requiring implementation of the Preferred Alternative=s flows is GRANTED. The federal defendants= motion on the same issue is DENIED.

D. <u>ADMINISTRATIVE PROCEDURES ACT</u>

Section 706 of the Administrative Procedures Act (AAPA@) directs courts to Ahold unlawful and set aside agency action, findings, and conclusions found to be . . . arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.@ 5 U.S.C. ' 706(2); *Ninilchik Traditional Council v. United States*, 227 F.3d 1186, 1193 (9th Cir. 2000). This standard is deferential and is intended to Aensure that the agency considered all of the relevant factors and that its decision contained no ›clear error of judgment.=@ *Pacific Coast Fed=n of Fishermen's Ass'n, Inc. v. Nat=l Marine Fisheries Serv.*, 265 F.3d 1028, 1034 (9th Cir 2001) (quoting *Arizona v. Thomas*, 824 F.2d 745, 748 (9th Cir. 1987)). AAgency action should be overturned only when the agency has ›relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.=@ *Id.* (quoting *Motor Vehicle Mfrs. Ass'n v. State Farm Mutual Auto. Ins. Co.*, 463 U.S. 29, 43 (1983)). Judicial review must be A›searching and careful= but remains narrow as we are not to substitute our judgment for that of the agency's.=@ *Ninilchik*, 227 F.3d at 1194 (quoting *Citizens to Preserve Overton Park, Inc. v. Volpe,* 401 U.S. 402, 416 (1971)). ADeference to an agency's technical expertise and experience is particularly warranted with respect to

questions involving engineering and scientific matters.@ *United States v. Alpine Land & Reservoir Co.*, 887 F.2d 207, 213 (9th Cir. 1989); *Ninilchik*, 227 F.3d at 1194.

Plaintiffs argue that Interior=s decision to adopt the ROD was arbitrary and capricious because it locked in permanent instream flows for the Trinity River although the science upon which those flows were based is uncertain. They advance two primary contentions: 1) that the flows were impermissibly selected from an unnecessarily high range; and, 2) that the science underlying the decision was inherently uncertain because the ROD=s analysis acknowledges that future effects cannot be determined and will require further study and response.

1. <u>Selection of Flow Amounts Within a Range</u>

The flow study ranges, which are variable by five water year types, ranging from critically dry to extremely wet, derived from a scientifically conducted study designed to ascertain what annual instream flow levels were likely to achieve Trinity River fishery restoration. That science could not pinpoint the exact minimum amount necessary, year by year, under constantly changing hydrologic conditions, does not make Interior=s decision per se arbitrary and capricious. Courts are particularly deferential in scientific matters where the agency has expertise. *Ninilchik*, 227 F.3d at 1194. Interior=s approach locks in permanent flows at a minimum annual flow level, without analysis of variable flows that utilize all

available restorative means and without considering secondary CVP interests. The statute requires a permanent Trinity river restoration to approximate pre-TRD conditions. This is not a subject suited for second-guessing. However, Interior=s choice of flow levels did not include a level of analysis that considered non-flow measures or secondary statutory objectives.

2. <u>Uncertainty of the Underlying Science</u>

Plaintiffs argue that the Secretary=s decision was arbitrary and capricious because it locked in permanent fixed amounts of water that are to be released in each water year type, even though the science that purports to measure the necessity of those amounts was not certain. Plaintiffs contend Appendices N and O to the TRFEFR show that the ROD is a Amajor experiment in fluvial geomorphology.@ Doc. 233 at 39:2 (SMUD Motion).

Appendix N describes the Adaptive Environmental Assessment and Management (AAEAM@) program. It recognizes that Aalluvial river systems are complex and dynamic. There are not many unambiguous clear-cut answers to complex hydraulic, channel-structure, and water quality changes . . .@ and that Athe information we base our decisions on is almost always incomplete.@ TRFEFR at N-2. Appendix O discusses the hypotheses used, potential competing hypotheses, management objectives, what is known specifically about the Trinity River, and the major unknown or unquantified issues that needed to be

addressed. *Id.* at O-2. An agency decision is not arbitrary or capricious because the agency recognizes the limitations of the information upon which it bases a decision. The fact that Interior has acknowledged it will learn new facts in the future, that river flow management is dynamic, and climatic conditions, upon which CVP water supply depend, uncertain, are indicative of a reflective decisionmaking process, not arbitrariness.

The requirements of the 1984 Act and the CVPIA do not change this. They mandate restoration of the Trinity River to approximate pre-Trinity River Division fish and wildlife levels. The TRFES addresses a portion of the 1984 Act=s broader objectives along with the specific objectives of the CVPIA. CVPIA section 3406(b)(23) directs Interior to complete the TRFES by 1996 Ain a manner which insures the development of recommendations, <u>based on the best available scientific data</u>, regarding <u>permanent instream fishery flow requirements</u> and the Trinity River Division operating criteria and procedures for the restoration and maintenance of the Trinity River fishery.@ (emphasis added). The CVPIA requires that the Abest available scientific data@ be used, not that Interior establish with scientific certainty the exact minimum amount of water permanently needed each year for enhanced instream fishery flows that will restore Trinity River Basin to pre-TRD conditions. The TRFEFR acknowledges that the best available scientific data is not exact. This does not make Interior=s decision arbitrary and

capricious. To the contrary, the certainty Plaintiffs= seek could prevent the mandated statutory goal of flow restoration from ever being implemented.

Plaintiffs next argue that although it may be possible that a flow recommendation can be implemented Awithout precisely knowing what flows will, in fact, achieve what degree of morphological change . . . . the decision to cast such numbers in stone despite the high degree of uncertainty surrounding them and the explicit need for an extensive and detailed adaptive management plan to cover a huge array of contingent unknowns is arbitrary and capricious.@ Doc. 233 at 39:12-16. Instead, plaintiffs propose that the flows proceed Aon a yearly basis to posit necessary flows, test these in accordance with the adaptive management plan and make necessary yearly adjustments.@ Doc. 286 at 13:8-10. They argue that Section (b)(23) does not require the Secretary to actually implement the permanent instream flows.

Section (b)(23) has two subsections. The first mandates that the TRFES be <u>completed</u> and that it make recommendations regarding <u>permanent</u> instream flows. The second mandates that the recommendations be forwarded to Congress no later than December 31, 1996 and that if the Secretary and the Hoopa Valley Tribe concur, that those recommendations be implemented. The term Apermanent@ in the first section combined with the mandate that the recommendations actually be implemented upon the occurrence of finite events, forecloses plaintiffs=

interpretation. Plaintiffs proposal that the instream flows for the Trinity River continue to be studied on a yearly basis and be changed, annually, based upon new information in perpetuity derogates the statute=s use of the term Apermanent.@ APermanent@ is defined as Aexisting perpetually; everlasting, especially without significant change@ and Aintended to exist or function for a long, indefinite period without regard to unforeseeable conditions.@ Random House Webster=s, Unabridged Dictionary 1442 (1998). That the term Apermanent@ encompasses a variable flow regime, based on annual hydrological conditions, as pertains to Interior=s actual management of annual CVP water allocations, is not necessarily inconsistent with the definition of Apermanent.@

The law mandates that the Trinity River and fishery must now be restored with CVP water flows. Congress has required that Trinity River water be the source of the restoration. It has not provided a replacement source of that water for the CVP. That such restoration will likely create CVP water shortages that will deprive other CVP users has not been addressed by Congress, except for general reference in the CVPIA to balance needs of other CVP water users. '3402(f). Ultimately, Interior annually uses complex quantitative water management methods to accommodate the large number of variables it faces in annually allocating CVP water among environmental, municipal, industrial, agricultural, and power generating uses. The flow levels selected are not arbitrary or

capricious as a matter of law; however, they were not selected from a reasonable range of alternatives.

Plaintiff=s motion for summary judgment based on the arbitrariness, capriciousness, or unlawfulness of the recommended flows in the ROD is DENIED. The federal defendants= and the Hoopa Valley Tribe=s motions on the same issue are provisionally GRANTED, subject to an SEIS which takes a hard look at a flow restoration plan which considers non-flow and secondary statutory objectives.

E. <u>REMEDY</u>

Defendants argue that if NEPA violations are found, the court should exercise its judicial and equitable discretion and allow the ROD to be implemented or at least allow the non-flow measures of the ROD to continue as they have under the preliminary injunctions. Plaintiffs argue that the ROD should be set aside in accordance with Section 706 of the APA.

APA Section 706 provides: A[t]he reviewing court shall . . . hold unlawful and set aside agency action, findings, and conclusions found to be . . . arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.@ 5 U.S.C. ' 706. Despite the mandatory language, Ashall,@ courts retain equitable discretion to fashion appropriate remedies when there has been a violation of NEPA. *See Amoco Production Co. v. Village of Gambell, Alaska*, 480 U.S. 531, 541-45 (1987);

***Nat=l Parks & Conservation Ass=n v. Babbitt*, 241 F.3d 722, 737 (9th Cir. 2001).**

To determine whether injunctive relief is appropriate, the traditional balance of harms analysis is applied. *Nat=l Parks & Conservation*, 241 F.3d at 737. The court should consider whether there will be irreparable injury and whether there are other adequate legal remedies. *Weinberger v. Romero-Barcelo*, 456 U.S. 305, 312 (1982). However, [e]nvironmental injury, by its nature, can seldom be adequately remedied by money damages and is often permanent or at least of long duration, *i.e.*, irreparable.@ *Amoco*, 480 U.S. at 545. AWhen the ›proposed project may significantly degrade some human environmental factor,= injunctive relief is appropriate.@ *Nat=l Parks & Conservation*, 241 F.3d at 737 (quoting *Alaska Wilderness Recreation & Tourism Assoc. v. Morrison*, 67 F.3d 723, 732 (9th Cir. 1995).

A violation of NEPA is an environmental harm. *Sierra Club v. Marsh*, 872 F.2d 497, 500-04 (1st Cir. 1989) (ACongress, in enacting NEPA, explicitly took note of one way in which governments can harm the environment (through inadequately informed decisionmaking); . . . courts should take account of this harm and its potentially ›irreparable= nature.@). A[T]he harm at stake in a NEPA violation *is* a harm to the *environment*, not merely to a legalistic ›procedure,= nor, for that matter, merely to psychological well-being. . . . [T]he risk implied by a violation of NEPA is that real environmental harm will occur through

inadequate foresight and deliberation.@ *Id.* at 504 (emphasis in original).

The current dispute is unusual in that environmental concerns are on both sides of the balance of hardships. On one side, the federal defendants, in seeking to restore the Trinity River fishery, failed: 1) to adequately analyze the impact of likely major CVP reoperation associated with the X2 standard on the Sacramento River and Delta ESA-listed species; 2) to consider the impacts of Trinity Dam outlet bypass on Northern California hydroelectric power supply and reliability; 3) to adequately analyze the Preferred Alternative=s ability to impact on Northern California hydroelectric power supply; and, 4) to fully consider an Integrated Management Alternative. NEPA=s purpose is to ensure decisions made by federal agencies include such analysis to reduce the likelihood a bad decision is made. On the other hand, restoration of the Trinity River fishery, and the ESA-listed species that inhabit it, are to remedy real and continuing environmental harm, and are unlawfully long overdue. The chronic delays by Interior in discharging its express statutory duties in managing the CVP, and its riverine components, have unjustifiably thwarted these Congressional objectives. *See generally, Firebaugh Canal Co. v. United States*, 201 F.3d 568, 577-78 (9th Cir. 2000).

Contrary to Plaintiffs= assertion of irrelevancy, the government is also in breach of its general and specific

(' 3406(b)(23)) independent federal trust obligation to the Hoopa and Yurok Tribes. Congress mandated that restoration of the Trinity River begin no later than 1996, in part to discharge the federal government=s trust responsibility to the Tribes, a deadline six years past. In addition to harm caused by delay, A[T]he harm at stake is a harm to the *environment*, but the harm consists of the added *risk* to the environment that takes place when governmental decisionmakers make up their minds without having before them an analysis (with proper public comment) of the likely effects of their decision upon the environment.@ *Sierra Club*, 872 F.2d at 500 (emphasis in original). The balance of equities favors continuing to restore the Trinity River fishery.

Congress here provided a failsafe mechanism of a minimum flow regime. The undisputed evidence establishes that the 340,000 AF annual flows are not sufficient in all types of water years to restore the Trinity River fishery. To further delay implementation of (b)(23) for another indefinite period of time while Interior Atries to get it right@ is an inadequate remedy which will result in irreparable injury.

Considering the totality of all factors, the balance of hardships weighs heavily against enjoining the non-flow measures in the ROD and the implementation of the ROD=s critically dry and dry year flows, in view of expert testimony that less than 368,000 AF of annual flows actually jeopardizes the Trinity River fishery. Despite

all the Plaintiffs= legitimate concerns, Congress has mandated the Trinity River and its fishery must be restored without further delay. This overriding mandate comes from Congress and it is to Congress Plaintiffs must address their concerns about any unfairness in the reallocation of the Trinity River flows to the Trinity River Basin and away from other CVP uses. It is unacceptable that Interior=s failures be the catalyst to impose harm on all the competing interests. Such prioritization of federal water use for the Trinity River is the province of the executive and legislature, not the judiciary.

After full analysis, it is likely that the infirmities in the environmental scoping and review processes can be cured by an SEIS. The Sacramento River and Delta ESA-listed species are not harmed by immediately implementing the ROD=s non-flow measures and permitting use of critically dry and dry year flows provided by the ROD. Any harm to the NEPA decisionmaking process by allowing these measures to go forward is overwhelmingly offset by the benefit to the Trinity River fishery and need to discharge the federal trust obligation owed to the Indian Tribes.

However, the balance of the hardships does favor enjoining the implementation of the ROD=s permanent recommended flows above the 452,600 AF level, pending full compliance with NEPA and the ESA. There are ESA-listed species on both sides of the balance and other impacts on

CVP water users which have not been properly subjected to a Ahard look.@ NEPA=s purpose is to prevent the agency from making a decision that it will later regret. The bureaucratic tendency to chose an option simply because it has already been implemented is a harm to the environment that is real. Congress has set the minimum release of 340,000 AF/year of water as a fail-safe to prevent further degradation of the Trinity River pending Interior=s lawful completion of scientific study of the issues. Congress= finding deserves deference. The court has no inclination to, nor should it, substitute its judgment to decide the permanent increase in the amount of CVP water that should flow into the Trinity River. This would result in judicial micro-management of the Trinity River restoration. The restoration decision was made by Congress, to be implemented by Interior, not the Court.

Congress has expressed its unequivocal concern in the 1984 and 1996 Acts, as implemented by CVPIA ' 3406(b)(23), is about fulfilling the federal government=s trust obligation to the Indian Tribes. The federal defendants= failure to meet the deadlines set out by Congress in the CVPIA defeats this purpose. Continued delay only exacerbates the harm. In completing an SEIS the federal defendants must expedite their review and conclude the process within one hundred twenty (120) days following this decision. The federal defendants have studied the Trinity River restoration issue for over twenty years.

The process must now be immediately completed in compliance with federal law.

IV. CONCLUSION

When the EIS scoping to define the purpose for the TRFES began, the Tribes participated and their lawyer stood by while the County of Trinity persuaded the EIS management team to unfairly and unlawfully narrow the purpose and scope of the EIS. Such action seeking to limit informed decision-making for the sale of expediency, has no place in the NEPA process which invests government lawyers and representatives with the legal responsibility to carry out NEPA=s public objectives to ensure that a hard look is taken at all reasonable alternatives to proposed major federal action, which will have undeniable consequences, to enable the Agency to make an informed decision with informed public participation. Here, an intentional subversion of NEPA=s requirements prevented full and fair consideration of significant impacts which will be caused by CVP reoperations. A reasonable Integrated Management alternative, which would utilize non-flow measures and seek to minimize impacts on all other CVP interests, while achieving the statutory goal of Trinity River fishery and basin restoration, was not fairly considered. Inadequate consideration was given to power supply and reliability impacts in a changing hydropower environment. The public had no participation in any NEPA process leading to the ROD, after the DEIS

public comment period closed. BioOp RPMs for salinity control and temperature regulation that constitute major action were improperly adopted.

Abrogation of the full and free investigation and consideration of all reasonable alternatives has resulted in an administrative record that severely limits the Court=s ability to conduct a fully informed analysis of all the merits of Plaintiffs= NEPA claims. Specifically, that significant CVP re-operation adverse impacts were not considered; an Integrated Management Alternative was not properly considered or fairly analyzed; and that the Preferred Alternative ignores the best available science. Some of the NEPA procedures followed impaired, rather than advanced, public participation and informed decision-making. They also caused substantial post-ROD and extra-record information to be submitted as a direct result of the inappropriately narrow scope of the EIS. The defenders of the EIS and ROD contend plaintiffs did not timely present information, although the narrow definition of the EIS=s purpose was the ultimate excuse for Interior not performing the analysis. They now criticize the Hanson opinions as bad science, yet there was no public discussion or NEPA review of such management measures, because the flow recommendations were made without benefit of Dr. Hanson=s scientific calculations and measures to achieve secondary objectives. The agencies and EIS management team intentionally narrowed the EIS purposes to Aecological@ and Aflow-driven@ objectives which avoided

addressing, and foreclosed public participation, on any alternative that sought to utilize non-flow measures to minimize species and other CVP-wide adverse impacts without compromising the Trinity River fishery and basin restoration.

Although Interior cannot be forced to adopt an Integrated Management alternative, such a reasonable alternative was entitled to a hard look on its merits. There is no explanation for the failures of the NEPA process that occurred in this case, except that public participation had been concluded when the hard questions were raised and dismissed by Interior as insignificant. The NEPA process must be lawfully completed by a supplemental EIS.

ORDERS

The Hoopa Valley Tribe=s motion for summary judgment on the issue of NEPA=s applicability to this case as irreconcilably inconsistent with ' 3406(b)(13) and related statutes is DENIED.

Plaintiffs= motion for summary adjudication on the issue of the federal defendants= failure to comply with NEPA based on inadequate assessment of impacts of the Preferred Alternative on Sacramento River and Delta ESA-listed species which will be caused by CVP reoperation is GRANTED.

Plaintiffs= motion for summary judgment on the issue of the federal defendants= failure to comply with NEPA based on a lack of analysis of the Lewiston Dam alternate

bypass RPM is GRANTED. Opposing motions on the same issue are DENIED.

Plaintiffs' motion for summary adjudication on the issue of the federal defendants' failure to comply with NEPA in their analysis of the X2 RPM is GRANTED. The federal defendants' motion on the same issue is DENIED.

Plaintiffs' motion for summary judgment on the issue of federal defendants' failure to comply with NEPA based on analysis of the Preferred Alternative's effect on power system reliability is GRANTED. The federal defendants' motion on the same issue is DENIED.

Plaintiffs' motion for summary judgment on the issue of federal defendants' failure to comply with NEPA based on the timing of the EIS is GRANTED IN PART.

Plaintiffs' motion for summary judgment on the issue of the federal defendants' failure to comply with NEPA based on the range of alternatives considered is GRANTED.

Plaintiffs' motion to set aside the X2 RPM in the USFWS BioOp as major action is GRANTED. The federal defendants' motion on the same issue is DENIED. Plaintiffs' motion to set aside the the NMFS BioOp RPM requiring immediate implementation of the Preferred Alternative is GRANTED. Federal defendants' motion on the same issue is DENIED. Plaintiffs' motion to set aside the NMFS BioOp because it failed to identify lethal harm to species is DENIED. Federal defendants' motion on the same issue is GRANTED.

Plaintiffs' motion to set aside the ROD because it is arbitrary and capricious is DENIED.

Having balanced the hardships, and to avoid irreparable injury, implementation of ROD flows in years except dry or critically dry years, not to exceed 452,600 AF, is ENJOINED until the federal defendants complete an SEIS in compliance with NEPA and this decision.

All non-flow measures prescribed by the ROD shall proceed and plaintiffs' request for an injunction against such ROD measures is DENIED.

The federal government has a trust obligation to the Hoopa and Yurok Indian Tribes and Congress expressed its intent this obligation be finally fulfilled more than four years ago. The federal defendants must proceed immediately to complete the NEPA process. The court retains jurisdiction over this controversy to enforce the orders prescribed. The federal defendants shall complete the SEIS on the issued designated within one hundred twenty (120) days following date of service of this decision.

SO ORDERED.

DATED: December 9, 2002.

_____

Oliver W. Wanger
UNITED STATES DISTRICT JUDGE

FOR PUBLICATION

UNITED STATES COURT OF APPEALS FOR THE NINTH CIRCUIT

WESTLANDS WATER DISTRICT; SAN LUIS & DELTA-MENDOTA WATER AUTHORITY, *Plaintiffs-Appellees,* v. UNITED STATES DEPARTMENT OF THE INTERIOR; GALE A. NORTON, Secretary U.S. Department of the Interior; UNITED STATES BUREAU OF RECLAMATION; ELUID MARTINEZ, Commissioner of the U.S. Bureau of Reclamation; LESTER A. SNOW, Regional Director of the U.S. Department of the Interior, Bureau of Reclamation, Mid-Pacific Region; UNITED STATES DEPARTMENT OF FISH AND WILDLIFE; JAMIE RAPPAPORT CLARK, Director of the U.S. Fish and Wildlife Service; MICHAEL SPEAR, Operations Manager of the California/Nevada Operations Office, U.S. Fish and Wildlife Service, Pacific Region; UNITED STATES DEPARTMENT OF COMMERCE; DONALD EVANS, Secretary, United States Department of Commerce; NATIONAL MARINE FISHERIES SERVICE; PENELOPE DALTON,	No. 03-15194 D.C. No. CV-00-07124-OWW

Assistant Administrator for Fisheries at Commerce; REBECCA LENT, Dr., Regional Administrator of the U.S. Marine Fisheries Service,

Defendants,

YUROK TRIBE,

Defendant-Intervenor,

and

HOOPA VALLEY TRIBE,

Defendant-Intervenor-Appellant,

v.

SACRAMENTO MUNICIPAL UTILITY DISTRICT; NORTHERN CALIFORNIA POWER ASSOCIATION,

Plaintiffs-Intervenors-Appellees.

WESTLANDS WATER DISTRICT; SAN LUIS & DELTA-MENDOTA WATER AUTHORITY,

Plaintiffs-Appellees,

v.

UNITED STATES DEPARTMENT OF THE INTERIOR; GALE A. NORTON, Secretary U.S. Department of the Interior; UNITED STATES BUREAU OF RECLAMATION; ELUID MARTINEZ, Commissioner of the U.S. Bureau of Reclamation; LESTER A. SNOW, Regional Director of the U.S. Department of the Interior, Bureau of Reclamation, Mid-Pacific Region; UNITED STATES DEPARTMENT OF FISH AND WILDLIFE; JAMIE RAPPAPORT CLARK, Director of the U.S. Fish and Wildlife Service; MICHAEL SPEAR, Operations Manager of the California/Nevada Operations Office, U.S. Fish and Wildlife Service, Pacific Region; UNITED STATES DEPARTMENT OF COMMERCE; DONALD EVANS, Secretary, United States Department of Commerce; NATIONAL MARINE FISHERIES SERVICE; PENELOPE DALTON,

No. 03-15289

D.C. No.
CV-00-07124-OWW

Assistant Administrator for Fisheries at Commerce; REBECCA LENT, Dr., Regional Administrator of the U.S. Marine Fisheries Service,

Defendants-Appellants,

and

YUROK TRIBE; HOOPA VALLEY TRIBE,

Defendants-Intervenors,

v.

SACRAMENTO MUNICIPAL UTILITY DISTRICT; NORTHERN CALIFORNIA POWER ASSOCIATION,

Plaintiffs-Intervenors-Appellees.

WESTLANDS WATER DISTRICT; SAN LUIS & DELTA-MENDOTA WATER AUTHORITY,

Plaintiffs-Appellants,

v.

UNITED STATES DEPARTMENT OF THE INTERIOR; GALE A. NORTON, Secretary U.S. Department of the Interior; UNITED STATES BUREAU OF RECLAMATION; ELUID MARTINEZ, Commissioner of the U.S. Bureau of Reclamation; LESTER A. SNOW, Regional Director of the U.S. Department of the Interior, Bureau of Reclamation, Mid-Pacific Region; UNITED STATES DEPARTMENT OF FISH AND WILDLIFE; JAMIE RAPPAPORT CLARK, Director of the U.S. Fish and Wildlife Service; MICHAEL SPEAR, Operations Manager of the California/Nevada Operations Office, U.S. Fish and Wildlife Service, Pacific Region; UNITED STATES DEPARTMENT OF COMMERCE; DONALD EVANS, Secretary, United States Department of Commerce; NATIONAL MARINE FISHERIES SERVICE; PENELOPE DALTON,

No. 03-15291

D.C. No.
CV-00-07124-OWW

Assistant Administrator for Fisheries at Commerce; REBECCA LENT, Dr., Regional Administrator of the U.S. Marine Fisheries Service,

Defendants-Appellees,

YUROK TRIBE; HOOPA VALLEY TRIBE,

Defendants-Intervenors-Appellees,

v.

SACRAMENTO MUNICIPAL UTILITY DISTRICT; NORTHERN CALIFORNIA POWER ASSOCIATION,

Plaintiffs-Intervenors.

WESTLANDS WATER DISTRICT; SAN LUIS & DELTA-MENDOTA WATER AUTHORITY,

Plaintiffs-Appellees,

v.

UNITED STATES DEPARTMENT OF THE INTERIOR; GALE A. NORTON, Secretary U.S. Department of the Interior; UNITED STATES BUREAU OF RECLAMATION; ELUID MARTINEZ, Commissioner of the U.S. Bureau of Reclamation; LESTER A. SNOW, Regional Director of the U.S. Department of the Interior, Bureau of Reclamation, Mid-Pacific Region; UNITED STATES DEPARTMENT OF FISH AND WILDLIFE; JAMIE RAPPAPORT CLARK, Director of the U.S. Fish and Wildlife Service; MICHAEL SPEAR, Operations Manager of the California/Nevada Operations Office, U.S. Fish and Wildlife Service, Pacific Region; UNITED STATES DEPARTMENT OF COMMERCE; DONALD EVANS, Secretary, United States Department of Commerce; NATIONAL MARINE FISHERIES SERVICE; PENELOPE DALTON,

No. 03-15737

D.C. No.
CV-00-07124-OWW

OPINION

Assistant Administrator for Fisheries at Commerce; REBECCA LENT, Dr., Regional Administrator of the U.S. Marine Fisheries Service,
Defendants-Appellees,

YUROK TRIBE,
Defendant-Intervenor-Appellant,

and

HOOPA VALLEY TRIBE,
Defendant-Intervenor,

v.

SACRAMENTO MUNICIPAL UTILITY DISTRICT; NORTHERN CALIFORNIA POWER ASSOCIATION,
Plaintiffs-Intervenors-Appellees.

Appeal from the United States District Court
for the Eastern District of California
Oliver W. Wanger, District Judge, Presiding

Argued and Submitted
February 9, 2004—San Francisco, California

Filed July 13, 2004

Before: Alfred T. Goodwin, A. Wallace Tashima, and Richard R. Clifton, Circuit Judges.

Opinion by Judge Goodwin

COUNSEL

Katherine Barton, Department of Justice, for the federal defendants-appellants/appellees.

Thomas Schlosser, Morisset, Schlosser, Jozwiak & McGaw, Seattle, Washington, for defendant-intervenors-appellants/appellees Hoopa Valley Tribe.

Scott W. Williams, Alexander, Berkey, Williams & Weathers, Berkeley, California, for defendant-intervenor-appellant/cross-appellee Yurok Tribe.

Eric N. Robinson, Daniel J. O'Hanlon, Kronick, Moskovitz, Tiedemann & Girard, Sacramento, for plaintiffs-appellees/cross-appellants water agencies.

Kelly L. Drumm, Brian S. Haughton, Barg Coffin Lewis & Trapp, San Francisco, California, for plaintiff-intervenor/appellee Northern California Power Agency.

Sally Magnani Knox, Deputy Attorney General, Oakland, California, for amicus curiae People of the State of California.

OPINION

GOODWIN, Circuit Judge:

For forty years, most of the Trinity River's water has been diverted to the Sacramento River basin. Congress mandated that some of that water be returned to the Trinity River in order to revive its chinook salmon, coho salmon, and steelhead trout populations, which have been decimated by the decades of reduced water flows. California municipal water agencies and power districts ("Plaintiffs") challenged the plan to redirect Trinity River water, arguing that the procedural requirements of the National Environmental Policy Act, 42 U.S.C. § 4321 *et seq.* (1970) ("NEPA"), and the Endangered Species Act, 16 U.S.C. § 1531 *et seq.* (1973) ("ESA"), were not met.

Ruling on cross-motions for summary judgment, the district court enjoined parts of the restoration program devised by federal agencies and the Hoopa Valley Tribe ("Hoopa Valley"), mandated that non-flow restoration measures be implemented, and ordered the federal agencies to supplement their Environmental Impact Statement ("EIS") to cover issues neglected or inadequately addressed in previous studies.

We affirm in part and reverse in part. We reverse the conclusion that the scope of the EIS and the range of alternatives considered therein was unreasonable. We reverse the district court's injunctive orders to supplement the EIS to address the issues raised on appeal. We affirm the district court's ruling that two of the mitigation measures insisted upon by the Fish and Wildlife Service ("FWS") and the National Marine Fisheries Service ("NMFS") in their biological opinions exceeded

the statutory authority for such opinions. Lastly, we reject the three claims raised by Plaintiffs on cross-appeal and affirm the remainder of the judgment.

BACKGROUND

The Trinity River originates in northwest California. It runs southward to Trinity Dam, forming Trinity Reservoir. South of the dam, it flows 112 miles westward and its waters join those of the Klamath River at a confluence 44 miles upstream of the Pacific Ocean. The Trinity River was long known for its abundant fishery[1] resources, which include anadromous[2] species of chinook salmon, coho salmon, and steelhead trout. Plentiful runs of these fish sustained Hoopa Valley and the Yurok Tribe ("Yurok"; collectively "the Tribes") from before non-Indian settlement, as well as numerous canneries in the early twentieth century.

The Trinity River Division ("TRD") is a part of the Central Valley Project ("CVP"), an extensive system of dams, tunnels, canals, and reservoirs that stores and regulates water for California's Central Valley. The CVP supplies two hundred water districts, providing water for about thirty million people, irrigating California's most productive agricultural region and generating electricity at nine powerplants. The TRD impounds the Trinity River initially at Trinity Dam, behind which water accumulates to form the approximately 2,448,000 acre-foot ("AF")[3] Trinity Reservoir. A second dam

[1]"The term 'fishery' refers to: '(A) one or more stocks of fish which can be treated as a unit for purposes of conservation and management and which are identified on the basis of geographical, scientific, technical, recreational and economic characteristics; and (B) any fishing for such stocks.' " *Greenpeace Action v. Franklin*, 14 F.3d 1324, 1327 (9th Cir. 1992) (quoting 16 U.S.C. § 1802(8) (1988)).

[2]Anadromous: "Migrating up rivers from the sea to breed in fresh water, as salmon do." *Webster's II New Riverside Univ. Dictionary* 104 (1994).

[3]One acre-foot of water is equal to the amount of water it would take to fill an acre to a foot-deep level—approximately 326,000 gallons. An average household uses between one-half and one acre-foot of water in a year. Trinity River Flow Evaluation Study ("TRFES") at *xxix*.

at Lewiston regulates water releases to the original Trinity River. Water can also be diverted via the Clear Creek Tunnel to the Sacramento River Basin. The hydroelectric generators at Trinity Dam, Clear Creek Dam, and Clear Creek Tunnel supply power to CVP contractors. Just south of Lewiston Dam, the Trinity River Fish Hatchery operates to mitigate the fishery damage caused by the TRD.

In 1955, Congress authorized the construction of the TRD as part of the CVP. Pub. L. No. 69-386 (1955). Studies of the Trinity River led Congress to the conclusion that "surplus" water could be diverted to the Central Valley without harming the fishery of the Trinity and Klamath Rivers. Record of Decision ("ROD") at 4 (citing H.R. Rep. No. 602, 84th Cong., 1st Sess. 4-5 (1955); S. Rep. No. 1154, 84 Cong., 1st Sess. 5 (1955)). Section 2 of the 1955 law ordered the Secretary of the Interior ("Secretary") to take necessary measures to protect the fishery and wildlife resources of the Trinity River Basin. *Westlands Water Dist. v. Dep't of the Interior*, 275 F. Supp. 2d 1157, 1169 (E.D. Cal. 2002) [hereinafter Order].[4]

Construction of the TRD was completed in 1963 and full operation began in 1964. From 1964 to 1997, an average of 988,000 AF/year, about 68% of the river's flow, was diverted to the Central Valley. During the first years of operation, however, diversions were much higher—over the first ten years an average of 88% of the river's flow, or about 1,277,400 AF/year was diverted. By the early 1970s, the salmonid populations had noticeably declined, and several government bodies were formed specifically to study and address the fishery damage caused by the TRD. *See* TRFES at 8.

[4]This appeal arises from the Memorandum Decision and Order Re: Cross-Motions for Summary Judgment, issued by the district court on December 10, 2002. The district court filed a second unpublished Order disposing of post-judgment motions on April 7, 2003, which will be referred to herein as "Order II."

The anadromous salmon and steelhead require a varied river environment to support survival and growth in different life stages. Salmon and steelhead lay their eggs in the gravel riverbeds of freshwater rivers and tributaries. The eggs incubate in the protected spaces between the riverbed rocks, and newly-hatched fish spend weeks in the gravel interstices before emerging as small, fully-formed fish. Young fish require shallow, low-velocity water found near gently sloping banks or in backwater areas. Later in their juvenile growth, the fish come to prefer the higher velocity water found in the runs and the deeper, cooler pools forming the main parts of a river. Depending on the species, juvenile fish may spend months or even years in freshwater before migrating to the ocean. Fish wintering in the rivers require habitats with unsedimented gravel and low water velocities. Changes in water temperatures, lengths of daylight periods, and flow signal the appropriate times for fish to begin smoltification, the physiological process necessary for surviving in saltwater. Full water flows facilitate downmigration to the ocean. The fish grow to full adulthood in the ocean before making their way upriver, sometimes traveling a hundred miles or more to spawn.

Before the TRD was completed, large water flows from the yearly spring meltoff naturally removed riverside vegetation and maintained a dynamic river channel: a meandering, shallow channel free to move and change its course within a generally unvegetated floodplain. The straight parts of the river flowed quickly and kept sediment from settling in the interstices of riverbed gravel; riverbends slowed water velocities and created protected pools of still, cool waters. In its natural state, the Trinity River provided the varied water temperatures and velocities, the unclogged riverbed gravel, the seasonal flows to assist upriver and downriver migration, and the protection from predators that the salmon and other anadromous fish require.

The TRD radically altered the Trinity River environment, destroying or degrading river habitats that supported once-

abundant fish populations. The TRD dams blocked 109 miles of upstream habitat previously used by salmon and steelhead for spawning and rearing. Low water flows imposed what was essentially extreme drought conditions for more than thirty years. Without the large spring meltoff flows, heavy vegetation grew on the banks, narrowing the river channels, making the banks steeper, and preventing the river channel from changing shape. Water velocities under these conditions became faster and more uniform, with fewer shallow areas adjoining the banks and pools. Decreased flows also meant that fine sediment trapped in the spaces between the riverbed rocks was not flushed away, spoiling spawning grounds by decreasing oxygen flows to eggs and trapping young fish. Releases from the dams affected water temperature—water was too hot during the winter months, owing to the lack of flow, and too cold during the summer because water is released from lower, cooler parts of Trinity Reservoir. Unseasonable temperatures signaled the fish to migrate to the ocean at the wrong times, or failed to trigger smoltification.

A 1978 FWS study determined that an annual flow regime of 340,000 AF/year would be necessary to rehabilitate and support a healthy habitat for natural fishery production in the Trinity River. TRFES at 9. In 1980, the FWS estimated that the Trinity River fish population suffered a reduction of 60% to 80%, and fishery habitat loss of 80% to 90%. ROD at 5. The Secretary subsequently directed FWS to complete a 12-year flow evaluation study assessing habitat restoration efforts and making recommendations for further measures. *Id.*

In response to the steadily deteriorating condition of the Trinity River, Congress passed a series of laws to speed its restoration.[5] The 1984 Trinity River Basin Fish and Wildlife Management Act (the "1984 Act") directed the Secretary to

[5]The first such statute was the Trinity River Stream Rectification Act of 1980, Pub. L. No. 96-335, which sought to limit detrimental sand deposits from Grass Valley Creek. It is not at issue in this case.

"implement a basin-wide fish and wildlife management program in order to achieve the long-term goal of restoring fish and wildlife populations in the Trinity River Basin to a level approximating that which existed immediately before the start of the construction of the Trinity River division."[6] Pub. L. No. 98-541, 98 Stat. 2721 (1984).

The 1992 Central Valley Project Improvement Act ("CVPIA"), Pub. L. 102-575, 106 Stat. 4714 (1992), confirmed Congress' commitment to restoring and protecting the fish and wildlife habitats of the Central Valley and Trinity River Basins. The CVPIA ordered that the TRFES, initiated by the Secretary in 1981, be completed by September 30, 1996. CVPIA § 3406(b)(23)(A). Implementation of the TRFES's flow recommendations would begin once the Secretary and Hoopa Valley concurred in the recommendations. *Id.* at § 3406(b)(23)(B). Congress set a minimum flow release from Trinity Dam at 340,000 AF/year pending completion and implementation of the TRFES flow recommendations. *Id.* at § 3406(b)(23).

The FWS and Hoopa Valley collaborated in writing the TRFES. The completed study, released in June 1999, recommended a comprehensive strategy to rehabilitate the Trinity River and recreate an environment resembling the natural pre-TRD habitat. This required increased flows of varying volumes to maintain a river environment that would support different salmon and steelhead trout life stages and encourage natural fish production—one with the proper riverbed shape, vegetation growth, water velocities, water temperatures, and gravel unclogged by sand and fine sediment. The TRFES rec-

[6]Congress amended the 1984 Act in 1996, charging that fishery restoration should include not only "returning adult anadromous fish spawners," but also "the ability of dependent tribal, commercial, and sport fisheries to participate fully, through enhanced in-river and ocean harvest opportunities, in the benefits of restoration." Trinity River Fish and Wildlife Management Reauthorization Act of 1995 § 2, Pub. L. No. 104-143, 110 Stat. 1338 (1996).

ommended a permanent increase of flows depending on the water-year class, ranging from 368,900 AF/year in "Critically Dry" years to 815,200 AF/year in "Extremely Wet" years.[7] TRFES at 229-30. Under the TRFES flow regime, water would be released at different rates during the course of the year to replicate the large water flows caused by the spring melt and naturally low flows during the summer and winter months. TRFES at *xxx-xxxi*. The TRFES also recommended the use of non-flow measures, such as the mechanical removal of vegetation on the banks, the reshaping of the riverbed and banks, and the placement of appropriately sized gravel, to promote and sustain natural salmonid production. *Id.* at 230.

NEPA requires that federal agencies analyze the environmental effects of proposed actions, publish the results of their study in the form of a draft EIS, and receive and respond to public comments. Compliance with California environmental laws also requires an environmental review; the Department of the Interior ("Interior") initiated an Environmental Impact Report ("EIR") concurrently with the EIS to comply with the California Environmental Quality Act, Cal. Pub. Res. Code § 21000 *et seq.*

In October 1999, a team of federal, state, and tribal officials released a draft EIS/EIR ("DEIS").[8] The DEIS considered alternatives for restoring the Trinity River fishery and evaluated their environmental consequences, ultimately recommending that the TRFES's plan be carried out. In October 2000, the NMFS and FWS issued formal Biological Opinions ("BioOps") recognizing the potential effects on area fisheries and discussing reasonable and prudent measures ("RPMs") to

[7]Five water year classes are used to describe the availability of water from year to year: Critically Dry, Dry, Normal, Wet, and Extremely Wet.

[8]Interior appointed the FWS to serve as lead agency for the DEIS/EIR. Trinity County, the Bureau of Reclamation, and Hoopa Valley served as co-leads. DEIS 1-25. This group of agencies will sometimes be referred to as "the EIS team."

minimize or avoid harmful effects. The agencies issued a final EIS/EIR ("FEIS") in November 2000.

Hoopa Valley concurred in the TRFES recommendations and the Department of the Interior issued a Record of Decision ("ROD") on December 19, 2000, ordering the implementation of the alternative recommended in the FEIS.

PROCEDURAL HISTORY

This suit commenced in December 2000, when Westlands Water District ("Westlands") filed suit against Interior, other federal agencies, and various federal officials alleging violations of the ESA and NEPA. After Bruce Babbitt, Secretary of the Interior, and Hoopa Valley signed the ROD, Westlands, this time joined by the San Luis and Delta-Mendota Water Authority and the San Benito County Water District (collectively, the "water agencies"), filed an amended complaint. Yurok intervened as a defendant, and the Northern California Power Agency ("NCPA") and the Sacramento Municipal Utility District ("SMUD") intervened as plaintiffs.

In March 2001, the district court issued a preliminary injunction limiting flow releases to 368,600 AF/year but otherwise allowing for the implementation of the ROD's restoration plan. In March 2002, the district court granted the Tribes' motion to modify the preliminary injunction to allow for increased releases, authorizing the release of 468,600 AF for the 2002 water year. The court also vacated the stay and moved the case forward for disposition on the merits.

Subsequently, all parties filed cross-motions for summary judgment. The district court's Order held that NEPA applied to the implementation of the TRFES flow recommendations, and that the EIS team improperly narrowed the Statement of Purpose and Need and failed to consider a reasonable range of alternatives in its study. The district court ordered Interior and Hoopa Valley to submit a supplemental EIS ("SEIS") to

address further alternatives and to discuss certain mitigation measures suggested in the NMFS and FWS BioOps. Additionally, the district court set aside one provision in each of the BioOps. All non-flow measures of the ROD were ordered implemented. Order, 275 F. Supp. 2d at 1235-36. This appeal followed.

On April 7, 2003, the district court filed a second Memorandum Decision and Order, granting the government's motion to extend the deadline for completing the SEIS to July 9, 2004. *See generally* Order II. The court also granted Hoopa Valley's motion to modify the injunction to allow for additional releases of up to 50,000 AF for the 2003 water year. Order II at 73. In April of this year, this court granted Hoopa Valley's motion to stay the injunction, permitting the release of 647,000 AF for the 2004 year, the flow level appropriate for a Normal water year.

ANALYSIS

I. Standards of Review

We review de novo a district court's summary judgment ruling regarding an EIS's compliance with NEPA and the ESA. *Okanogan Highlands Alliance v. Williams*, 236 F.3d 468, 472 (9th Cir. 2000). De novo review "means we view the case from the same position as the district court." *Sierra Club v. Babbitt*, 63 F.3d 1502, 1507 (9th Cir. 1995) (citing *Nevada Land Action Ass'n v. United States Forest Serv.*, 8 F.3d 713, 716 (9th Cir. 1993)). NEPA and ESA compliance is reviewed under the Administrative Procedure Act, 5 U.S.C. § 706 *et seq*. *Turtle Island Restoration Network v. Nat'l Marine Fisheries Serv.*, 340 F.3d 969, 973 (9th Cir. 2003); *Morongo Band of Mission Indians v. Fed. Aviation Admin.*, 161 F.3d 569, 573 (9th Cir. 1998). An agency decision may be set aside if it is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U.S.C. § 706(a)(2); *Turtle Island*, 340 F.3d at 973.

NEPA "does not mandate particular results, but simply describes the necessary process that an agency must follow in issuing an EIS." *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989). A court must avoid passing judgment on the substance of an agency's decision. Its focus must be on ensuring that agencies took a "hard look" at the environmental consequences of their decisions. *Id.* at 350. In other words, a reviewing court "must consider whether the decision was based on a consideration of the relevant factors and whether there has been a clear error of judgment. This inquiry must be searching and careful, but the ultimate standard of review is a narrow one." *Morongo*, 161 F.3d at 573 (quoting *Marsh v. Or. Natural Res. Council*, 490 U.S. 360, 378 (1989)).

II. Reasonable Range of Alternatives

[1] The regulations implementing NEPA require that an EIS must consider and assess the environmental consequences of the proposed action and reasonable alternatives to the action. 40 C.F.R. § 1502.14. Consideration of alternatives is "the heart of the environmental impact statement." *Id.* An agency preparing an EIS must specify the underlying purpose and need for the proposed action. 40 C.F.R. § 1502.13. *City of Carmel-by-the-Sea v. Dep't of Transp.*, 123 F.3d 1142 (9th Cir. 1995), provides courts with a framework for analyzing the range of alternatives discussed by an EIS. "The stated goal of a project necessarily dictates the range of 'reasonable' alternatives and an agency cannot define its objectives in unreasonably narrow terms." *Id.* at 1155 (citing *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 192 (D.C. Cir. 1991)). "Project alternatives derive from an [EIS's] 'Purpose and Need' section." *Id.* Thus, a court begins by determining whether or not the Purpose and Need Statement was reasonable. *Id.*; *see also Friends of Southeast's Future v. Morrison*, 153 F.3d 1059, 1066-67 (9th Cir. 1998).

A. EIS's Statement of Purpose and Need

In its decision and order on the parties' cross-motions for summary judgment, the district court found that the EIS preparers improperly narrowed the geographic scope of the EIS Statement of Purpose and Need.[9] The only issue the federal agencies raise on appeal is this characterization of the Statement of Purpose and Need as improperly narrow in its geographic scope.

1. Legal standard

Courts have "afforded agencies considerable discretion to define the purpose and need of a project." *Id.* at 1066 (citing *City of Angoon v. Hodel*, 803 F.2d 1016 (9th Cir. 1986)). Preparing an EIS "necessarily calls for judgment, and that judgment is the agency's." *Lathan v. Brinegar*, 506 F.2d 677, 693 (9th Cir. 1974). However, this discretion is not unlimited. *Id.* Courts evaluate a Statement of Purpose and Need under a reasonableness standard. *Friends of Southeast*, 153 F.3d at 1066-67. Where an action is taken pursuant to a specific statute, the statutory objectives of the project serve as a guide by which to determine the reasonableness of objectives outlined in an EIS. *City of New York v. United States Dep't of Transp.*, 715 F.2d 732, 743 (2d Cir. 1983).

[9]Hoopa Valley Tribe objects to the statement in the district court's first order that the Statement of Purpose and Need was flawed in part because it failed to consider the 1984 Act's "additional statutory goals of improving not only the mainstem, but also tributaries and the south fork, and *balancing competing CVP uses*." Order, 275 F. Supp. 2d at 121 (emphasis added). The district court correctly clarified this statement later by stating that Interior was not required to balance the interests of other CVP users. Order II at 40.

2. Analysis

a. Whether the Statement of Purpose and Need was unreasonably narrow in geographically limiting the scope of the EIS

The Statement of Purpose and Need reads, in full:

> The purpose of the proposed action is to restore and maintain the natural production of anadromous fish on the Trinity River mainstem downstream of Lewiston Dam.
>
> The need for this action results from Congress' (1) mandate that diversions of water from the Trinity River to the CVP not be detrimental to Trinity River fish and wildlife resources; (2) finding that construction and operation of the TRD has contributed to detrimental effects to habitat and has resulted in drastic reductions in anadromous fish populations; (3) finding that restoration of depleted stocks of naturally produced anadromous fish is critical to the dependent tribal, commercial, and sport fisheries; and (4) confirmation of the federal trust responsibility to protect tribal fishery resources affected by the TRD.

DEIS 1-4.

[2] The legislation directing the restoration of Trinity River fishery is not limited to the mainstem. The 1984 Act directs federal agencies to restore the anadromous fish populations of the entire Trinity River basin, including the "tributaries of such river below Lewiston Dam and [ ] the south fork of such river." P.L. 98-541 § 2(a)(1)(B). The 1992 CVPIA explicitly incorporates these directives, contemplating that enactment of its terms would benefit all parts of the Trinity River below Lewiston Dam. CVPIA § 3406(b)(23) (directing an instream

release of water to "meet the fishery restoration goals of the Act of October 24, 1984, Public Law 98-541 . . . .").

[3] In specifically limiting its goals to the Trinity River mainstem, the Statement of Purpose and Need does not follow the letter of the statutes. However, this does not make the Statement of Purpose and Need "arbitrary or capricious" so as to invalidate it under NEPA. *Carmel*, 123 F.3d at 1156. Restoring the fishery in the mainstem is a central, primary part of restoring the fishery in the basin as a whole. Second Declaration of Robert F. Franklin RE: Water Year 2003 ("While use of tributary habitat has been documented, the vast majority of production occurs in the mainstem."). The federal agencies were within their discretion in focusing the EIS on mainstem rehabilitation as a part of promoting fishery basin-wide.

b. Whether the Statement of Purpose and Need was unreasonably narrow so as to limit consideration of non-flow measures

The district court's holding about the geographic scope of the Statement of Purpose and Need misses Plaintiffs' more relevant objection. In their response letters to the DEIS and their appellate briefs, Plaintiffs indicate that their objection to the EIS's Statement of Purpose and Need is that it is "biased with the sole objective to increase flows" to the exclusion of non-flow measures, as well as that it ignored other federal obligations. FEIS Response to Letter from NCPA at D3-2518; FEIS Response to Letter from SMUD at D3-2585-86.

The proper inquiry is framed earlier in the district court's order: "The ultimate NEPA issue centers on whether the intentional narrowing of the EIS purpose to concentrate on increased water flows and channel rehabilitation prevented the decision-maker and the Court from assessing the utility of a variable flow alternative that uses non-flow measures . . . ." Order, 275 F. Supp. 2d at 1209. Because the Statement of

Purpose and Need does not improperly foreclose consideration of any possible restoration measures, we reverse any part of the district court's Order disapproving of the Statement.

First, nothing about the language of the Statement of Purpose and Need limits consideration of non-flow measures. Second, the focus on habitat as the best way to restore naturally producing salmon and steelhead was well within the discretion of the EIS team and was not arbitrary or capricious. *Carmel*, 123 F.3d at 1156. The CVPIA "give[s] first priority to measures which protect and restore natural channel and riparian habitat values." § 3406(b)(1)(A). The 1996 amendments to the 1984 Act state that the Trinity River Hatchery should be managed to "best serve its purpose of mitigation of fish habitat loss above Lewiston Dam, while not impairing efforts to restore and maintain naturally reproducing anadromous fish stocks within the basin." Pub. L. 104-143 § 3(c), 110 Stat. 1339 (1996).

The water agencies point to correspondence in the record to support their argument that the agencies improperly avoided consideration of the non-flow restoration measures by unduly narrowing the scope of the Statement of Purpose and Need. The lead agencies properly determined that the discretion given to EIS authors allowed for a purpose that focused on the instream habitat as the best way to help natural fishery production, with "less attention" given to "[o]ther factors such as hatcheries, harvest, predation and upland sediment control."

Third, as discussed below, non-flow measures were considered. The alternatives considered all have non-flow measure components. The TRFES, EIS, and ROD included thorough discussions of non-flow measures that, complementing flow minimums, would improve the river habitat. The fact that flow was a major part of the EIS's alternatives was a

reflection of Congress's mandate that Interior set "permanent instream fishery flow requirements." CVPIA § 3406(b)(23)(A).

[4] The Statement of Purpose and Need reasonably defined the objectives of the project; the preparers did not arbitrarily or capriciously narrow the scope of the Statement.

B. EIS's Range of Alternatives

1. Legal Standard

[5] An agency issuing an EIS must "[r]igorously explore and objectively evaluate all reasonable alternatives," "[i]nclude reasonable alternatives not within the jurisdiction of the lead agency," and "[i]dentify the agency's preferred alternative." 40 C.F.R. § 1502.14(a), (c), (e). "The existence of a viable but unexamined alternative renders an environmental impact statement inadequate." *Morongo*, 161 F.3d at 575 (internal quotations and citations omitted).

We review an EIS's range of alternatives under the "rule of reason." *Carmel*, 123 F.3d at 1155. Under the rule of reason, the EIS "need not consider an infinite range of alternatives, only reasonable or feasible ones." *Id.* (citing 40 C.F.R. § 1502.14(a)-(c)). Nor is an agency required to undertake a "separate analysis of alternatives which are not significantly distinguishable from alternatives actually considered, or which have substantially similar consequences." *Headwaters, Inc. v. Bureau of Land Mgmt.*, 914 F.2d 1174, 1181 (9th Cir. 1990) (citing *N. Plains Res. Council v. Lujan*, 874 F.2d 661, 666 (9th Cir. 1989)).

The choice of alternatives is "bounded by some notion of feasibility" and an agency is not required to consider "remote and speculative" alternatives. *Vt. Yankee Nuclear Power Corp. v. Natural Res. Def. Council, Inc.*, 435 U.S. 519, 551 (1978). The "range of alternatives that must be considered in

the EIS need not extend beyond those reasonably related to the purposes of the project." *Laguna Greenbelt, Inc. v. Dep't of Transp.*, 42 F.3d 517, 524 (9th Cir. 1994) (citing *City of Angoon*, 803 F.2d at 1021-22); *see also Headwaters*, 914 F.2d at 1180 (An agency is not required to "consider alternatives which are infeasible, ineffective, or inconsistent with the basic policy objectives for the management of the area."). "The touchstone for our inquiry is whether an EIS's selection and discussion of alternatives fosters informed decision-making and informed public participation." *Calif. v. Block*, 690 F.2d 753, 767 (9th Cir. 1982).

2. Analysis

a. Alternatives Considered

The EIS fully analyzed six proposed alternatives: the Maximum Flow Alternative, the Flow Evaluation Alternative, the Percent Inflow Alternative, the Mechanical Restoration Alternative, the No Action Alternative, and the State Permit Alternative. The first four were determined reasonably to meet the purposes and needs of the project.

The main difference between the six reasonable alternatives is the volume of yearly instream flow to the Trinity River. In addition, all of the alternatives incorporate non-flow habitat rehabilitation and fishery management measures to aid the recovery of the Trinity River's fishery. The district court ordered that all non-flow measures be implemented. 275 F. Supp. 2d at 1236.

The No Action Alternative maintains the status quo, leaving instream flow to the Trinity River at the 340,000 AF/year level prescribed by CVPIA § 3406(b)(23). Water operations, or diversions to the Sacramento River via the Clear Creek Tunnel and Whiskeytown Reservoir, would continue to operate under existing water quality standards, Biological Opinions, and policies governing exports to the Sacramento River.

Current watershed protection programs, including land management, road decommissioning and rehabilitation,[10] and erosion control measures, as well as the acquisition of key parcels of land in the Trinity River basin, would continue. Habitat management, including twenty-seven channel rehabilitation projects,[11] the mechanical placement of spawning gravel, and the dredging of sediment control ponds would also continue. DEIS 2.1.2. Fish population management, consisting of harvesting limitations and hatchery production levels, would rely on current policies.[12]

The State Permit Alternative reduces flows to 120,500 AF/year, the flow level set by Congress in 1955 as the minimum release to the Trinity River. Under this alternative, more water would be diverted to the Sacramento River, and no habitat management would occur except for gravel placement. Current watershed protection and fish population management policies would continue.

The Mechanical Restoration Alternative, like the No Action Alternative, maintains instream flow levels at 340,000 AF/year, but would incorporate significant additional watershed protection measures to limit sediment inputs into the mainstem Trinity River. The Mechanical Restoration Alternative would focus on and accelerate the road decommissioning, road maintenance, and road rehabilitation measures proposed under the No Action Alternative. In addition to the habitat rehabilitation sites currently in existence, the Mechanical Res-

[10]Road decommissioning consists of removing culverts, out-sloping, and removing roads that cannot be maintained. Rehabilitation of roads consists of resurfacing roads or replacing culverts.

[11]Channel rehabilitation involves the mechanical removal of riparian sand berms and reconstruction of the kind of gently sloping, unvegetated river bank natural to the pre-TRD Trinity River.

[12]The Trinity River Hatchery annually releases 3,000,000 chinook smolts (fish that have already undergone smoltification) and 2,600,000 yearlings.

toration Alternative contemplates removing riverbank vegetation and mechanically maintaining natural floodplain features at forty-seven locations.

The Percent Inflow Alternative bases weekly releases on the previous week's inflow into Trinity Reservoir—approximately 40 percent of the inflow would be released to the mainstem. Yearly releases would range between 165,000 AF/year in Critically Dry years to 978,000 AF/year in Extremely Wet years. Like the Mechanical Restoration Alternative, forty-seven new habitat rehabilitation sites would be constructed, but these and existing rehabilitation projects would not be mechanically maintained. Instead, the sites would depend on water flow alone to sustain the riverbed habitat. Fish population management would be the same as in the No Action Alternative.

The Flow Evaluation Alternative is based on recommendations made by the FWS and Hoopa Valley in the TRFES. Yearly flows would range between 369,000 AF/year in Critically Dry years to 815,000 AF/year in Extremely Wet years. All other efforts would be the same as in the Percent Inflow Alternative. The Flow Evaluation Alternative also includes an adaptive management program, a systematic program of continually monitoring the river habitat, reviewing the effectiveness of restoration measures, and updating management actions.

The Maximum Flow Alternative would release all of the Trinity Reservoir inflows into Trinity River. Flows would range from 463,000 AF/year in Critically Dry years to 2,146,000 AF/year in Extremely Wet years. Because the amount of flow would, on its own, rehabilitate and maintain the river's environment, current habitat rehabilitation projects would not be mechanically maintained and no new projects would be constructed. Fish population measures currently in place would continue.

In addition to these fully considered alternatives, the EIS briefly considered and rejected eight alternatives: 1) the removal of Trinity and Lewiston Dams; 2) fishery rehabilitation solely through harvest management; 3) construction of "fish ladders," or fish passages around the dams; 4) trucking fish around the dams; 5) predator control; 6) increased hatchery production; 7) increasing the flexibility of Trinity Dam operation by pumping water from the Sacramento River to Trinity Reservoir; and 8) increasing flows to Trinity River below Douglas City by redirecting water from a Trinity River fork upstream of the Reservoir.

b. Whether the Range of Alternatives Considered Was Reasonable

The plaintiff water agencies argue that the alternatives considered were inadequate because they failed to consider flow options along with other non-flow measures, such as watershed protection measures and an adaptive management program. This contention is unsupported by the record. Non-flow measures, including watershed protection, habitat rehabilitation, and population management via harvest limitations and hatchery operations, are a part of each alternative considered.

The water agencies further argue that the EIS failed to consider ways of integrating non-flow alternatives that would allow for reduced flow volumes. This argument also fails. The Mechanical Restoration Alternative contemplates exactly what the Water Agencies argue was missing in the EIS: aggressive non-flow measures that would rehabilitate and maintain a healthy river habitat while relying on the minimum flow level set by Congress in the CVPIA. The Percent Inflow Alternative and the Flow Evaluation Alternative both incorporate existing and new non-flow measures into an analysis which allow for flows that vary from year to year but are far below Trinity River inflows to the Reservoir.

The record shows that the EIS team considered and directly responded to suggestions that non-flow measures be aug-

mented to allow corresponding decreases in instream flow. FEIS Thematic Response "Alternatives Recommended by Commentators: Additional Mechanical Restoration and Alternative Flow Schedules" at D2-35-38. The FEIS includes a direct response to SMUD's suggested Integrated Management Alternative. *Id.* at D2-37-38. Although the water agencies argue that the EIS fails to consider integrating hatchery management and predator control as a part of restoration, the EIS clearly considers increased hatchery production. DEIS 2.2.6. The EIS team also responded to commentators who urged predator control as a non-flow measure. FEIS Thematic Response "Role of the Trinity River Hatchery" at D2-49-51; FEIS Thematic Response "Predator Control as a Means for Increasing Population" at D2-53. The EIS dismisses these means, concluding that they would not help with natural salmonid production, a valid and central focus of the restoration plan. *See* CVPIA § 3406(a)(1) (directing Interior to develop a plan to ensure the "natural production of anadromous fish in Central Valley rivers").

[6] The district court erred in holding that the range of alternatives was unreasonable under NEPA. The district court held that although Interior could reject certain non-flow measures as stand-alone solutions to restoration, the EIS still failed to satisfy NEPA by not considering certain non-flow measures as integrated parts of a restoration plan. This holding fails to give Interior the discretion due agencies under NEPA. "Deference to an agency's technical expertise and experience is particularly warranted with respect to questions involving . . . scientific matters." *United States v. Alpine Land and Reservoir Co.*, 887 F.2d 207, 213 (9th Cir. 1989). Here, the EIS team determined that certain measures, such as increased hatchery production, would be ineffective or even detrimental to the goal of restoring a naturally producing salmonid population. DEIS 2.2.6. It found that lower flow alternatives that relied more heavily on non-flow measures could not sustain a fish-friendly river habitat. FEIS at D2-36. Achieving a sustainable natural river habitat was an appropri-

ate goal and the "first priority" of the TRFES. CVPIA § 3402(b)(1)(A). "[I]t would turn NEPA on its head to interpret the statute to require that [an agency] conduct in-depth analyses of . . . alternatives that are inconsistent with the [agency's] policy objectives." *Kootenai Tribe v. Veneman*, 313 F.3d 1094, 1122 (9th Cir. 2002).

The district court also found fault in the EIS's failure to consider more "mid-range alternatives" with reduced flow. Order, 275 F. Supp. 2d at 147. The district court determined that although the EIS purported to have fully analyzed six alternatives, in actuality, it only considered three: the Maximum Flow Alternative (all inflows released); the Flow Evaluation Alternative (mid-range alternative) and the Mechanical Restoration Alternative (minimum flow release). *Id.* The court concluded that the range of alternatives included only "two extreme endpoints and one mid-range alternative, which preordained the selection." *Id.*

The fact that the Mechanical Restoration Alternative used the minimum flow dictated by the CVPIA did not make it an unrealistic alternative. The No Action Alternative was also realistic, although the EIS team ultimately determined it was lacking. The Flow Evaluation and Percent Inflow Alternatives presented two mid-range alternatives. The fact that the EIS did not consider other mid-range alternatives, such as the Integrated Management Plan, proposed by the water agencies, does not make the range of alternatives unreasonable. The FEIS responded to the Integrated Management Plan and the EIS is not deficient because the EIS team did not fully analyze the SMUD's proposed plan with its specific combination of flow and non-flow measures.

The EIS was not required to consider more mid-range alternatives to comply with NEPA. NEPA does not require the EIS to have considered every conceivable permutation of flow and non-flow measures. *See Vt. Yankee*, 435 U.S. at 551 ("Common sense also teaches us that the 'detailed statement

of alternatives' cannot be found wanting simply because the agency failed to include every alternative device thought and conceivable by the mind of man."); *cf. Headwaters*, 914 F.2d at 1181 (stating that an agency need not undertake a "separate analysis of alternatives which are not significantly distinguishable from alternatives actually considered, or which have substantially similar consequences") (citing *N. Plains*, 874 F.2d at 666).

The "touchstone" for courts reviewing challenges to an EIS under NEPA "is whether an EIS's selection and discussion of alternatives fosters informed decision-making and informed public participation." *Block*, 690 F.2d at 767 (citing *Save Lake Wash. v. Frank*, 641 F.2d 1330, 1334 (9th Cir. 1981)). Here, there was a thorough public debate about many different flow and non-flow combinations. Commentators posited alternatives that incorporated more non-flow measures so as to lower instream flows, and the EIS team responded.

[7] We reverse the district court's holding that the range of alternatives considered in the EIS is unreasonable. The construction of the Statement of Purpose and Need was reasonable in light of the governing statutes. The range of alternatives considered achieved the goals intended by NEPA: open, thorough public discussion promoting informed decision-making. The EIS considered several realistic, reasonable options before settling on the Preferred Alternative. Its review of alternatives satisfies the rule of reason.

III. Supplemental EIS

The district court ordered the EIS team to issue an SEIS on the grounds that measures suggested to mitigate the environmental impact of the Preferred Alternative did not receive the public vetting demanded by NEPA. Hoopa Valley challenges this order specifically in regard to certain RPMs in the NMFS and FWS BioOps and the Preferred Alternative's impact on California's power system reliability. Hoopa Valley argues

that the issues in question were sufficiently explored in the DEIS and that no significantly new circumstances or information emerged after DEIS publication to compel the issuance of an SEIS.

We reverse the district court's holding as to the NMFS BioOp concerning the use of auxiliary bypass outlets to mitigate the Preferred Alternative's impact on Sacramento River temperatures, as well as the holding demanding further discussion of the California energy crisis for the reasons stated below. Because we affirm the district court's holding setting aside the FWS BioOp RPM, *see infra* at section IV.A.1, there is no need to discuss this RPM's inclusion in an SEIS. As a result, no SEIS is required for any of these issues.

A. Legal Standard

NEPA's "action-forcing" requirements are intended to serve two broad goals. First, Congress intended that an agency, "in reaching its decision, will have available, and will carefully consider, detailed information concerning significant environmental impacts." *Robertson*, 490 U.S. at 349. Second, the publication of the EIS informs the public of potential environmental impacts and "provides a springboard for public comment." *Id.*

[8] To meet these goals, an EIS must include "a detailed discussion of possible mitigation measures." *Id.* at 351; 40 C.F.R. §§ 1502.14(f), 1502.16(h). An agency must discuss mitigation measures "in sufficient detail to ensure that environmental consequences have been fairly evaluated . . . . A mere listing . . . is insufficient." *Neighbors of Cuddy Mountain v. United States Forest Serv.*, 137 F.3d 1372, 1380 (9th Cir. 1998) (internal quotations and citations omitted). Doing so helps to ensure that the agency has taken a "hard look" at the environmental consequences of its proposed action. *Robertson*, 490 U.S. at 352. However, an agency is not required to formulate and adopt a complete mitigation plan. *Id.*

[9] When new information emerges after the circulation and public comment period of the DEIS, it may be validly included in the FEIS without recirculation. An agency "need not supplement an EIS every time new information comes to light after the EIS is finalized." *Marsh*, 490 U.S. at 373. Supplemental EISs are required when "[t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." 40 C.F.R. § 1502.9(c)(1)(ii). An SEIS is required if a new proposal "will have a significant impact on the environment in a manner not previously evaluated and considered." *S. Trenton Residents Against 29 v. Fed. Highway Admin.*, 176 F.3d 658, 663 (3d Cir. 1999). An agency decision not to issue a SEIS is reviewed under an arbitrary and capricious standard. *Friends of the Clearwater v. Dombeck*, 222 F.3d 552, 556 (9th Cir. 2000).

B. Analysis

1. NMFS BioOp RPM

We reverse the district court's holding as to the NMFS BioOp RPM concerning the use of auxiliary bypass outlets to mitigate the Preferred Alternative's impact on Sacramento River temperatures.

The ESA was enacted to prevent the extinction of fish, wildlife, and plant species. *Turtle Island*, 340 F.3d at 973. The responsibility for administering and enforcing the ESA falls to the NMFS for marine life and the FWS for terrestrial life. *Id.* at 973-74. The ESA provides that a federal agency must consult with the FWS or NMFS to ensure that any proposed action "is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species." 16 U.S.C. § 1536(a)(2).

After consultation, the FWS or NMFS issues a BioOp, and if it concludes that the proposed action is not likely to jeopar-

dize an endangered species but will possibly result in the "incidental taking" of individuals of that species, the BioOp must include an analysis of "the impact of such incidental taking" and "reasonable and prudent measures that the Secretary considers necessary or appropriate to minimize" any impact the action may have. 16 U.S.C. § 1536(b)(4)(C)(i), (ii).

Here, the FWS and NMFS issued BioOps with non-discretionary RPMs. Interior determined that the RPMs did not present significant new information or circumstances requiring an SEIS and recirculation. FEIS Thematic Response "Requests for Recirculation" at D2-71–D2-72. However, the NCPA points to evidence in the record that Interior was aware that the BioOps proposed significant changes that would require recirculation of the EIS. The Tribes do not contest this evidence in their briefs.

a. NMFS BioOp RPM

The NMFS RPM requires the Bureau of Reclamation[13] and FWS to work with the Upper Sacramento River Temperature Task Group "to develop temperature control plans that provide for compliance with temperature objectives in both the Trinity and Sacramento Rivers." The RPM states that Interior must be prepared to use the auxiliary bypass outlets on Trinity Dam to reduce Sacramento River temperatures "as needed." The district court held that the DEIS failed to analyze the impact of the RPM on power generation, and that the FEIS provided insufficient analysis of the new, significant changes demanded by the RPM. Order, 275 F. Supp. 2d at 1198. Plaintiffs argue that this holding must be affirmed.

The RPM does not present a significant new circumstance

[13]The Bureau of Reclamation is the Department of Interior branch charged with managing, developing and protecting the water resources of the American west. It manages the CVP, and thus the TRD, and as noted above, was one of the co-leads on the EIS.

that required recirculation of the EIS. The use of the auxiliary bypass outlets has always been an option for dealing with temperature fluxes in the rivers. The FEIS notes that Reclamation has used the auxiliary bypasses in the past when needed "to protect Trinity River and Sacramento River fisheries from adverse water temperatures." FEIS Thematic Response "Powerplant Bypass" at D2-79.

Even if the RPM did present a new circumstance, the EIS considered both the temperature and power generation impacts of using the auxiliary bypass outlets. The DEIS discusses the effect of the alternatives on Sacramento River temperature and the possibility of using the Trinity Dam auxiliary bypass outlets. It suggests the specific mitigation measure suggested by the RPM: using the auxiliary bypass outlets as an intervention tool to keep Sacramento River temperatures at an appropriate level. DEIS 3-149–3-150. The impact of the Preferred Alternative on the Sacramento River temperatures and fishery is discussed in DEIS sections 3.5.1 and 3.10. DEIS 3-172–3-178; DEIS 3-10. The FEIS concludes that auxiliary bypass use will not have a significant effect on Sacramento River temperatures or chinook salmon mortality.

A technical appendix to the DEIS acknowledged that the use of the auxiliary bypass outlets would have a detrimental effect on the TRD's power generation capacity. Technical Appendix A, Temperature Analysis of Proposed Trinity River Fish and Wildlife Restoration Flow Alternatives Using the Better Model, Section 4.2.4 "Low Level Auxiliary Bypass Release from Trinity Dam" at 10-11. The FEIS Thematic Responses carry a thorough modeling and discussion of the effects of bypassing Trinity Dam. FEIS Thematic Response "Powerplant Bypass" at D2-82—D2-90. In addition, the FEIS specifically addresses the effects of the NMFS RPM on the Trinity Reservoir and River and on the power supply. *Id.* at D2-81 (discussing the loss of Trinity Power Plant generation capacity).

[10] The analysis undertaken in the EIS was sufficient to show that Interior took a "hard look" at the consequences of using Trinity Dam auxiliary bypasses as recommended by the RPM. Acknowledgment of the power generating capacity appears in the DEIS, and when prompted by public comment, the EIS team responded with further analysis in the FEIS Thematic Response. This exchange evinces that the NEPA goals of public participation and informed decision-making occurred. Although the potential for using the auxiliary bypasses would hamper power generation, the EIS demonstrates that the EIS team considered this effect. The decision to not circulate an SEIS was not arbitrary or capricious.

2. Preferred Alternative's Effect on Power Reliability

Hoopa Valley argues that the impact of the Preferred Alternative on California's power supply was adequately analyzed in the DEIS and FEIS, and that the California energy crisis did not pose a "significant new circumstance" that compelled the issuance of an SEIS.

The circulated DEIS had a significant discussion of the effects of the different alternatives on the power supply in California. DEIS 3-335–3-351 (Section 3.10 "Power Resources"); DEIS App. F ("Power Resources"). The DEIS did not, however, take the California energy crisis into account, as the crisis had not yet occurred at the time of DEIS publication. Order, 275 F. Supp. 2d at 1198 (noting that the DEIS was published in October 1999, with the public comment period closing on January 20, 2000; the crisis hit in the summer of 2000). On August 23, 2000, the Department of Energy sent a letter to Interior pointing out that the Trinity River EIS assessed energy production impacts "with the assumption that long-term power system reliability would not be a concern."

Neither the EIS nor the ROD fully discuss the energy crisis in their additional reviews of the alternatives' impacts on

power resources. A Thematic Response in the FEIS generally addresses CVP power generation in relation to total generation in California and the economic impacts of the alternatives. FEIS D2-91–D2-101. The ROD mentioned the energy crisis in providing that "operating criteria will be established to allow [the Department of Energy] to respond to any emergency situations . . . including exceptions for responding to various emergency situations consistent with Presidential Memorandum dated August 3, 2000, directing federal agencies to work with California to develop procedures governing the use of backup power generation in power shortage emergencies." ROD at 22.

[11] An SEIS is not necessary to address power generation since the California power crisis. Interior determined that the impact of the Preferred Alternative on California's power reliability was insignificant. This determination is supported by the record. According to the FEIS Thematic Response, "Power Analysis," TRD power generation accounts for approximately 1% of total California power demand. FEIS D2-91. According to the ROD, the Preferred Alternative would result in an average TRD power generation reduction of six percent, "which equates to a reduction in the statewide electrical energy supply of approximately one tenth of one percent." ROD at 21. In an internal response to the August 23, 2000, Department of Energy letter, Interior noted that the decrease in power generation "would result in an average decrease of 0.041% in an average water year." As the district court stated, "supplemental analysis would likely [show] . . . that CVP power supply impacts are not significant [because] the California power shortages were, in some measure, caused by fraud and market manipulation." Order, 275 F. Supp. 2d at 1202. California's *amicus* brief, contending that the discussion in the EIS was sufficient in all regards, provides compelling support for finding that no SEIS is required on this issue, as the California government has expertise and knowledge about the California energy crisis and ensuring power reliability.

[12] Interior determined that power generation losses resulting from the Preferred Alternative were a very small fraction of overall California power generation, and that, in light of this determination, the California energy crisis did not present a significant new circumstance. The decision to not circulate an SEIS for more discussion of the possible consequences of the Preferred Alternative on California power generation was not arbitrary or capricious.

IV. ESA Violations

[13] ESA regulations specify that reasonable and prudent measures "cannot alter the basic design, location, scope, duration, or timing of the action and may involve only minor changes." 50 C.F.R. § 402.14(I)(2). The question a court considers, then, when reviewing RPMs, is whether they are major or minor changes to the plan. This court "will not upset an agency's assessment of its obligations under section 7 [of the ESA] unless we determine it to be arbitrary and capricious." *Greenpeace Action*, 14 F.3d at 1336.

The Tribes challenge the district court's invalidation of two RPMs: 1) the FWS RPM requiring a plan to mitigate X2 movement; and 2) the NMFS RPM directing that the recommended flow regime be implemented as soon as possible.

A. Analysis

1. FWS RPM

The RPM issued by the FWS concerns the movement of saltwater in the Sacramento Delta as a result of the Preferred Alternative. X2 measures the intrusion of water with a salinity level of two parts per thousand concentration of salt into the Sacramento-San Joaquin Delta. X2 represents the number of kilometers the salt water has moved into the Delta from the Golden Gate Bridge. As fresh water inflows to the Delta decrease, X2 moves eastward into the Delta. The FWS BioOp

mandates that if the Preferred Alternative results in an "upstream (eastward) movement of X2 in any month between February 1 through June 30 of 0.5 km," Reclamation must implement a plan to "minimize or eliminate such upstream movements." As the district court noted, implementation of the RPM is nondiscretionary. Order, 275 F. Supp. 2d at 1194.

Mitigating X2 movements potentially requires the reallocation of hundreds of thousands of acre-feet of water (increasing the flow of the Sacramento River to push saltwater further down the delta). According to the DEIS modeling, the X2 level will move more than 0.5 km upstream in 20% of all Junes, and mitigating this movement as ordered by the RPM will require the commitment of 127,000 AF of water.[14] Under the FWS RPM, Reclamation will have to take action to mitigate X2 movement regularly, about once every five years.

[14] We appreciate the complexity of managing Delta water inflows and salinity levels, and that the many different options for mitigating X2 movement diminish the risk that any one river or water supply will bear the full burden of X2 movement mitigation. However, RPMs may involve only minor changes. Redirecting flows in accordance with the RPM will affect wildlife in the Sacramento Delta, the Trinity River, and other waterways, and will likely have broad system-wide effects in the CVP. The X2 RPM mandated new, significant action and cannot be considered to be a minor change to the Preferred Alternative. We affirm the district court's setting aside of the X2 RPM.

[14]According to the DEIS modeling, X2 movement would exceed 0.5 kilometers in 7% of Februarys, at the cost of 173,000 AF; 1 % of Marches, costing 90,000 AF; and 1% of Aprils, costing 310,000 AF. In some years, X2 movement would exceed 0.5 kilometers in multiple months, calling for even more water redirection.

2. NMFS RPM

The NMFS's first RPM states that "The USFWS and Reclamation shall [i]mplement the flow regimes included in the proposed action . . . as soon as possible." NMFS BioOp at 47. The NMFS added a non-discretionary condition: "1.a. Following completion of the Record of Decision addressing the proposed action, Reclamation shall immediately implement the components of the proposed flow schedule . . . equal to or less than 6,000 CFS [cubic feet per second], and implement the entire flow schedule as soon as possible (i.e., after infrastructure modifications are completed)." *Id.* at 48.

[15] The RPM commands Interior to "immediately implement" the Flow Evaluation Alternative's flow schedule. By doing so, it alters the "timing of the action" in violation of ESA's regulations. 50 C.F.R. § 402.14(I)(2). We affirm the district court's decision to set aside this RPM.

V. Contentions on Cross-Appeal

The water agencies bring three issues on cross-appeal. These arguments are not well taken.

A. Remedy

The water agencies challenge the portion of the district court's order implementing the ROD's flow measures for Critically Dry and Dry water-year categories. Order, 275 F. Supp. 2d at 1232. The district court applied a traditional balance of harms analysis to determine that it was appropriate to allow portions of the ROD to be implemented. *Id.* at 1231 (citing *Nat'l Parks & Conservation Ass'n v. Babbitt*, 241 F.3d 722, 737 (9th Cir. 2001)); *see also Alaska Wilderness Recreation & Tourism Ass'n v. Morrison*, 67 F.3d 723, 732 (9th Cir. 1995). The court was well within its discretion in weighing the opposing harms to fashion an appropriate remedy. *See Babbitt*, 241 F.3d at 737 & n.18. Having these flow levels in

place will not cause permanent or undue harm and will not prevent or frustrate the implementation of new flow recommendations.

B. Government's Tribal Trust Obligation

As a part of its harms-balancing analysis, the district court concluded that "the government is also in breach of its general and specific independent federal trust obligation to the Hoopa and Yurok Tribes." Order, 275 F. Supp. 2d at 1232. It also stated that the purpose of the CVPIA § 3406(b)(23) was to "fulfill[ ] the federal government's trust obligation to the Indian Tribes." *Id.* at 1234. These statements are significant in that they provide support for the court's order implementing portions of the Preferred Alternative as injunctive relief. However, the trust issue was not the necessary or main factor in the district court's consideration of the issues on the merits. The statements do not constitute a holding on the issue, which was never properly before the district court, and therefore do not compel reversal or vacatur.

C. District Court's Authorization of Additional Releases

The cross-appellants' challenge to the district court's authorization of additional flow releases for the 2003 water year is moot.

VI. Conclusion

We reverse the district court's holding that the EIS failed to consider a reasonable range of alternatives, and that a supplemental EIS was required to discuss the NMFS's BioOp requiring mitigation of impacts to Sacramento River temperatures and the effect of the California energy crisis. Because the FWS BioOp RPM involving the mitigation of X2 movement is a major change, and therefore invalid under ESA's regulations, we affirm the district court's setting aside of this RPM. Accordingly, we do not reach the issue of NEPA com-

pliance on this RPM and vacate the district court's order to the extent that it may require inclusion of X2 movement in an SEIS. We affirm the district court's holding that set aside the NMFS RPM mandating immediate implementation of a flow regime.

The number and length of the studies on the Trinity River, including the EIS, are staggering, and bear evidence of the years of thorough scrutiny given by the federal agencies to the question of how best to rehabilitate the Trinity River fishery without unduly compromising the interests of others who have claim on Trinity River water. We acknowledge, as the district court highlighted, concerns that the federal agencies actively subverted the NEPA process, but our review of the EIS shows that the public had adequate opportunity to demand full discussion of issues of concern.

Twenty years have passed since Congress passed the first major Act calling for restoration of the Trinity River and rehabilitation of its fish populations, and almost another decade has elapsed since Congress set a minimum flow level for the River to force rehabilitative action. Flow increases to the River have been under study by the Department of the Interior since 1981. "[R]estoration of the Trinity River fishery, and the ESA-listed species that inhabit it . . . are unlawfully long overdue." Order, 275 F. Supp. 2d at 1232.

As we have disposed of all of the issues ordered to be considered in the SEIS, nothing remains to prevent the full implementation of the ROD, including its complete flow plan for the Trinity River. We remand to the district court for further proceedings not inconsistent with this opinion.

AFFIRMED IN PART, REVERSED IN PART, AND REMANDED.

EACH PARTY TO BEAR ITS OWN COSTS.

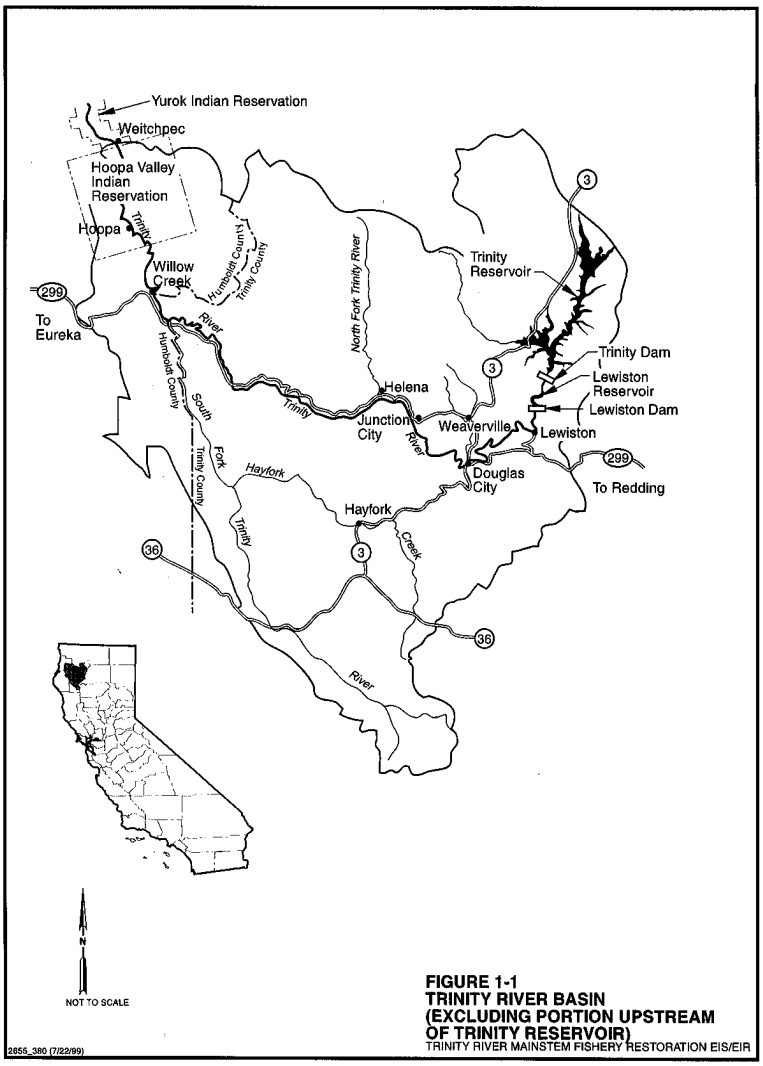

FIGURE 1-1
TRINITY RIVER BASIN
(EXCLUDING PORTION UPSTREAM OF TRINITY RESERVOIR)
TRINITY RIVER MAINSTEM FISHERY RESTORATION EIS/EIR

2655_380 (7/22/99)

Appendix B

HOCKER FLAT REHABILITATION SITE: TRINITY RIVER MILE 78 TO 79.1

Draft Mitigation Monitoring and Reporting Program

August 23, 2004

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2440 Main Street
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Draft Mitigation Monitoring and Reporting Program

INTRODUCTION

This document comprises the Mitigation Monitoring and Reporting Program (MMRP) for the Hocker Flat Rehabilitation Site, Trinity River Mile 78 to 79.1. The purpose of providing the MMRP as a stand-alone document in the Environmental Assessment/Draft Environmental Impact Report (EA/DEIR) is to make clear to the reader the mitigation responsibilities of the Bureau of Reclamation (Reclamation), and Department of Water Resources (DWR) in implementing the Hocker Flat Rehabilitation Site, Trinity River Mile 78 to 79.1. The mitigation measures listed herein are required by law or regulation and will be adopted by DWR as part of the overall project approval.

Mitigation is defined by both the California Environmental Quality Act (CEQA) – Section 15370 and the National Environmental Policy Act (NEPA) as a measure which:

- Avoids the impact altogether by not taking a certain action or parts of an action
- Minimizes impacts by limiting the degree or magnitude of the action and its implementation
- Rectifies the impact by repairing, rehabilitating, or restoring the impacted environment
- Reduces or eliminates the impact over time by preservation and maintenance operations during the life of the project
- Compensates for the impacts by replacing or providing substitute resources or environments

Mitigation measures provided in this MMRP have been identified in **Chapter 3**, Affected Environment and Environmental Consequences of the EA/DEIR, as feasible and effective in mitigating project-related environmental impacts.

This MMRP includes the discussions on the following: legal requirements, intent of the MMRP, development and approval process for the MMRP, the authorities and responsibilities associated with the implementation of the MMRP, a description of the mitigation summary table, and resolution of noncompliance complaints.

LEGAL REQUIREMENTS INTENT OF THE MITIGATION MONITORING AND REPORTING PROGRAM

The legal basis for the development and implementation of the MMRP lies within both CEQA (including the California Public Resources Code) and NEPA. Sections 21002 and 21002.1 of the California Public Resources Code state:

- Public agencies are not to approve projects as proposed if there are feasible alternatives or feasible mitigation measures available that would substantially lessen the significant environmental effects of such projects; and
- Each public agency shall mitigate or avoid the significant effects on the environment of projects that it carries out or approves whenever it is feasible to do so.

- Section 21081.6 of the California Public Resources Code further requires that: the public agency shall adopt a reporting or monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment. The reporting or monitoring program shall be designed to ensure compliance during project implementation.
- The monitoring program must be adopted when a public agency makes its findings under CEQA so that the program can be made a condition of project approval in order to mitigate significant effects on the environment. The program must be designed to ensure compliance with mitigation measures during project implementation to mitigate or avoid significant environmental effects.

NEPA 40 CFR Sections 1502.14f requires:

- Agencies shall include appropriate mitigation measures not already included in the proposed action or alternatives

INTENT OF THE MITIGATION MONITORING AND REPORTING PROGRAM

The MMRP is intended to satisfy the requirements of CEQA as they relate to the Hocker Flat Rehabilitation Site, Trinity River Mile 78 to 79.1. It is anticipated to be used by Reclamation and DWR staff, participating agencies, project contractors, and mitigation monitoring personnel during implementation of the project.

The primary objective of the MMRP is to ensure the effective implementation and enforcement of adopted mitigation measures and permit conditions. The MMRP will provide for monitoring of construction activities as needed, on-site identification and resolution of environmental problems, and proper reporting to lead agency staff.

DEVELOPMENT AND APPROVAL PROCESS

The timing elements for implementing mitigation measures and the definition of the approval process has been provided in detail through this MMRP to assist staff from the Reclamation and DWR by providing the most usable monitoring document possible.

AUTHORITIES AND RESPONSIBILITIES

Reclamation, functioning as the Trinity River Restoration Program (TRRP), will have the primary responsibility for the execution and proper implementation of the MRRP. DWR may provide Reclamation with support, as warranted. Reclamation will be responsible for the following activities:

- Coordination of monitoring activities
- Management of the preparation and filing of monitoring compliance reports
- Maintenance of records concerning the status of all approved mitigation measures

SUMMARY OF MONITORING REQUIREMENTS

Table 1, which follows, summarizes the mitigation measures and associated monitoring requirements proposed for the Hocker Flat Rehabilitation Site, Trinity River Mile 78 to 79.1. These mitigation measures are presented in the same form as originally prescribed in the EA/DEIR - **Chapter 3**, Affected Environment and Environmental Consequences. The mitigation measures are organized by environmental issue area (i.e., Land Use, Water Quality, etc.) for both the Proposed Action and Alternative 1. **Table 1** is comprised of the following four columns:

- **Mitigation Measure:** Lists the mitigation measures identified for each significant impact discussed in the Hocker Flat Rehabilitation Site, Trinity River Mile 78 to 79.1 EA/DEIR. The same mitigation numbering system used in the EA/DEIR is carried forward in this MMRP.
- **Timing/Implementation:** Indicates at what point in time or project phase the mitigation measure will need to be implemented.
- **Responsible Parties (tasks):** Documents which agency or entity is responsible for implementing a mitigation measures and what, if any, coordination is required (e.g., approval from Caltrans). If more than one party has responsibility under a given mitigation measure, the tasks of each individual party is identified parenthetically (e.g., "implementation" or "monitoring").
- **Verification:** Provides spaces to be initialed and dated by the individual responsible for verifying compliance with each specific mitigation measure.

RESOLUTION OF NONCOMPLIANCE COMPLAINTS

Any person or agency may file a complaint that states noncompliance with the mitigation measures that were adopted as part of the approval process for the Hocker Flat Rehabilitation Site, Trinity River Mile 78 to 79.1. The complaint shall be directed to Reclamation, via the TRRP office (P.O. Box 1300, 1313 South Main Street, Weaverville, CA 96093), in written form providing detailed information on the purported violation. Reclamation shall conduct an investigation and determine the validity of the complaint. If noncompliance with a mitigation measure is verified, Reclamation shall take the necessary action(s) to remedy the violation. The complaint shall receive written confirmation indicating the results of the investigation or the final corrective action that was implemented to response to the specific noncompliance issue.

TABLE 1
SUMMARY OF MITIGATION MONITORING REQUIREMENTS

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
3.3 Geology, Fluvial Geomorphology, and Soils			
Impact 3.3-2	Construction activities associated with the proposed project could potentially result in increased erosion and short-term sedimentation of the Trinity River.		
Mitigation Measures **2a:** Reclamation or its contractors shall implement the following measures throughout construction: ▪ Areas where ground disturbance will need to occur shall be identified in advance of construction and limited to only those areas that have been approved by Reclamation. ▪ All construction vehicular traffic shall be confined to the designated access routes and staging area. ▪ Disturbance shall be limited to the minimum necessary to complete construction activities. ▪ All supervisory construction personnel shall be informed of environmental concerns, permit conditions, and final rehabilitation specifications. **2b:** Reclamation or its contractors shall prepare an erosion and sedimentation control plan (Storm Water Pollution Prevention Plan [SWPPP]. Measures for erosion control will be prioritized based on proximity to the river. Exposed areas within 50 yards of the river will be covered to reduce potential sediment from reaching the river. The following measures shall be used as a guide to develop this plan: ▪ Restore disturbed areas to pre-construction contours to the extent feasible;		Reclamation	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
▪ Discourage noxious weed competition and control noxious weeds; ▪ Clear or remove roots from steep slopes immediately prior to scheduled construction; ▪ Leave drainage gaps in topsoil and spoil piles to accommodate surface water runoff; ▪ To the extent possible, cease excavation activities during significantly wet or windy weather; ▪ Use bales and/or silt fencing as appropriate; ▪ Before seeding disturbed soils, work the topsoil to reduce compaction caused by construction vehicle traffic; ▪ Filter fences and catch basins shall be placed below all construction activities at the edge of the Trinity River and other surface water features to intercept sediment before it reaches the waterway. These structures shall be installed prior to any grubbing or grading activities. ▪ Spoil sites shall be located such that they do not drain directly into a surface water feature, if possible. If a spoil site drains into a surface water feature, catch basins shall be constructed to intercept sediment before it reaches the feature. Spoil sites shall be graded and vegetated to reduce the potential for erosion. Sediment control measures shall be in place prior to the onset of the rainy season and will be monitored and maintained in good working condition until disturbed areas have been revegetated. If work activities take place during the rainy season, then erosion control structures must be in place and operational at the end of each construction day. Reclamation will develop the erosion and sedimentation control plan in conjunction with BLM and DWR and in cooperation with the CDFG, NOAA Fisheries, USFWS, and NCRWQCB. Reclamation's project manager will ensure the preparation and implementation of an erosion and sediment control plan prior to the start of construction.			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
3.5 Water Quality			
Impact 3.5-1	**Construction of the proposed project could result in short-term temporary increases in turbidity and total suspended solids levels during construction.**		
Mitigation Measures **1a:** Turbidity increases associated with proposed project construction activities shall not exceed the NCRWQCB water quality objectives for turbidity in the Trinity River basin. Turbidity levels are defined in nephelometric turbidity units (NTUs). The current threshold for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (2001), is summarized below. ▪ Turbidity shall not be increased by more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof. **1b:** To ensure that turbidity levels do not exceed the threshold listed above during river's edge project construction activities, Reclamation or their contractor shall monitor turbidity levels 50 feet upstream and 500 feet downstream of the point of river's edge construction activities. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during periods of increased turbidity. **1c:** Reclamation or their contractor shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that includes silt fences, sediment filters, dewatering activities, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls and dewatering activities shall be adequate to minimize sediment inputs into the		Reclamation	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
Trinity River until vegetation re-growth occurs. All sediment containment devices and erosion control devices will be inspected daily during the construction period to ensure that the devices are properly functioning. Excavated and stored materials will be kept in upland sites with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland sites. All applicable erosion control standards will be required during stockpiling of materials.			
Impact 3.5-2	**Construction of the proposed project could result in short-term temporary increases in turbidity and total suspended solids levels following construction.**		
Mitigation Measures **2a:** Turbidity increases following proposed project construction activities shall not exceed the NCRWQCB water quality objectives for turbidity in the Trinity River basin. Turbidity levels are defined in nephelometric turbidity units (NTUs). The current threshold for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (2001), is summarized below. ▪ Turbidity shall not be increased by more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof. **2b:** To ensure that turbidity levels do not exceed the threshold listed above during river's edge project construction activities, Reclamation or their contractor shall monitor turbidity levels 50 feet upstream and 500 feet downstream of the point of river's edge construction activities. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during periods of increased turbidity.		Reclamation	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
2c: Reclamation or their contractor shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that includes silt fences, sediment filters, dewatering activities, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls and dewatering activities shall be adequate to minimize sediment inputs into the Trinity River until vegetation re-growth occurs. All sediment containment devices and erosion control devices will be inspected daily during the construction period to ensure that the devices are properly functioning. Any erosional control devices found to be nonfunctional must be repaired or replaced within 10 days following their discovery or by the end of the work day if rain is imminent, or if a greater than 50 % possibility of rain has been forecasted within the next 24 hours by the National Weather Service. In those cases where, for safety reasons, repairs cannot be made immediately, they should be completed as soon as the work can safely be performed. Excavated and stored materials will be kept in upland sites with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland sites. All applicable erosion control standards will be required during stockpiling of materials.			
Impact 3.5-3	**Construction of the proposed project could potentially cause contamination of the Trinity River from hazardous materials spills.**		
Mitigation Measures **3a:** Reclamation shall require that the contractor prepare and implement a spill prevention and containment plan in accordance with applicable federal and state requirements.		Reclamation	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
3b: Reclamation shall include in the construction contract documents a requirement that any construction equipment that would come in contact with the Trinity River will need to be inspected daily for leaks prior to entering the flowing channel. External oil, grease, and mud will be removed from equipment using steam cleaning. Untreated wash and rinse water must be adequately treated prior to discharge if that is the desired disposal option. **3c:** Reclamation shall include in the construction contract documents a requirement that hazardous materials, including fuels, oils, and solvents, not be stored or transferred within 150 feet of the active Trinity River channel. Areas for fuel storage, refueling, and servicing will be located at least 150 feet from the active river channel. In addition, the construction contractor shall be responsible for maintaining spill containment booms onsite at all times during construction operations and/or staging of equipment or fueling supplies. Fueling trucks will maintain a spill containment boom at all times.			
Impact 3.5-5	**Construction and maintenance of the proposed project could result in the degradation of Trinity River beneficial uses identified in the Basin Plan.**		
Mitigation Measures **2a:** Turbidity increases following proposed project construction activities shall not exceed the NCRWQCB water quality objectives for turbidity in the Trinity River basin. Turbidity levels are defined in nephelometric turbidity units (NTUs). The current threshold for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (2001), is summarized below. ▪ Turbidity shall not be increased by more than 20 percent above naturally occurring background levels.		Reclamation	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
▪ Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof. **2b:** To ensure that turbidity levels do not exceed the threshold listed above during river's edge project construction activities, Reclamation or their contractor shall monitor turbidity levels 50 feet upstream and 500 feet downstream of the point of river's edge construction activities. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during periods of increased turbidity. **2c:** Reclamation or their contractor shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that includes silt fences, sediment filters, dewatering activities, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls and dewatering activities shall be adequate to minimize sediment inputs into the Trinity River until vegetation re-growth occurs. All sediment containment devices and erosion control devices will be inspected daily during the construction period to ensure that the devices are properly functioning. Any erosional control devices found to be nonfunctional must be repaired or replaced within 10 days following their discovery or by the end of the work day if rain is imminent, or if a greater than 50 % possibility of rain has been forecasted within the next 24 hours by the National Weather Service. In those cases where, for safety reasons, repairs cannot be made immediately, they should be completed as soon as the work can safely be performed. Excavated and stored materials will be kept in upland sites with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland sites. All applicable erosion control standards will be required during stockpiling of materials.			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
Impact 3.5-6	**Construction of the proposed project could result in increased mobilization of mercury, and/or conditions that would increase the potential for mercury methylation.**		
Mitigation Measures **6a:** Reclamation will utilize new data from ongoing assessments of mercury in water, sediment, and biological indicators in the Hocker Flat area . Sampling results will be adaptively employed to enhance the basic action plan for Mercury rehabilitation. As envisioned, this plan will be developed to minimize risk of mercury mobilization from sediments and tailings at the site and/or the risk of increased methylation of mercury related to redistribution of sediments and tailings. Aquatic and human health will be protected using the best available site-specific information. **6b:** The basic action plan for Mercury rehabilitation requires that Reclamation dispose of any potentially mercury-contaminated sediments and tailings in such a manner as to prevent environmental release of mercury. The great majority of materials that are excavated from the floodplain will be sequestered above the 100-year floodplain elevation so that they will not come in contact with Trinity River floodwaters, or any other surface or groundwater, and will not be leached by concentration of precipitation so as to release any mercury species contained therein to the Trinity River channel, riparian area, or floodplain. Known mercury-contaminated materials may be either: ▪ In the case of mixed larger (> 2 mm in diameter) and smaller materials (<0.062 mm), the mercury-contaminated fine sediment fraction may be removed and the large fraction remainder (gravels and larger) returned to the site; or		Reclamation	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
▪ In the case of visually identifiable fine sluice sand sediments (e.g., expected to contain the highest mercury concentrations; 150 to approximately 1000 ppb), these materials will be removed from the floodplain whenever they are exposed. During construction of the floodplain, the contractor will be trained to identify these lenses of sluice sand[1] and will either ensure that these materials (Lenses of sluice sand are typically made up of 2-3 cubic yards of material) are removed from future leaching into the Trinity River, **6c:** Reclamation will ensure that during redistribution of sediments potentially contaminated with mercury, the sediments will not be placed in contact with off-channel wetlands or other environments that would be likely to favor increased rates of mercury methylation, and that there are no hydrologic pathways available for the transport of mercury species from redistributed sediments to these wetlands or other environments.			
3.6 Fishery Resources			
Impact 3.6-2	**Implementation of the proposed project could result in increased erosion and sedimentation levels that could adversely affect fishes, including federally listed coho salmon.**		
Mitigation Measures **2a:** Turbidity increases associated with proposed project construction activities shall not exceed the NCRWQCB water quality objectives for turbidity in the Trinity River basin. Turbidity levels are defined in nephelometric turbidity units (NTUs). The current threshold for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (2001), is summarized below.		Reclamation	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
▪ Turbidity shall not be increased by more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof. **2b:** To ensure that turbidity levels do not exceed the threshold listed above during river's edge project construction activities, Reclamation or their contractor shall monitor turbidity levels 50 feet upstream and 500 feet downstream of the point of river's edge construction activities. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during periods of increased turbidity. **2c:** Reclamation or their contractor shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that includes silt fences, sediment filters, dewatering activities, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls and dewatering activities shall be adequate to minimize sediment inputs into the Trinity River until vegetation re-growth occurs. All sediment containment devices and erosion control devices will be inspected daily during the construction period to ensure that the devices are properly functioning. Any erosional control devices found to be nonfunctional must be repaired or replaced within 10 days following their discovery or by the end of the work day if rain is imminent, or if a greater than 50 % possibility of rain has been forecasted within the next 24 hours by the National Weather Service. In those cases where, for safety reasons, repairs cannot be made immediately, they should be completed as soon as the work can safely be performed. Excavated and stored materials will be kept in upland sites with erosion control properly installed and maintained.			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
Excavated and stored materials will be staged in stable upland sites. All applicable erosion control standards will be required during stockpiling of materials.			
Impact 3.6-3	**Construction activities associated with the proposed project could potentially result in the accidental spill of hazardous materials that could adversely affect fishes, including federally listed coho salmon.**		
Mitigation Measures Construction specifications shall include the following measures to reduce potential impacts associated with accidental spills of pollutants (i.e., fuel, oil, grease, etc.) to vegetation and aquatic habitat resources within the proposed project ESL: **3a:** Equipment and materials shall be stored away from wetland and surface water features. **3b:** Vehicles and equipment used during construction shall receive proper and timely maintenance to reduce the potential for mechanical breakdowns leading to a spill of materials. Maintenance and fueling shall be conducted in an area at least 150 feet away from the Trinity River. **3c:** Spill containment booms will be maintained onsite at all times during construction operations and/or staging of equipment or fueling supplies. Fueling trucks will maintain a spill containment boom at all times. **3d:** The contractor will develop and implement site-specific best management practices (BMP's), a water pollution control plan, and emergency spill controls, and will be responsible for containment and removal of any toxins released. **Section 3.5**, provides additional details on mitigation measures developed for water quality standards and local ordinances. The responsible agencies will be involved in the development and approval of these plans and practices.	.	Reclamation	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
Impact 3.6-4	**Construction activities associated with the proposed project could result in the mortality of adult and juvenile fishes, including federally listed coho salmon, during the in-stream construction phase.**		
Mitigation Measures **4a:** To avoid or minimize potential injury and mortality of fish during excavation (berm removal) on the river banks, equipment shall be operated slowly and deliberately to alert and scare adult and juvenile salmonids away from the work area. **4b:** Monitoring of the rehabilitated flood plain sites (including control areas R-3. and R-8) for salmon fry stranding shall be performed by a qualified fishery biologist immediately after recession of flood flow events designated as 1.5 year or lesser frequent events (i.e., $Q \geq 6000$ cfs) for a period of three years following construction. Such fry stranding surveys shall be performed during the months of January through May. If stranding is observed, Reclamation will take the appropriate measures to modify floodplain topography to reduce the likelihood of future occurrences of fry stranding.		Reclamation	
Impact 3.6-5	**Implementation of the proposed project would result in the permanent and temporary loss of shaded riverine aquatic habitat.**		
5a: Mitigation for riparian plant removal will be based on the actual acreage of riparian vegetation coverage, as opposed specific numbers of plant impacted during project activities. This is based on the TRRP objective to remove the homogeneous plant community and replace it with a diverse assemblage of riparian vegetation. **5b:** To mitigate for the loss of riparian habitat, the proposed project would be designed to minimize losses to SRA features outside of individual rehabilitation sites, but within the ESL, to the fullest extent possible.		Reclamation	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
When a temporary or permanent loss of riparian vegetation is unavoidable, Reclamation will replant at a 1:1 ration where one acre will be replanted for every acre of riparian vegetation is lost. This 1:1 ration is deemed acceptable due to the fact that, since the construction of the TRD, the channel of the Trinity River has experienced an increase in riparian vegetation encroachment of up to 300% when compared to pre-TRD conditions. **5c:** Reclamation shall develop and implement a revegetation plan for impacts to riparian habitat that occur during proposed project construction. **Appendix G** is a draft revegetation plan that has been prepared for the EA/DEIR. This plan identifies planting mixes, planting procedures and monitoring requirements. Planted species include riparian species native to the area which would resist invasion by noxious plant species. that occur during proposed project construction. The revegetation plan should identify appropriate mitigation for impacts, describe planting techniques and locations, and incorporate plantings of native species that would resist invasion of noxious plant species. **5d:** Reclamation or their contractor shall monitor the plantings annually for up to three years to ensure that trees and shrubs have become established. Supplemental planting would be conducted, as necessary, to ensure that this performance standard is met. To meet the revegetation success criteria, the rehabilitation areas should demonstrate a 60% survival rate for planted species at the end of third growing season. Natural recruitment of native riparian species can be included in this growing criterion. If recovery success cannot be determined after three years, an additional two years of monitoring shall be conducted. If at any time during the monitoring period it is determined that the success criteria will not be obtained in the planted and naturally restored areas, remediation measures shall be develop and initiated.			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
Once riparian mitigation has been successfully completed, Reclamation shall submit a memorandum to the ACOE and NOAA Fisheries documenting the results.			
3.7 Vegetation, Wildlife, and Wetlands			
Impact 3.7-3	**Construction activities associated with the proposed project could result in the loss of jurisdictional wetlands and riparian habitat.**		
3a: Prior to the start of construction activities, Reclamation shall retain a qualified biologist to identify construction access routes necessary for the proposed project to ensure that these features avoid and/or minimize to the fullest extent impacts to jurisdictional waters. In addition, jurisdictional waters shall be clearly identified in the construction drawings along with specific instructions to avoid any construction activity within these features. Each jurisdictional feature proposed to be avoided will be flagged, staked, or otherwise marked to ensure that construction activities do not encroach upon these features. The exclusionary fencing shall be inspected and maintained on a regular basis throughout the construction phase. **3b:** To mitigate for the loss of jurisdictional waters habitat, specifically riparian wetland, the proposed project would be designed to avoid and minimize losses to wetland vegetation within the ESL to the fullest extent feasible. When loss of riparian wetland is unavoidable, Recommended mitigation allowances are justified because: 1). Reclamation will mitigate impacted riparian plants based on aerial requirements. A revegetation design that provides for planting 20 ft x 20 ft native plant pods separated by 20 ft intervals is planned.	▪	Reclamation	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
The actual surface area encompassed by the pods will be a minimum of 1/2 of the impacted riparian area. Natural revegetation between the pods will occur to obtain full aerial (1:1) mitigation requirements. Permit requirements will be met if 5 years post-project implementation delineation of riparian communities determines that there have been aerial increases in all riparian plant communities within the ESL established for the proposed. Reclamation or their contractor will revegetate riparian areas with a substantial diversity of native plant revegetation areas (20 ft x 20 ft pods separated by 20 ft intervals). Planted areas will grow in over time and will provide increased diversity in riparian structure and species over that which presently exists. Because the present Trinity River channel is encroached (up to 300%) with riparian vegetation that is homogenous in nature, strict replacement requirements based on original stem counts and species are not desirable; Floodplain values and functions will be enhanced by the Hocker Flat Project. Consequently, substantial new areas beyond those identified in pre-project plant community delineations, are expected to recruit to riparian (wetland) habitats, of both seasonal and perennial nature, within a 3-5 year post-project window.			
Impact 3.7-4	**Construction activities associated with the proposed project could disrupt active raptor nests.**		
Mitigation Measures **4a:** All vegetation (i.e., trees, shrubs) that will need to be removed within the proposed project construction limits shall be removed between August 1st and February 15th (i.e., outside the nesting season for raptor species) to ensure that active raptor nest trees are not removed as a result of proposed project construction activities.		Reclamation	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
If all vegetation removal has been completed between August 1st and February 15th, no pre-construction surveys would be required. **4b:** If vegetation removal cannot be accomplished between August 1st and February 15th , Reclamation shall retain a qualified biologist to conduct a minimum of one survey (subsequent surveys would be separated by at least one week) for nesting raptors, including Cooper's hawk and sharp-shinned hawk, within a 500-foot radius around proposed construction activities. Active raptor nests located within 500 feet of construction activities shall be mapped, where practicable and feasible. If active nests are identified within the construction disturbance area, they may removed only after the young have fledged, or the fate of the nest has been determined. A qualified biologist shall monitor the nest(s) to determine when the young have fledged and submit status reports to the CDFG, as appropriate, throughout the nesting season. Nest tree removal shall only be performed in consultation with, and with pre-approval from, the CDFG.			
Impact 3.7-5	**Construction activities associated with the proposed project could result in impacts to nesting individuals of yellow warbler and yellow-breasted chat.**		
Mitigation Measures **5a:** All vegetation (i.e., trees, shrubs) that will need to be removed within the construction limits shall be removed between August 1st and March 1st (i.e., outside of the nesting season for yellow warbler and yellow-breasted chat) to ensure that active nest trees are not removed as a result of proposed project construction activities. If all vegetation removal activities are completed between August 1st and March 1st, no pre-construction surveys would be required.		Reclamation	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
5b: If vegetation removal cannot be accomplished between August 1st and March 1st, Reclamation shall retain a qualified biologist to conduct a minimum of one survey (subsequent surveys would be separated by at least one week) for yellow warbler and yellow-breasted chat within a 500-foot radius around proposed construction limits. Active nests for each species that are located within 500 feet of construction activities shall be mapped, where practicable and feasible. If active nest trees are identified within the construction disturbance zone, they may only be removed prior to March 1st, or after the young have fledged (based on field verification). A qualified biologist shall monitor the nests to determine when the young have fledged and submit status reports to the CDFG throughout the nesting season. Nest tree removal shall only be performed in consultation with, and with pre-approval from, the CDFG.			
Impact 3.7-7	**Construction activities associated with the proposed project could result in impacts to little willow flycatcher.**		
Mitigation Measures **7a:** All vegetation (i.e., trees, shrubs) that will need to be removed within the construction limits (including the temporary construction access routes) shall be removed between September 1st and March 1st (i.e., outside the nesting season for willow flycatcher) to ensure that active nest trees are not removed as a result of proposed project construction activities. Review with TRRP **7b:** If construction is proposed between the months of April and August, and vegetation has not been removed from the construction area, a protocol-level survey for willow flycatchers within 500 feet of the construction limits shall be conducted during the spring prior to construction. If no active nests are observed, construction may proceed.		Reclamation	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
If construction activities are to occur between September and March, no surveys would be required. A letter report that summarizes the survey results shall be submitted to the CDFG. If active nests are present, establish an initial 300-foot no-disturbance buffer around the nest location. The nest will then be monitored by a qualified biologist to determine if the buffer is adequate. If the buffer size does not appear adequate, consultation with CDFG must occur and the buffer size may need to be enlarged.			
Impact 3.7-9	**Construction activities associated with the proposed project could result in impacts to the Trinity bristle snail.**		
Mitigation Measures **9a:** If identified potential bristle snail habitat is to be disturbed during construction, a minimum of one survey for Trinity bristle snails in these areas shall be conducted a maximum of one week prior to construction. A qualified biologist shall be retained by Reclamation to conduct the survey. If a Trinity bristle snail is detected, the biologist shall relocate it to a suitable location outside of the construction limits. **9b:** Mitigation measures presented in **Section 3.5** (Water Quality) for addressing erosion and sedimentation and accidental spills shall be fully implemented to mitigate for the potential indirect impacts to riparian habitat due to sedimentation and accidental spills. **9c:** Mitigation measures associated with the disturbance to riparian habitat are discussed previously in this section under impacts to jurisdictional wetlands (Mitigation Measure 3), and will be fully implemented.		Reclamation	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
Impact 3.7-10	**Construction activities associated with the proposed project could result in impacts to the foothill yellow-legged frog.**		
Mitigation Measures **10a:** If any construction within the Trinity River channel will occur prior to August 1st of any construction season, a pre-construction survey for yellow-legged frog larvae and/or eggs shall be conducted by a qualified biologist. This survey would need to be conducted within the construction limits no more than 2 weeks prior to the start of in-stream construction activities. If larvae or eggs are detected, the biologist shall relocate them to a suitable location outside of the construction limits. **10b:** In the event that a yellow-legged frog is observed within the construction limits, the contractor shall temporarily halt in-stream construction activities until the frog has been moved to a safe location with suitable habitat outside of the construction limits. **10c:** Mitigation measures presented in **Section 3.5** (Water Quality) for addressing erosion and sedimentation and accidental spills shall be fully implemented to mitigate for the potential indirect impacts to potential dispersal habitat due to sedimentation and accidental spills. **10d:** Mitigation measures associated with the disturbance to riparian habitat are discussed in this section under impacts to jurisdictional wetlands (Mitigation Measure 3), and will be fully implemented.		Reclamation	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
Impact 3.7-11	**Construction activities associated with the proposed project could result in impacts to northwestern pond turtle.**		
Mitigation Measures **11a:** A minimum of one survey for pond turtle nests shall be conducted a maximum of one week prior to construction. A qualified biologist shall be retained by Reclamation to conduct the survey. If a pond turtle nest is found, the biologist shall flag the site and determine whether construction activities can avoid impacting the nest. If the nest cannot be avoided, the nest should be excavated by the biologist and reburied at a suitable location outside of the construction limits. **11b:** A biological monitor shall be present on-site during construction to monitor the presence/absence of pond turtles. In the event that a pond turtle is observed within the construction limits, the contractor shall temporarily halt construction activities until the turtle has been moved to a safe location with suitable habitat outside of the construction limits. **11c:** Mitigation measures presented in **Section 3.5** (Water Quality) for addressing erosion and sedimentation and accidental spills shall be fully implemented to mitigate for the potential indirect impacts to potential dispersal habitat due to sedimentation and accidental spills. **11d:** Mitigation measures associated with the disturbance to riparian habitat are discussed in this section under impacts to jurisdictional wetlands (Mitigation Measure 3), and will be fully implemented.		Reclamation	
Impact 3.7-15	**Implementation of the proposed project could result in the spread of non-native and invasive plant species.**		
Mitigation Measures **15a:** Using only certified weed-free erosion control materials, mulch, and seed.		Reclamation	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
15b: Precluding the use of rice straw in riparian areas. **15c:** Limiting any import or export of fill to material not known to be weed free. **15d:** Requiring the construction contractor to thoroughly wash all equipment at a commercial wash facility prior to entering the County. **15e:** If it is determined that non-native vegetation is out-competing growth of desired planted or colonizing riparian vegetation opportunities to control these non-native species may be considered. Within the first 3-5 post-project potential to mow of remove exotic species by manual methods may be considered if deemed appropriate.			
3.8 Recreation			
Impact 3.8-3	**Construction activities associated with the proposed project could lower the river's aesthetic values for recreationists by increasing turbidity levels in the Trinity River.**		
Mitigation Measures **3a:** Turbidity increases associated with proposed project construction activities shall not exceed the NCRWQCB water quality objectives for turbidity in the Trinity River basin. Turbidity levels are defined in nephelometric turbidity units (NTUs). The current threshold for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (2001), is summarized below. ▪ Turbidity shall not be increased by more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof.		Reclamation	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
3b: To ensure that turbidity levels do not exceed the threshold listed above during river's edge project construction activities, Reclamation or their contractor shall monitor turbidity levels 50 feet upstream and 500 feet downstream of the point of river's edge construction activities. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during periods of increased turbidity. 3c: Reclamation or their contractor shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that includes silt fences; sediment filters, dewatering activities, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls and dewatering activities shall be adequate to minimize sediment inputs into the Trinity River until vegetation re-growth occurs. All sediment containment devices and erosion control devices will be inspected daily during the construction period to ensure that the devices are properly functioning. Excavated and stored materials will be kept in upland sites with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland sites. All applicable erosion control standards will be required during stockpiling of materials.			

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
3.11 Cultural Resources			
Impact 3.11-1	**Implementation of the proposed project could potentially result in disturbance of undiscovered prehistoric or historic resources.**		
Mitigation Measures **1a:** Prior to initiation of construction or ground-disturbing activities, all construction workers shall be alerted to the possibility of buried cultural remains. This would include prehistoric and/or historic resources. Personnel shall be instructed that upon discovery of buried cultural materials, work within 50 feet of the find shall be halted and Reclamation's designated archaeologist consulted. Once the find has been identified, then Reclamation will make the necessary plans for treatment of the finds(s) and for the evaluation and mitigation of impacts if the find(s) are found to be significant as defined in the PA.. **1b:** If buried human remains are encountered on non-federal lands during construction, work in that area must be halted, and the Trinity County Coroner's Office ([530] 623-4154) shall be immediately contacted. If the remains are determined to be of Native American origin, then the Native American Heritage Commission (NAHC) will be notified within 24 hours of determination, as required by *Public Resources Code* 5097. The NAHC will notify designated Most Likely Descendants, which will provide recommendations for the treatment of the remains within 24 hours. The NAHC will mediate any disputes regarding treatment of remains. For the discovery of Native American human remains and associated items on Federal lands the Native American Graves Protection Act (25 U.S.C. 3001)and its implementing regulations (43 CFR Part 10) will be followed.		Reclamation	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
If the find is determined to be an historical resource or a unique archaeological resource, as defined by CEQA, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or other appropriate mitigation shall be made available. Work may continue on other parts of the proposed project while historical or unique archaeological resource mitigation takes place.			
3.12 Air Quality			
Impact 3.12-1	**Construction activities associated with the proposed project could result in an increase in fugitive dust and associated particulate matter (PM_{10}; $PM_{2.5}$) levels.**		
Mitigation Measures **1a:** Reclamation shall include provisions in the construction bid documents that the contractor shall implement a dust control program to limit fugitive dust and PM_{10} emissions. The dust control program may include, but not be limited, to the following elements, as appropriate: ▪ Water inactive construction sites at least twice daily. ▪ Pursuant to *California Vehicle Code* (Section 23114), all trucks hauling soil and other loose material to and from the construction site shall be covered or should maintain at least two feet of freeboard (i.e., minimum vertical distance between top of load and the trailer). ▪ Excavation activities and other soil-disturbing activities shall be conducted in phases to reduce the amount of bare soil exposed at any one time. Mulching with weed free materials may be used in site-specific locations to minimize soil erosion as described in discussed in **Section 3.3** and **3.5**.	▪	Reclamation	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
▪ Equipment and manual watering would be conducted on all stockpiles, dirt/ gravel roads, and exposed or disturbed soil surfaces, as necessary, to reduce airborne dust. ▪ Sweep (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites as required by Reclamation. ▪ Sweep roads (with water sweepers) if visible soil material is carried onto adjacent public roads as required by Reclamation. ▪ All ground-disturbing activities with potential to generate dust shall be suspended when winds exceed 20 miles per hour, as directed by the NCUAQMD. Reclamation or its contractor would designate a person to monitor dust control and to order increased watering as necessary to prevent transport of dust offsite. The person would also respond to citizen complaints.			
Impact 3.12-2	**Construction activities associated with the proposed project could result in an increase in construction vehicle exhaust emissions.**		
Mitigation Measures **2a:** Reclamation shall include provisions in the construction bid documents that the contractors comply with NCUAQMD *Rule 420*. This compliance could occur through the use of portable internal combustion engines registered and certified under the state portable equipment regulation (*Health & Safety Code* 41750 through 41755).		Reclamation	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
3.16 Noise			
Impact 3.16-1	**Construction activities associated with the proposed project would result in temporary noise impacts to nearby sensitive receptors.**		
Mitigation Measures **1a:** Construction activities near residential areas would be scheduled between 7:00 AM and 7:00 PM, Monday through Saturday. No construction activities shall be scheduled for Sundays or other hours and days, as established by the local jurisdiction (e.g. Trinity County). The contractor may submit for variances in construction activity hours, as needed. **1b:** Reclamation shall require in construction specifications that the contractor maintain all construction equipment with manufacturer's specified noise muffling devices. **1c:** Reclamation shall require in construction specifications that the contractor place all stationary noise generating equipment as far away as feasibly possible from sensitive noise receptions or in an orientation minimizing noise impacts (i.e., behind existing barriers, storage piles, unused equipment).		Reclamation	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
3.17 Public Services and Utilities / Energy			
Impact 3.17-3	**Implementation of the proposed project could potentially disrupt an existing domestic water supply during the construction phase.**		
Mitigation Measures **3a:** Reclamation shall stipulate in the contract specifications for construction that the contractor must stage construction work and temporary closures in a manner that will allow for emergency service provider access. **3b:** Reclamation shall stipulate in the contract specifications that the contractor must provide 72-hour notice to the local emergency providers (i.e., TCSD, CDF, LCSD, Trinity Life Support Ambulance, and STAR) prior to the start of temporary closures.			
3.18 Transportation / Traffic Circulation			
Impact 3.18-3	**Construction of the proposed project would affect access to adjacent land uses.**		
Mitigation **3a** Construction bid documents will require that access be maintained throughout the construction period for all private residences adjacent to the proposed project. **3b** During the construction phase of the proposed project, Reclamation shall limit the amount of daily construction equipment traffic by staging most construction equipment and vehicles on the proposed project site at the end of each work day.		Reclamation	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
Impact 3.18-4	**Construction of the proposed project would increase local roadway wear-and-tear.**		
Mitigation **4a** Reclamation shall include provisions in the contract specifications that require the construction contractor to perform a pre-construction survey with Trinity County Department of Transportation officials to determine the existing roadway conditions of the construction access route (Dutch Creek and Red Hill Roads). An agreement would be entered into prior to construction that would detail the pre-construction conditions and post-construction requirements for potential roadway rehabilitation. **4b** A post-construction survey of the construction access route (Dutch Creek and Red Hill Roads) shall be performed with Trinity County Department of Transportation officials to determine if any damage has occurred during construction. If necessary, Reclamation shall require the contractor to conduct the required roadway rehabilitation identified in the mutual agreement between Reclamation and Trinity County Department of Transportation.		Reclamation	

Mitigation Measure	Timing/Implementation	Responsible Parties (task)	Verification (date and initials)
Impact 3.18-5	**Construction of the proposed project could pose a safety hazard to motorists, bicyclists, and pedestrians.**		
Mitigation **5a** Reclamation shall include provisions in the contract specifications that require the construction contractor to prepare and implement a traffic control plan that would include: provision and maintenance of temporary access through the construction zone, reduction of speed limits though the construction zone, signage and appropriate traffic control devices, illumination during hours of darkness or limited visibility, use of safety clothing/vests to ensure visibility of construction workers by motorists, and fencing as appropriate to separate pedestrians and bicyclists from construction activities.		Reclamation	

Appendix C

PUBLIC COMMENT SUMMARY

Introduction

The Department of Water Resource (DWR), as defined by the California Environmental Quality Act (CEQA) is the co-lead agency for the Environmental Assessment/Draft Environmental Impact Report (EA/DEIR) of the *Hocker Flat Rehabilitation Site: Trinity River Mile 78 to79*. DWR initiated the public scoping process for the proposed project by forwarding a Notice of Preparation (NOP) for the EA/DEIR to the State Clearinghouse (SCH) on May 17, 2004. The NOP was circulated to the public, to local, state, and federal agencies, and other interested parties in order to solicit comments on the proposed project.

The SCH forwarded the NOP (SCH# 2004052076) to reviewing and responsible agencies requesting agency comments to be directed to DWR. SCH encouraged responsible agencies to transmit their comments on the NOP within 30 days of receipt of the NOP from the Lead Agency.

Following is a summary of public comments for the proposed project.

Agency comments

The Native American Heritage Commission

The Native American Heritage Commission submitted comments on the NOP in a letter dated May 24, 2004. A Sacred Lands record search for the project area failed to indicate the presence of Native American cultural resources in the immediate project area. The Commission therefore provided a list of Native American individuals/organizations who may have other knowledge of cultural resources in the project area.

California Department of Transportation

The California Department of Transportation (Caltrans), District 2, submitted comments on the NOP in a letter dated June 16, 2004. Caltrans expressed potential concerns over increased bank erosion or flooding impacts to State Route 299 within the vicinity of the project area and potential impacts to Canyon Creek relative to the 299 bridge located near the confluence of Canyon Creek and the Trinity River. Caltrans also expressed their interest in the possibility of mitigation measures if increased bank erosion or flooding negatively impacted the State's facilities.

California Department of Fish and Game, North Coast Region

The California Department of Fish and Game (DFG) submitted comments on the NOP in a letter dated June 18, 2004. DFG agrees with the NOP's list of special-status species, which have the potential to be present within the vicinity of the project area. In addition to the species list, the DFG's natural diversity

database shows that foothill yellow-legged frogs (*Rana boylii*), a State species of special concern, occur in the vicinity of the project area. DFG would like to see evaluation of significant biological impacts to these species and specific mitigation measures to avoid or minimize these potential impacts. DFG requests that they be notified if the proposed project includes physical manipulation of the Trinity Riverbank and floodplain. DFG recommends that the North Coast Regional Water Quality Control Board be notified if the proposed project results in the mobilization of mercury from past mining practices.

Public Scoping Meeting

The public scoping period for the project area occurred May 17, 2004 through June 17, 2004, and scoping comments were received through June 25, 2004. The Bureau of Reclamation (BOR) and the DWR held a joint scoping meeting on June 2, 2004, in Junction City, California. During this meeting, members of the public were asked what issues they felt should be addressed in the EA/DEIR. These areas of concern and other oral comments received at the scoping meeting were considered during the preparation of the EA/DEIR.

The following is a list of individuals that attended the June 2, 2004 public scoping meeting for the proposed project:

Dills, Shirley

Eggleston, Jack

Shubat, Kirk

Solbos, Sandra

Krause, Juliana

Smith, Jim

Fornaciari, Michael

Camera, Christine

State of California
Resources Agency
Department of Water Resources
NOTICE OF PREPARATION
FOR AN ENVIRONMENTAL IMPACT REPORT
Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

TO: Responsible and Trustee Agencies, and Interested Parties

FROM: State of California, Resources Agency, Department of Water Resources

SUBJECT: Notice of Preparation for a Draft Environmental Impact Report (EIR) and Environmental Assessment (EA) for the Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1.

LEAD AGENCY: Department of Water Resources (DWR), State of California

PROJECT TITLE: Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

PUBLIC SCOPING MEETING: A public scoping meeting has been scheduled for June 2, 2004 at 6:30 pm at the Junction City Community Hall, 71 Dutch Creek RD. (Just south of HWY 299), Junction City, CA. Information on the project will be presented and comments on the scope of the EIR accepted.

NOTICE OF PREPARATION COMMENT PERIOD: A public review period for the Notice of Preparation has been established from May 19, 2004 through June 19, 2004. The purpose of this comment period is to provide involved agencies and the public an opportunity to learn about the project and to solicit comments to assist the Lead Agencies in identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in the EIR/EA.

Public and agency comments must be received no later than 5:00 p.m. on June 19, 2004. Please address comments, questions, and responses to:

Department of Water Resources c/o
Trinity River Restoration Program
Attn: Brandt Gutermuth
P. O. Box 1300
1313 Main Street
Weaverville, CA 96093
Voice (530) 623-1806 or Fax (530) 623-5944

APPLICANT:
U.S. Bureau of Reclamation, Northern California Area Office
Trinity River Restoration Program
P. O. Box 1300
1313 Main Street
Weaverville, CA 96093

Date _____ **Signature** _____

Dwight Russell, Chief
Northern District
Department of Water Resources

BACKGROUND: The Central Valley Project Improvement Act (1992) and the Trinity River Basin Fish and Wildlife Management Act (1984) provide the legal authority for projects that restore the fishery resources of the Trinity River. Specifically, these acts include language intended to protect, restore, and enhance fish, wildlife, and associated habitats within the Trinity River Basin.

In December 2000, the Secretary of Interior signed a Record of Decision (ROD) for the Trinity River Fishery Restoration Final Environmental Impact Statement (FEIS). This decision recognized that restoration and perpetual maintenance of the Trinity River's fishery resources requires rehabilitating the river itself, and restoring the attributes that produce a healthy, functioning alluvial river system. Consequently the ROD included five components to ensure long-term restoration and maintenance of the Trinity River: a) Variable annual instream flows ranging from 369,000 acre-feet (af) in critically dry years to 815,000 af in extremely wet years; b) Physical channel rehabilitation, including the removal of riparian berms and the establishment of side channel habitat; c) Sediment management, including the supplementation of spawning gravels below Lewiston dam and reduction in fine sediments which degrade fish habitats; d) Watershed restoration efforts, addressing negative impacts which have resulted from land use practices in the Basin; and e) Infrastructure improvements or modifications, including rebuilding or fortifying bridges and addressing other structures affected by the peak instream flows provided by the ROD.

The ROD's channel rehabilitation component focused attention on the need to physically manipulate the bank and floodplain features of the Trinity River between River Mile 112.0 (Lewiston Dam) and River Mile 72.4 (North Fork Trinity River). The channel reconstruction is intended to restore the Trinity River's historic alternate point bar morphology and habitat complexity to improve fishery resources. The Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1 (Project) is a pilot project to implement the ROD's mechanical rehabilitation component and rework the Trinity River floodplain based on pre-dam channel morphology characteristics.

The DWR, which has completed engineering designs for the project and has participated in the Trinity River Restoration Program for many years, will serve as the state California Environmental Quality Act (CEQA) Lead Agency and will prepare an Environmental Impact Report (EIR) for the project as described below. DWR requests your views concerning the scope and content of the environmental information germane to your interests or agency's statutory responsibilities in connection with the proposed project. Your agency will need to use this EIR/EA prepared by DWR when considering your permit or other approvals for the project. The Bureau of Reclamation (Reclamation) will be the federal National Environmental Quality Act (NEPA) lead agency, with the Bureau of Land Management (BLM) acting as a cooperating agency under NEPA.

A project description, location maps, and a summary of the potential environmental effects are included in this Notice of Preparation.

PROJECT LOCATION: The Project is located on the Trinity River, immediately downstream from Junction City, a small community in Trinity County, California (Figure 1). The upstream end of the Hocker Flat Rehabilitation Site is situated at River Mile 79.1, immediately downstream from Canyon Creek, a tributary to the Trinity River. The project extends downstream approximately 1.1 miles and encompasses both sides of the Trinity River. River Mile 78.0 marks the downstream boundary of the project. The project area is generally associated with Hocker Flat as shown on the *Junction City, California* 7.5-minute United States Geological Survey (USGS) quadrangle map, Township 33 North, Range 11 West, Sections 1 and 12, Mount Diablo Base Meridian (MDBM), 040° 44' 26" North latitude by 123° 03' 47" West longitude.

PROJECT DESCRIPTION: In joint action with Reclamation and BLM, DWR is evaluating a pilot river rehabilitation project for the reach of the Trinity River locally known as Hocker Flat. As a pilot, this project represents the initial efforts to implement the mechanical channel rehabilitation component described in the 2000 ROD.

Within the environmental study limits (ESL) of the project, 16 discrete activity areas have been identified (Figure 2). For identification purposes, these areas are labeled as R (River) or U (upslope riparian), based on the type of restoration proposed. Within these activity areas, a variety of discrete actions may be conducted that are intended to enhance or reestablish the Trinity River's alternate point bar morphology and channel complexity, and to subsequently provide an increase in useable fish habitat. In addition, these actions are intended to enhance the riparian and terrestrial habitat adjacent to the Trinity River. The following actions may be conducted in one or more activity areas as part of this project.

- Removal of Vegetation
- Earthwork in the Trinity River Floodplain
- Material Transportation
- Material Disposal
- Revegetation

POTENTIAL ENVIRONMENTAL EFFECTS:
The EIR/EA is being prepared to evaluate potentially significant impacts to the environment. The following section provides a brief discussion of the environmental factors that will be addressed in the EIR/EA.

Air Quality. The EIR/EA will address regional air quality conditions in Trinity County and the air quality impacts resulting from the actions incorporated into this project. Air quality will be examined to determine if the proposed project would result in a conflict with the North Coast Unified Air Quality Management District regional air quality plan. The nearby Weaverville Basin is in moderate "non-attainment" of state PM10 standards. Vehicle exhaust and fugitive dust from construction activities on and adjacent to the site will be considered.

Noise. Potential noise impacts associated with construction will be assessed in the EIR/EA. Noise levels will be evaluated for consistency with the Junction City Community Plan, the Trinity County General Plan and Zoning Ordinance, and State and federal standards and guidelines regulating noise on public and private lands.

Geology and Soils. Geological and seismic safety, and soils stability will be addressed in the EIR/EA.

Hydrology, Water Quality, and Floodplains. The EIR/EA will address any hydrology, water quality, and floodplain impacts that may occur as a result of the proposed project.

The construction phase of the project may have the potential to increase erosion, turbidity and sedimentation levels downstream of the project sites. Activities within the active channel of the Trinity River would be subject to water quality limitations imposed by the California North Coast Regional Water Quality Control Board in conjunction with the issuance of a 401 Certification pursuant to the federal Clean Water Act.

The Trinity River has been listed under Section 303(d) of the Clean Water Act as a waterbody impaired by sediment. A Total Maximum Daily Load (TMDL) for the Trinity River was completed by the U.S. Environmental Protection Agency in December, 2001. It is anticipated that the project will improve the beneficial uses of the Trinity River (cold water fisheries) that are impaired by sediment.

Per federal Executive Order 11988 (pertaining to floodplain involvement), public notice is hereby given that the project may encroach upon the 100-year floodplain. If it is determined that project activities would result in a change to the 100-year floodplain, a floodplain risk assessment will be performed to determine what impacts, if any, would occur to adjacent structures and the public. However, it is anticipated that completion of the proposed project will reduce flooding risks and will not adversely affect the 100-year floodplain and Base Flood Elevations in the project areas. If the Trinity River 100-year

floodplain is affected by the project, a Conditional Letter of Map Revision (CLOMR) will be submitted to the Federal Emergency Management Agency (FEMA). The DWR will be responsible for preparing the CLOMR and defining updated Base Flood Elevations using the best hydrology information that is available. In addition, project activities in designated floodplains on private lands will require issuance of a Floodplain Development Permit from Trinity County.

Biological Resources. Existing biological conditions within the Trinity River and the area surrounding the project sites will be described, and potential impacts of the proposed project on vegetation and wildlife will be assessed. The EIR/EA will evaluate the likelihood for any significant biological impacts, including effects on endangered, threatened, rare, or other special status plant and animal species, and wetland/special aquatic resources.

The area defined by the ESL for the proposed project has the potential to support a variety of special-status species (listed and non-listed). Spring and fall chinook salmon, coho salmon, Pacific Lamprey and summer and winter steelhead are known to spawn within the Trinity River, and suitable spawning habitat is available for the species within the study limits of the project. In addition, the Trinity River is designated as critical habitat for coho salmon by the National Oceanic and Atmospheric Administration: Fisheries Section (NOAA Fisheries). Other special-status and listed species within the project area could potentially include the willow flycatcher, green sturgeon, silky cryptantha, northwestern pond turtle, yellow warbler, yellow-breasted chat, bald eagle, and osprey. A comprehensive plant and wildlife survey will be conducted to determine species presence/absence and potential project-related effects to species that are determined to be present.

A Biological Assessment may be required pursuant to Section 7 of the Federal Endangered Species Act (federal Endangered Species Act [ESA]) to address impacts to listed riparian and terrestrial species under the jurisdiction of the U.S. Fish and Wildlife Service. A Biological Opinion (BO) was issued by NOAA Fisheries (formerly National Marine Fisheries Service) on October 12, 2000 for the Trinity River Fisheries Restoration Program. This BO is considered adequate to address listed fish species that may be affected by this project. If required by the California Fish and Game Code, a “2081 Incidental Take Permit” (California Endangered Species Act) and a “1601 Streambed Alteration Agreement” may be issued, based on the certified final EIR, by the California Dept of Fish and Game, acting as a responsible agency.

The project will be assessed for consistency with the state and federal Wild and Scenic Rivers Acts. Completion of the project is expected to enhance anadromous salmon and steelhead fisheries; both identified as outstandingly remarkable values of the Trinity River.

The project includes a variety of riparian and wetland habitat elements. These elements are considered sensitive, and ecologically important to a variety of human and natural resources. Activities associated with the project could result in the loss of an undetermined acreage of riparian habitat.

Per federal Executive Orders 11990 (pertaining to wetlands), public notice is hereby given that the project may encroach upon wetlands. Construction activities associated with the proposed project could result in temporary and permanent impacts to wetland features within the ESL that are subject to U.S. Army Corps of Engineer’s (ACOE) jurisdiction, pursuant to Section 404 of the Clean Water Act. Within the ESL, a delineation of jurisdictional waters of the United States will be conducted and a delineation report will subsequently be submitted to the ACOE for review and verification, as necessary.

Cultural Resources. A cultural resources survey and evaluation will be conducted, in consultation with the State Historic Preservation Officer. This evaluation will assess the area within the environmental study limits of the project to determine the presence and significance of cultural and archaeological resources identified. The project site does not contain any known cultural resources; however, there may be cultural resources that are currently hidden within the project study limits that could be unearthed and discovered during the construction phase of the project. If cultural resources are encountered during the

survey, a determination will be made as to their eligibility for listing in the National Register of Historic Places. The study will be transmitted to the State Office of Historic Preservation for concurrence with any eligibility determinations, in accordance with Section 106 of the National Historic Preservation Act.

Hazards. The actions associated with the project are not expected to involve the use of hazardous materials and, therefore, will not expose the public to significant hazard. Historic Mercury deposits from past mining efforts likely exist on site. Hazards related to movement of earth and its effects on Mercury availability will be addressed.

Land Use. The proposed project is consistent with Trinity County's General Plan and related policies. No buildings or permanent structures are located within the ESL. Mineral extraction activities occur within the ESL, and will be incorporated into the project design. Growth-inducing impacts are not expected to occur as a result of the project, but will be examined.

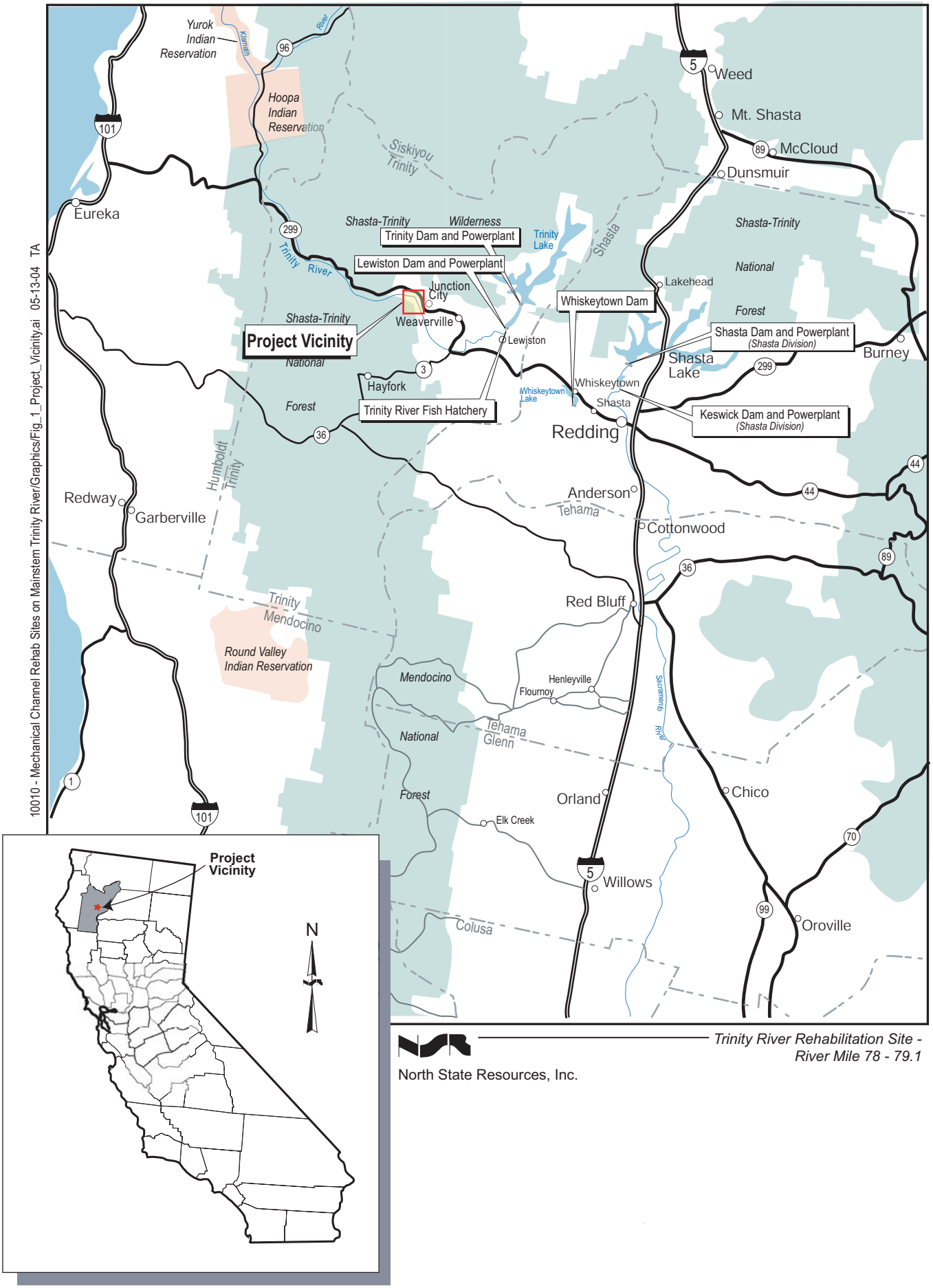
Socioeconomic/Displacements/Environmental Justice. Right-of-way acquisition, residential/business displacements, relocation assistance, business impacts, and neighborhood cohesion will be analyzed pursuant to both CEQA and NEPA. In addition, environmental justice concerns will be addressed pursuant to NEPA.

Public Services/Utilities. An analysis of public services and utilities associated with the project will be included in the EIR/EA.

Visual Resources. A Visual Impact Analysis will be included in the EIR/EA describing the existing visual characteristics of the project area and analyzing any potential visual impacts.

Transportation and Circulation. Transportation and circulation impacts will be analyzed for each of the alternatives, including access during construction, and any impacts to public roads, including State Highway 299 West. A main objective of the project is to ensure implementation in a manner that provides safe transit in and adjacent to the project area. Project work within existing Right-of-Ways for public roads may require issuance of an encroachment permit from the responsible agency.

Construction Impacts. The document will identify and analyze any further short-term construction impacts associated with air quality, noise, water quality, traffic congestion and detours, safety, visual, business access, community facilities, etc.



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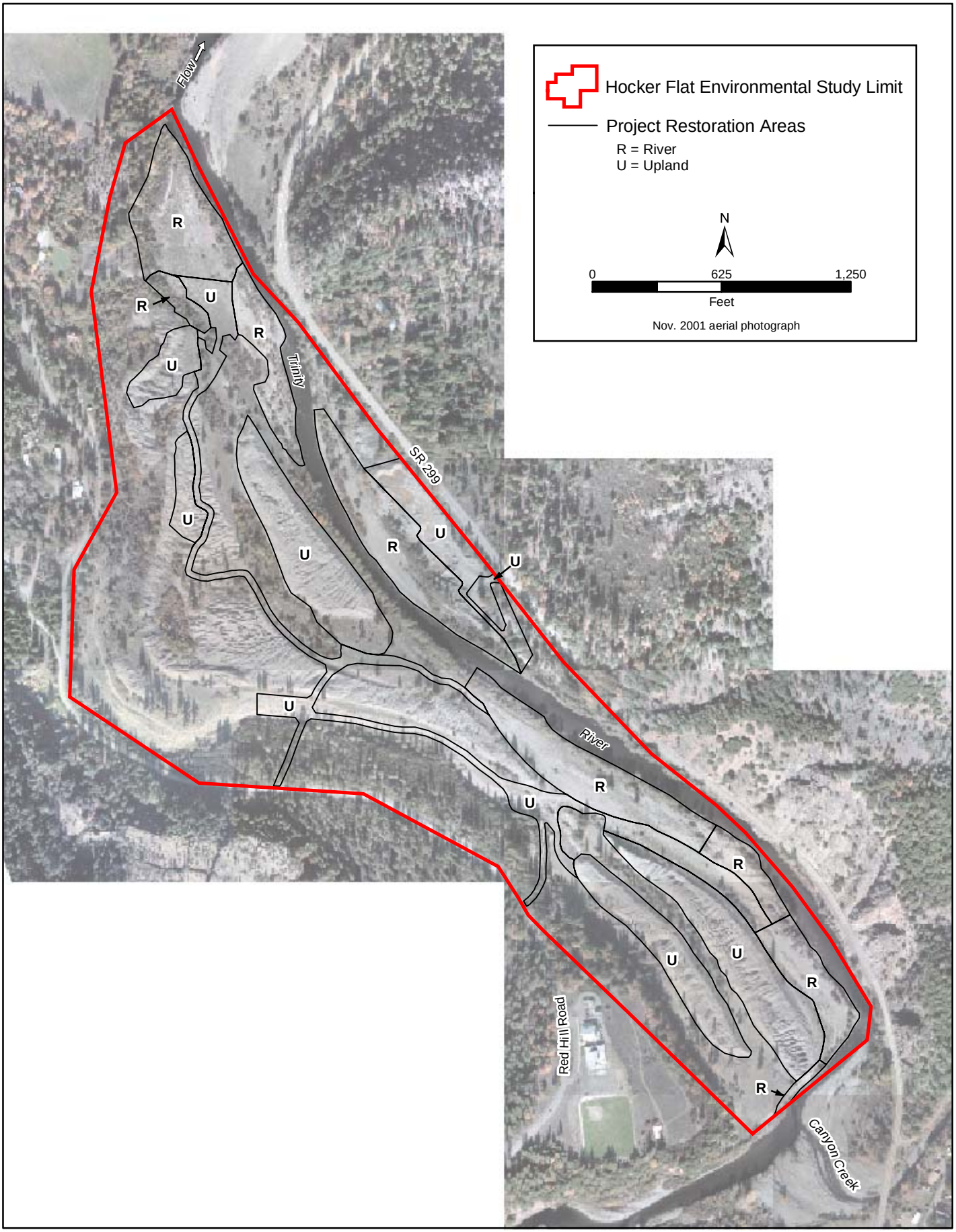
North State Resources, Inc.

Trinity River Rehabilitation Site - River Mile 78 - 79.1

Figure 1
Project Vicinity



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North State Resources, Inc.

Trinity River Rehabilitation Site - River Mile 78 - 79.1

Figure 2
Project Restoration Areas

Appendix D

TRINITY RIVER MECHANICAL CHANNEL REHABILITATION PILOT PROJECT

Delineation of Waters of the U.S. Including Wetlands - Final

JULY 15, 2003

Prepared for:
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

Prepared by:
NORTH STATE RESOURCES, INC.

North State Resources, Inc.

TRINITY RIVER MECHANICAL CHANNEL REHABILITATION PILOT PROJECT – HOCKER FLAT

Delineation of Waters of the U.S. Including Wetlands - Final

JULY 15, 2003

Prepared for:
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North State Resources, Inc.

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TRINITY RIVER MECHANICAL CHANNEL REHABILITATION PILOT PROJECT – HOCKER FLAT

Delineation of Waters of the U.S. Including Wetlands - Final

1. INTRODUCTION

The United States Department of the Interior, Bureau of Reclamation (BOR) is proposing mechanical removal of select berms currently in place between Lewiston Dam and the North Fork Trinity River as part of a rehabilitation pilot project to restore portions of the Trinity River channel in Trinity County, California. Prior to project initiation, Section 404 of the Federal Clean Water Act (1972) requires a diagnostic environmental characterization of the proposed project area with the express purpose of identifying vegetative, hydrologic, and soils traits indicative of wetland habitats. The U.S. Army Corps of Engineers (Corps) has been authorized to issue permits for the discharge of dredged or fill material into all waters of the United States, including wetlands.

In accordance with the Corps methodology (Environmental Laboratory 1987), North State Resources, Inc. (NSR) conducted a routine wetland delineation at the proposed Hocker Flat Channel Rehabilitation Project Site.

2. PROJECT BACKGROUND

The Trinity River Division (TRD) of the Central Valley Project (CVP) primarily influences the regional hydrology. The TRD consists of a series of dams, tunnels, and power plants that export water from the Trinity River Basin into the Sacramento River Basin. Trinity and Lewiston Dams currently regulate Trinity River flows below River Mile (RM) 112. With a capacity of 2.4 million-acre feet (maf), Trinity Reservoir is the largest component of the TRD. Releases from Trinity Reservoir are re-regulated in Lewiston Reservoir prior to release downstream into the Trinity River. Lewiston Reservoir also acts as a forebay for the trans-basin export of water into Whiskeytown Reservoir via the Clear Creek Tunnel. Lewiston Dam marks the upstream limit of anadromous salmonid access.

The Trinity River drains a watershed of approximately 2,965 square miles, about one-quarter of which is above Lewiston Dam. Elevations range from 8,888 feet mean sea level (msl) at Sawtooth Mountain in the Trinity Alps to 300 feet msl at the confluence of the Trinity and Klamath Rivers. The Trinity River is the largest tributary to the Klamath River. The mainstem Trinity River flows a total of 170 miles from its headwaters to its confluence with the Klamath River at Weitchpec, 43.5 miles upstream from the Pacific Ocean.

Prior to completion of the TRD, flows in the Trinity River were highly variable, ranging from summer flows of 25 cubic feet per second (cfs) to extreme winter events with instantaneous peak flows greater than 100,000 cfs. Annual hydrographs typically followed a seasonal pattern of high winter and spring flows followed by low summer and fall flows. Total annual flow volumes at Lewiston historically range from 0.27-2.7 maf, with an average of 1.2 maf.

Since operation of the dam began in 1964, an average of 74 percent of the river's flow has been exported annually. In recent years (1985-1997), annual exports have decreased to an average of 732,400 acre feet (af). Conversely, post-dam Trinity River flows at Lewiston have been as low as 10 percent of pre-dam levels. The flood season on the Trinity River usually lasts from October through April, when over 90 percent of the annual precipitation falls. Floods on the Trinity River are somewhat controlled by the dams upstream of Lewiston.

3. PROJECT LOCATION

The proposed Hocker Flat Channel Rehabilitation Site begins at River Mile 79.1 and extends 1.1 miles downstream along the Trinity River, downstream of the intersection of Canyon Creek Road and Highway 299 in the town of Junction City, California. It is found on the *Junction City, California* 7.5-minute USGS quadrangle map, Township 33 North, Range 11 West, Sections 1 and 12, MDBM, 040° 44' 26" North latitude by 123° 03' 47" West longitude. **Figure 1** illustrates the regional vicinity of the proposed project, while the project location is shown in **Figure 2**. A USGS 7.5-minute topographic map depiction of the site Environmental Study Limits (ESL), as defined by the BOR, is shown in **Figure 3**.

3.1 Acreage

Total acreage within the ESL for the proposed Hocker Flat Project site is 151.33 acres. Of this total, 39.77 acres is comprised of dredger tailings.

3.2 Proximity To Major Highways And Streets

The proposed Hocker Flat Channel Rehabilitation Site is immediately adjacent to California State Highway 299 West. From Weaverville continue west on Highway 299 to Junction City. A portion of the site, the right or northeast bank is located between Highway 299 and the Trinity River. Access to this bank can be made via the turnout on the southwest side of the highway, approximately ¾ mile west of Junction City. The left (southwest) bank of the site can be reached by turning left (west) onto Dutch Creek Road, immediately before entering Junction City. Proceed across the river and turn right (north) on Red Hill Road. The access point is a private, unmarked driveway, northwest of the Junction City Elementary School, less than 1/10 mile from the intersection of Dutch Creek Road and Red Hill Road.

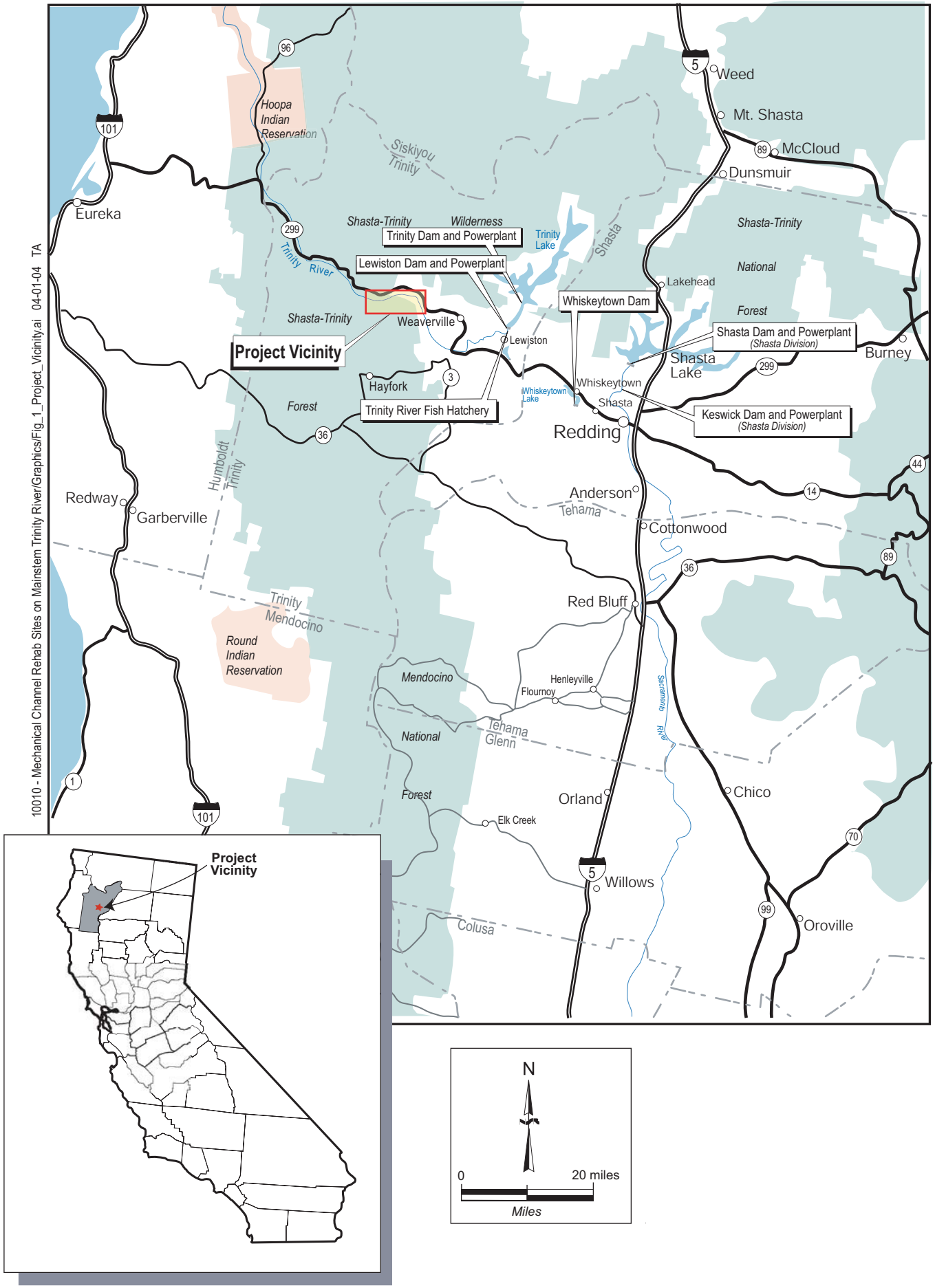
3.3 USGS Hydrologic Unit

The project study area is located within USGS Hydrologic Map Unit Number 18010211.

4. ENVIRONMENTAL SETTING

4.1 Current/Recent Land Use

The Trinity River Basin encompasses the majority of Trinity County and the easternmost portion of Humboldt County. Topography is predominantly mountainous and heavily forested with little available farming area. Two scenic byways cross the County: Highway 299 and State Route 3. Lakes and rivers provide recreational opportunities including fishing and boating. Most of the Hoopa Valley Indian Reservation is within the basin. Land use within the Trinity River Basin is greatly influenced by the large amount of public, tribal, and private forestlands, much of which is used for timber production and other natural resource related uses. Private uses along the Trinity River are



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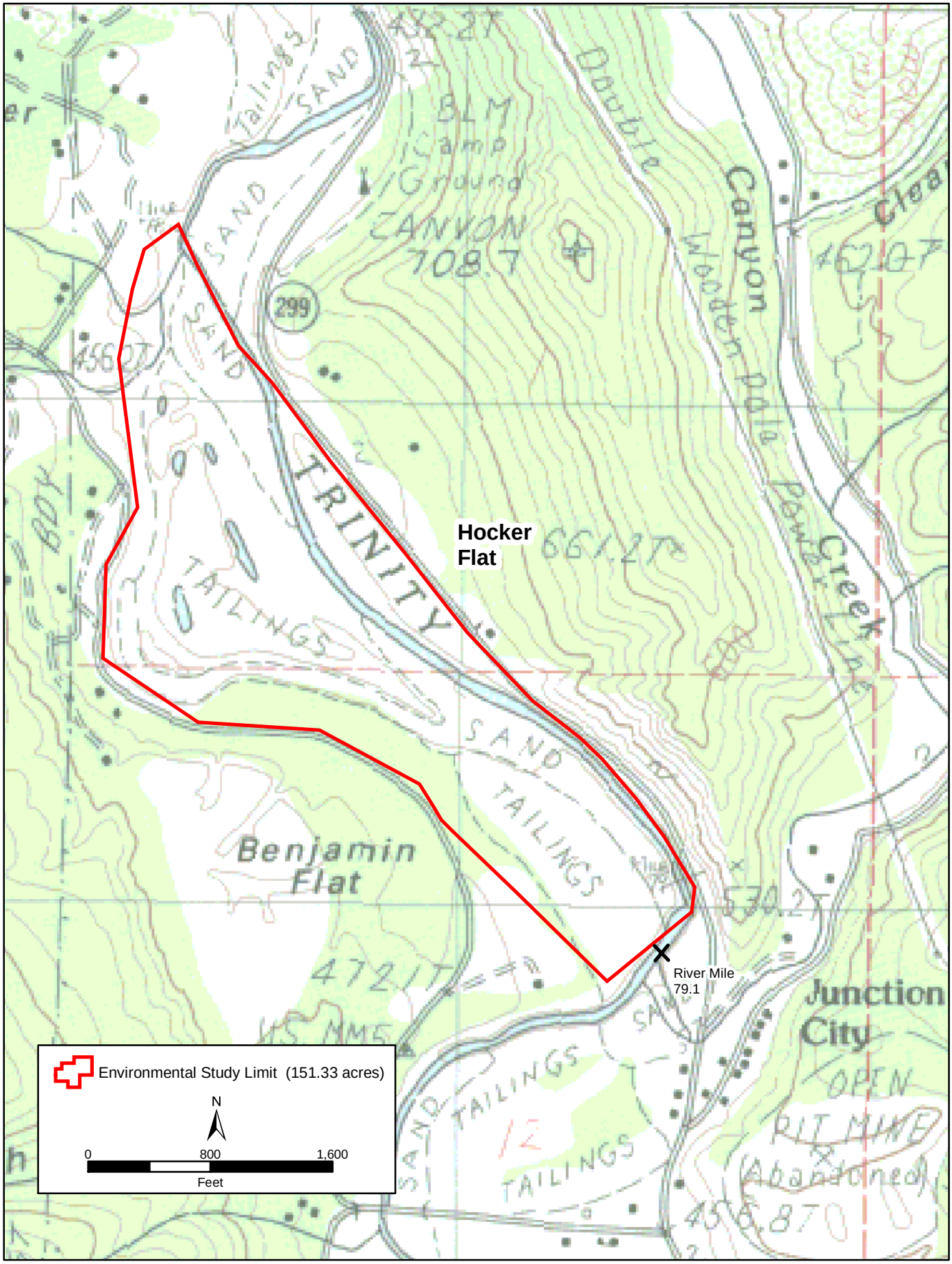
Trinity River Mechanical Channel Rehabilitation Sites Project

North State Resources, Inc.

Figure 1
Project Vicinity



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Trinity River Mechanical Channel Rehabilitation Sites Project

North State Resources, Inc.

Figure 2
Hocker Flat Project Location

Hocker Flat Environmental Study Limit

generally limited to scattered residential and commercial development. State Highway 299 is the primary travel corridor through Trinity County, connecting the Central Valley with the coastal communities of Humboldt County.

The Trinity River Basin is sparsely populated. Trinity County had a population of 13,116 in 2001 (U.S. Census Bureau 2002). Throughout the watershed, residential, commercial, and industrial uses tend to be concentrated on relatively flat areas near the Trinity River or its tributaries, as typified by the population centers of Weaverville, Hayfork, Lewiston, Willow Creek, and Hoopa. Together, these communities house two-thirds of the basin's 15,000 people.

Land ownership within the proposed channel rehabilitation site is mostly private; however, the Bureau of Land Management (BLM) also holds properties within, or adjacent to, the project area. A visual depiction of land ownership at the site is shown in **Figure 4**. (Note that reference made to "No Parcel Owner" on **Figure 4** indicates that Trinity County has no record of parcel ownership (Emery, personal communication)).

4.2 Site Elevation

The approximate elevation at proposed Hocker Flat site is 1,595 feet msl.

4.3 Climate

- ***Type:*** Mediterranean with moderate winters and hot, dry summers.
- ***Precipitation:*** Approximately 38 inches annually, most of which falls between October 1 and April 30.
- ***Air temperature:*** The average annual air temperature is approximately 53 degrees Fahrenheit (F). The average January high temperature is 46.7º F and average July high temperature is 93.4º F.
- ***Growing season:*** Approximately 130 days (assume May 24 to September 26).

4.4 Site Topography/Landscape

The proposed Hocker Flat site is immediately adjacent to the Trinity River and is generally flat within the river floodplain with relatively steep slopes leading from Highway 299 to the Trinity River on the eastern portion of the project site and steep toe slopes leading out of the channel and into the adjacent forested hillsides on the west side. Dredger tailing piles of various sizes are scattered throughout the river channel, above the ordinary high water mark.

4.5 Hydrology/Hydrologic Features

Hydrology of the site is influenced almost exclusively by the mainstem of the Trinity River and associated operation of the TRD of the Central Valley Project (i.e., Lewiston Dam and Trinity Dam). To a lesser extent, runoff from adjacent roads and hillsides following precipitation events also affect portions of each site. Canyon Creek to the south of the Hocker Flat site, as well as several other unnamed ephemeral and perennial drainages scattered throughout the project area, are a source of fine and coarse sediment and flow into the Trinity River.

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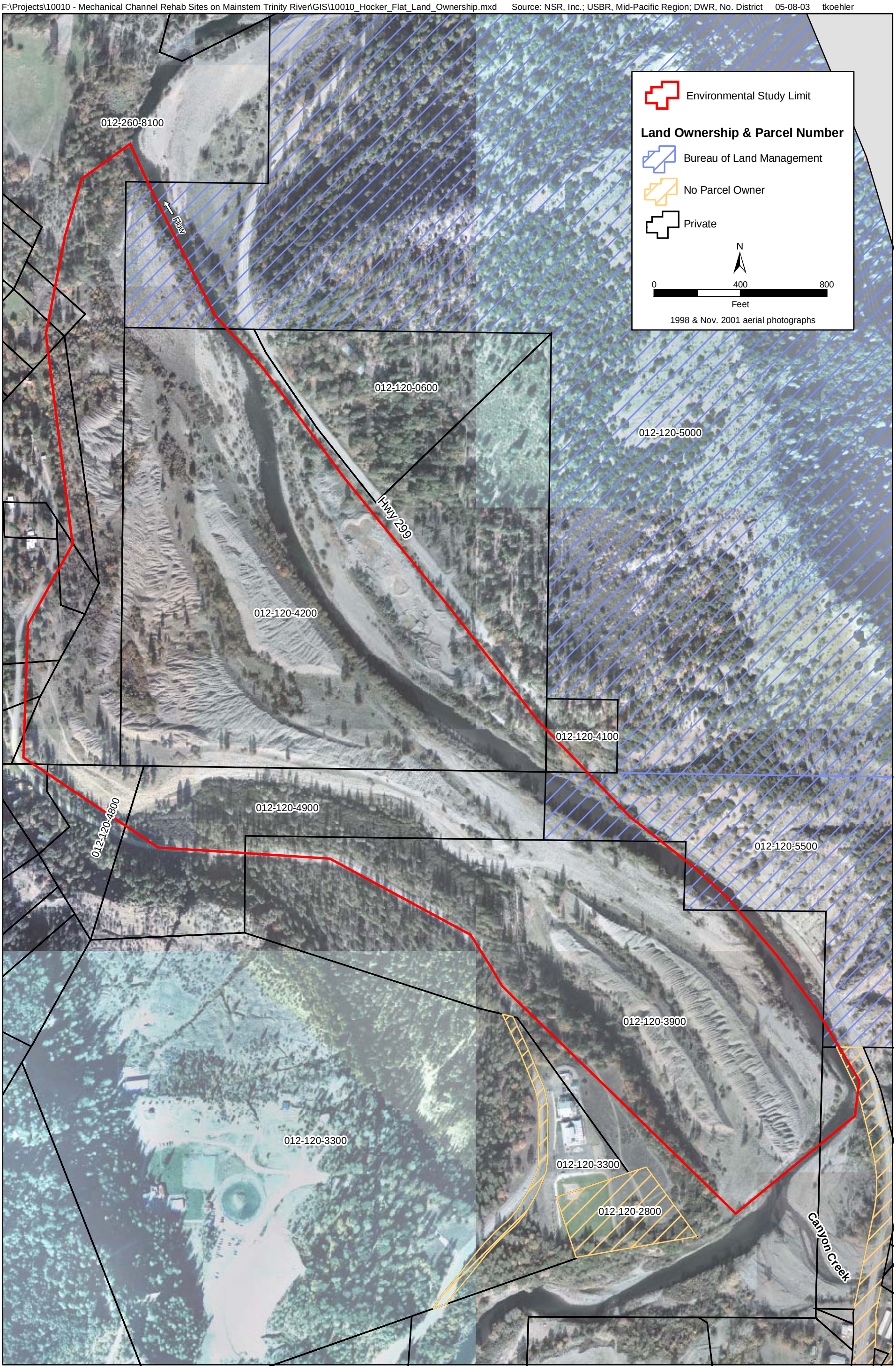

Trinity River Mechanical Channel Rehabilitation Sites Project

North State Resources, Inc.

Figure 4
Hocker Flat Land Ownership

4.6 Soils

Soils within the study area are described in the *Soil Survey of Trinity County, California, Weaverville Area* (USDA 1998). Soil survey maps of the study area are presented in **Appendix A**. Two soil map units were identified within the project study area. Following is a brief characterization of these soils:

- ***101 – Atter extremely gravelly loamy sand, 9 to 15 percent slopes.***
  *This very deep, somewhat excessively drained soil is on alluvial fans and stream terraces. It is in areas adjacent to perennial streams. It formed in alluvium and outwash from hydraulic mining of mixed rock sources. Typically, about 35 percent of the surface is partially covered with cobbles and gravel and with a 1-inch mat of leaves, needles, and twigs. Included in this soil in mapping are small areas of Rock outcrop; Xerofluvents under woody streamside vegetation, such as willows and alders; Weaverville clay loam, 30 to 50 percent slopes, on hills under conifers; and Xeralfs on terraces and hills. Permeability is rapid in the Atter soil. Available water capacity is very low. The effective rooting depth is more than 60 inches. Runoff is slow, and the hazard of water erosion is slight. Vegetation associated with this soil type provides important habitat for wildlife. (*USDA 1998)

- ***102 – Atter-Dumps, dredge tailings-Xerofluvents complex, 2 to 9 percent slopes.***
  This map unit is on alluvial fans, stream terraces, and flood plains that have been altered by dredging operations. This unit is about 50 percent Atter extremely gravelly loamy sand; 20 percent Dumps, dredge tailings; and 15 percent Xerofluvents. The Atter soil is very deep and is somewhat excessively drained. Permeability is rapid in the Atter soil. Available water capacity is very low. Runoff is slow, and the hazard of water erosion is slight. Dumps and dredge tailings consist of nearly barren mounds deposited along stream channels by dredge mining activities. Permeability is rapid in areas of the Dumps. Runoff is medium, and the hazard of water erosion is slight. Xerofluvents consist of well-drained soils that formed in alluvium derived from mixed rock sources. Permeability is medium or rapid in the Xerofluvents. Available water capacity is very low or low. Runoff is slow or medium, and the hazard of water erosion is slight or moderate. These soils are subject to flooding during prolonged, high-intensity storms. The frequency of the flooding ranges from rare to frequent. Channeling and deposition are common along streambanks. This unit serves mainly as watershed or is used as wildlife habitat or recreational areas. The Xerofluvents provide seasonal habitat for fish and wildlife. (USDA 1998)

- ***213 - Xeralfs-Xerorthents complex, 5 to 50 percent slopes.***
  *This map unit is on hills and terraces. Much of the soil material has been removed by hydraulic mining. Areas are dissected by perennial streams. This unit is about 40 percent Xeralfs and 40 percent Xerorthents. Included in this unit are small areas of Weaverville clay loam, 9 to 30 percent slopes, and Musserhill gravelly loam, 9 to 30 percent slopes on hills; areas of Xerofluvents under woody streamside vegetation, such as alder and willow, on stream terraces. Also included are small areas of Rock outcrop, pits, and steep scarps and barren, eroding areas that have been disturbed by hydraulic mining. The Xeralfs consist of well-drained soils of variable depths. These soils formed in alluvium from mixed rock sources and material weathered from weakly consolidated nonmarine sediments. Permeability is very slow to moderate in the Xeralfs. Available water capacity is very low to moderate. The effective rooting depth is 10 to 60 inches. Runoff is rapid, and the hazard of erosion is moderate or severe. The Xerorthents consist of well-drained soils of variable depths. These soils are formed in alluvium from mixed rock sources and material weathered from schist. Permeability is slow or moderate in the Xerothents. Available water capacity is very low or low. The effective rooting depth is 5 to 40 inches. Runoff is very rapid, and the hazard of water erosion is moderate or severe. Vegetation associated with this soil type provides important habitat for wildlife. (*USDA 1998)

- ***217 – Xerofluvents-Riverwash complex, 0 to 5 percent slopes.***
  This map unit is on flood plains and stream terraces. It formed in alluvium derived from mixed rock sources. This unit is about 45 percent Xerofluvents and 35 percent River wash. Included in mapping are varying areas of the stream channel that are under water during some times of the year. Xerofluvents consist of well-drained soils that formed in alluvium from mixed rock sources. Permeability is moderate to rapid in the Xerofluvents. Available water capacity is very low or low. Runoff is slow or medium, and the hazard of water erosion is slight or moderate. These soils are subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks. Riverwash consists of nearly barren, unstabilized, stratified sandy, silty, clayey, stony, cobbly, or gravelly alluvium derived from mixed rock sources. Areas of Riverwash are flooded, channeled, and reworked nearly every winter. This unit is used as watershed areas, recreational areas, or wildlife habitat. A few areas are mined for sand and gravel. Careful management of watershed land, recreational areas, and wildlife habitat is needed to keep surface erosion to a minimum and to maintain the quality of the runoff. Areas of Xerofluvents and Riverwash provide seasonal habitat for fish and wildlife. The excessive removal of aggregates can lower the level of streambeds and widen stream channels and thus can undermine structures, lower the water table in areas adjacent to stream channels, erode streambanks, and increase sedimentation downstream. This sedimentation reduces spawning habitat for fish. (USDA 1998)

4.7 Plant Communities

The project study area supports three (3) plant communities: Montane Hardwood-Conifer, Montane Riparian, and Annual Grassland habitats (Mayer and Laudenslayer 1988). **Figure 5** illustrates these plant communities and jurisdictional boundaries of Waters of the U.S. (including wetlands) for the site. Waters of the U.S. under Corps jurisdiction within the project area include riparian wetland, fresh emergent wetland, and seasonal wet meadow features. Other Waters of the U.S. consist of riverine (the Trinity River), pond, and perennial stream features. Each jurisdictional feature (e.g. riparian wetland) is described as a subset of the associated plant community where it occurs.

Montane Hardwood-Conifer (MHC)

In the northern interior of California, MHC habitat consists of at least one-third conifer and at least one-third broadleaf trees scattered throughout the landscape in a mosaic-like pattern of small pure stands of conifers interspersed with small stands of broad-leaved trees (Mayer and Laudenslayer 1988). Geographically and biologically, MHC often serves as a transitional ecotope between dense coniferous forest and montane hardwood, mixed chaparral, or open woodland habitat types. Intermittent creek habitat occurs within this habitat type. This feature is described following a brief description of the MHC habitat.

Dominant tree species observed within this habitat include Pacific madrone (*Arbutus menziesii* – UPL), bigleaf maple (*Acer macrophyllum* – FAC), ponderosa pine (*Pinus ponderosa* – FACU), gray pine (*Pinus sabiniana* – UPL), Douglas fir (*Pseudotsuga menziesii* var. *menziesii* – UPL), canyon live oak (*Quercus chrysolepsis*– UPL), and black oak (*Quercus kelloggii* – UPL). Shrub species observed includes common manzanita (*Arctostaphylos manzanita* – UPL), buck brush (*Ceanothus cuneatus* – UPL), cascara (*Rhamnus purshiana* – NI), skunkbrush (*Rhus trilobata* – NI), snowberry (*Symphoricarpos albus* var. *laevigatus* – FACU), and poison oak (*Toxicodendron diversilobum* – UPL). The underlying herbaceous layer includes ripgut brome (*Bromus diandrus* – UPL), cheatgrass (*Bromus tectorum* – UPL), blue wild rye (*Elymus glaucus* – FACU), silver bush lupine (*Lupinus albifrons* – UPL), purple sanicle (*Sanicula bipinnatifida*– UPL), and false hedge-parsley (*Torilis arvensis* – UPL).

Montane Riparian (MRI)

Four wetland types occur within the Montane Riparian habitat found at the Hocker Flat site, including riparian wetland, fresh emergent wetland, pond, and seasonal wet meadow. These wetland types are described below, following a brief description of the MRI habitat.

Montane riparian habitat is composed of typical riparian plant species that occur in Trinity County. Dominant tree species include bigleaf maple, white alder (*Alnus rhombifolia* – FACW), Oregon ash (*Fraxinus latifolia* – FACW), black cottonwood (*Populus balsamifera* ssp. *trichocarpa* – FACW), and Goodding's black willow (*Salix gooddingii* – OBL). Understory species include mugwort (*Artemisia douglasiana* – FACW), virgin's bower (*Clematis ligusticifolia* – FAC), American dogwood (*Cornus sericea* – FACW), Oregon golden-aster (*Heterotheca oregona* – UPL), dalmatian toadflax (*Linaria genistifolia* ssp. *dalmatica* – UPL), white sweet clover (*Melilotus alba* – FACU+), musk monkeyflower (*Mimulus moschatus* – OBL), straggly gooseberry (*Ribes divaricatum* – FACW), Himalayan blackberry (*Rubus discolor* – FACW*), California blackberry (*R. ursinus* – FACW*), narrow-leaved willow (*Salix exigua* – OBL), arroyo willow (*Salix lasiolepis* – FACW), shining willow (*Salix lucida* – NI), and California wild grape (*Vitis californica* – FACW).

Both upland and riparian wetland areas within the MRI habitat type exhibit similarities in vegetative composition. However, the observed positive field indicators of wetland hydrology and hydric soils within the riparian wetland features define the primary distinction between upland and wetland. Furthermore, herbaceous plant species that occur almost always (>99% probability; OBL) in wetlands and herbaceous plant species that usually occur (> 67 % to 99 % probability; FACW) in wetlands were observed within riparian wetland features. These plant species include torrent sedge (*Carex nudata* – FACW+), tall flatsedge (*Cyperus eragrostis* – FACW), least spikerush (*Eleocharis acicularis* – OBL), smooth scouring rush (*Equisetum laevigatum* – FACW), and reed canary grass (*Phalaris arundinaceae* – OBL). Therefore, all three wetland criteria (hydrophytic vegetation, wetland hydrology, and hydric soils) were observed within the delineated riparian wetlands.

Fresh emergent wetland habitat occurs at the Hocker Flat site. This habitat is comprised of herbaceous plant species that tolerate long-duration inundation. Dominant plant species include slender-beak sedge (*Carex athrostachya* – FACW), common rush (*Juncus effuses* – OBL), Himalayan blackberry (*Rubus discolor* – FACW), water buttercup (*Ranunculus aquatilis* – OBL), sandbar willow (*Salix exigua* – FACW), Arroyo willow (*Salix lasiolepsis* – FACW), and narrow-leaf cattail (*Typha angustifolia* – OBL). Positive field indicators of wetland hydrology and hydric soils were observed.

Two pond features occur within Montane Riparian habitat at the Hocker Flat site. These features are characterized by open water and the absence of vegetation, inundation, saturation, and long-duration ponding.

Seasonal wet meadow habitat also occurs at the Hocker Flat site. This habitat is comprised of herbaceous plant species that tolerate long-duration saturation. Dominant plant species include smooth scouring rush and Canada bluegrass (*Poa compressa* – FAC). This wetland feature is a monoculture of smooth scouring rush with Canada bluegrass and Himalayan blackberry occurring along the margin. Positive field indicators of wetland hydrology and hydric soils were observed.

Riverine (RIV)

Riverine habitat is limited to the open water channel of the mainstem of the Trinity River. Riverine habitat is dominated by run and riffle habitats, with boulder, cobble, gravel, and sand substrates. Vegetation within the active river channel is sparse, with occasional clumps of sedges (*Carex* spp.).

Annual Grassland (AGS)

An Annual Grassland plant community was identified adjacent to areas of riparian vegetation. This habitat type is dominated by introduced annual grass species including soft brome (*Bromus mollis* – FACU-), cheatgrass, and smooth brome (*Bromus inermis* – UPL). Dalmatian toadflax (*Linaria genistifolia* – UPL) was the dominant forb found on within this plant community type at the site.

5. METHODS

On-site determination of wetland status within the ESL of the site was based on field observations made by qualified NSR personnel of onsite soil, vegetation and hydrological characteristics. This methodology is consistent with the approach for delineation of jurisdictional waters as defined in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). A total of twenty-six, three-parameter (i.e., vegetation, hydrology, and soils) data points, representing wetland and upland features, were characterized and documented throughout the project area. Field observations were conducted on June 19th and 20th, 2002 and May 14th, 2003. Wetland determination data forms are presented in **Appendix B**. Photographs of data points are presented in **Appendix C**.

Plant species wetland indicator status was confirmed using the *National List of Plant Species That Occur in Wetlands: California (Region 0)*, (Reed 1988). Indicators of hydric soils were observed in the field in accordance with the conventions of the National Cooperative Soil Survey, *Soil Taxonomy* (Soil Survey Staff 1992), and the Soil Conservation Service Field Office *Official List of Hydric Soil Map Units for Trinity County, California, Weaverville Area Soil Survey* (USDA 1992).

Additionally, boundaries of each wetland feature, the three-parameter data points, and several location monuments were mapped by NSR using a Pathfinder Pro Global Positioning System (GPS) capable of sub-meter accuracy (NAD 27 projection). Data were overlaid onto digital aerial photographs of the site and aligned using the monument location data.

6. ATYPICAL SITUATIONS

No atypical situations exist within the study area.

7. DELINEATION RESULTS

U.S. Army Corps of Engineers (Corps) jurisdictional waters occur within the Trinity River Mechanical Channel Rehabilitation Project study area in the form of riverine, riparian wetland, wet meadow, pond, perennial creek, and fresh emergent wetland habitats. **Figure 5** illustrates boundaries of jurisdictional waters at the site as well as plant communities. All three wetland indicator criteria, as defined by the Corps (vegetation, hydrology, and soils), are met within these features. Vegetation found within these features is comprised of facultative, facultative+, facultative wet, and/or obligate wetland indicator plant species. Primary wetland hydrology criteria are satisfied by long duration flooding (period of inundation for a single event ranges from 7 days to 1 month), the presence of water marks, drift lines, sediment deposits, and landscape drainage patterns. Hydric soil indicators

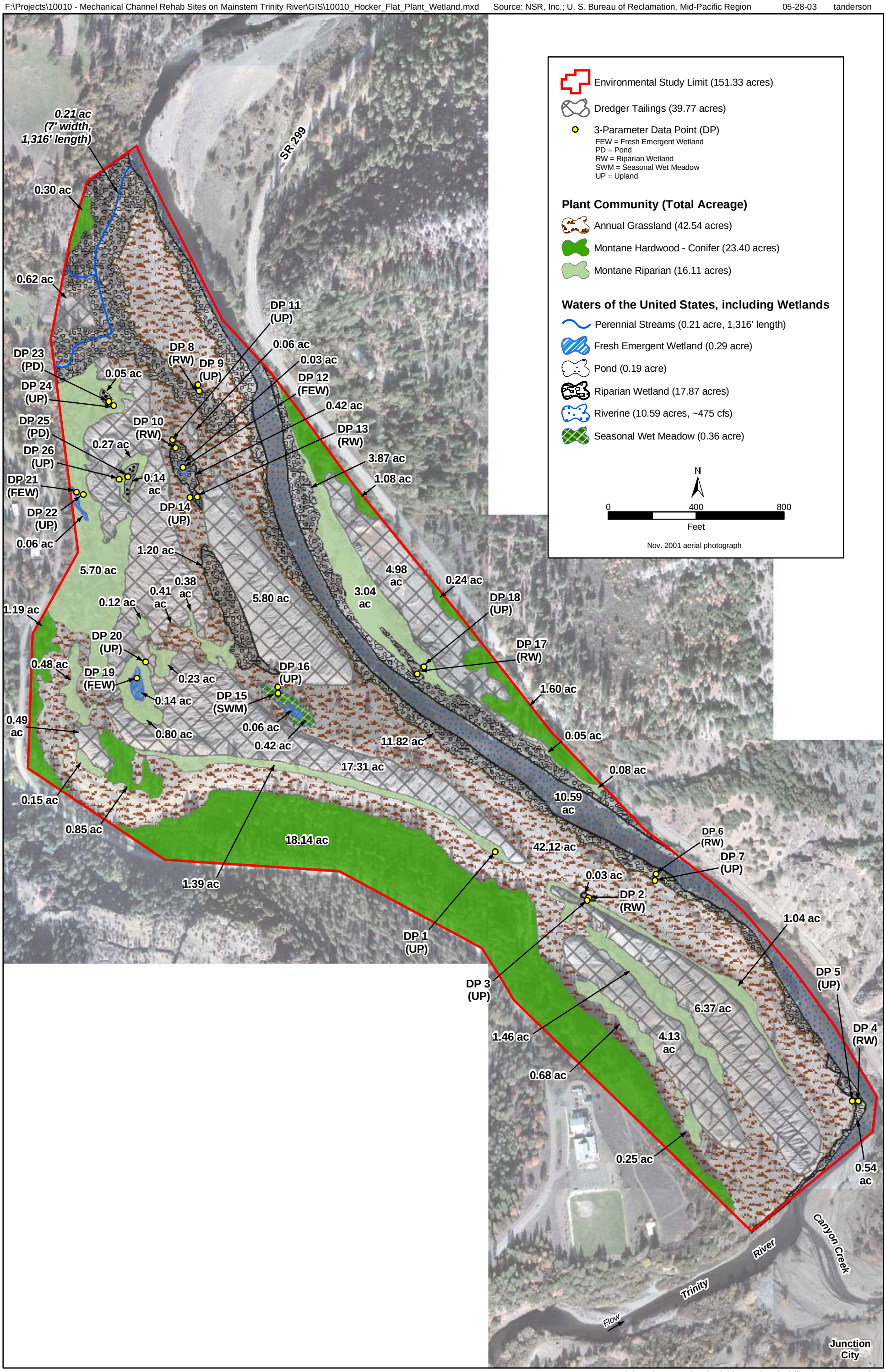

Figure 5. Hocker Flat Plant Communities & Boundaries of Waters of the United States (including Wetlands)
May 28, 2003

commonly found within the project area include an Aquic moisture regime, listing on the local hydric soils list, gleyed or low-chroma colors, and the presence of reducing conditions within the soil profile.

Inclusion of the Trinity River within the site is the primary factor influencing wetland features associated with this project. Riverine habitat, identified as the river itself, exhibits a distinct bed and bank feature (i.e., scouring), as well as, continuous inundation, water marks, drift lines, and sediment deposits.

Riparian wetlands, also found within the site, are characterized as a complex of open to dense emergent herbaceous and woody riparian vegetative growth. **Table 1** lists dominant riparian vegetative species found at the site. The presence of hydric soil and wetland hydrology indicators (as previously described) confirmed wetland classification. The observed positive field indicators of wetland hydrology and hydric soils within the riparian wetland features define the primary distinction between upland and wetland.

In addition to riverine and riparian wetland habitats, the Hocker Flat site also supports a seasonal wet meadow. **Table 1** provides a description of hydrophytic vegetation found within each of the Hocker Flat habitat types. While vegetation is a primary indicator of wetland hydrology, the presence of drainage patterns in wetlands, satisfies hydrologic criteria for both habitats. In addition, a gleyed or low-chroma color further indicated the presence of hydric soils within the wet meadow.

Fresh emergent wetlands were also found at the Hocker Flat site. Following high flow events, ponding occurs within low points in the river channel allowing emergent vegetation to become established. Fresh emergent wetland criteria at the site were met by the presence of hydrophytic vegetation, hydric soils, and wetland hydrology including standing surface water. Hydrologic influences on the feature include the Trinity River and runoff from adjacent areas.

No occurrence of isolated waters, the term used to define a separate feature that at no time throughout the year is linked to any navigable waters or their tributaries were found within the project area. In wet years, all overflow within the study area drains into the Trinity River.

A total of 29.51 acres of jurisdictional waters occur within the Hocker Flat portion of the Trinity River Mechanical Channel Rehabilitation Pilot Project study area. A summary of all jurisdictional waters determined for the proposed Hocker Flat project site is presented in **Table 2**.

8. CONCLUSIONS

Waters of the United States, including inland navigable lakes, rivers, streams, their tributaries and adjacent wetlands, as delineated by NSR for the Trinity River Mechanical Channel Rehabilitation Pilot Project, are subject to verification by the Corps. Therefore, NSR advises all interested parties to treat the information contained herein as preliminary pending written verification of jurisdictional boundaries by the Corps.

Table 1. Characteristics of the Wetland Types in the Trinity River Mechanical Channel Rehabilitation Pilot Project Study Area: Hocker Flat Site.

Jurisdictional Waters Type	Wetland Vegetation Indicators Typical Dominant Wetland Plant Species			Hydric Soils Indicators	Hydrology Indicators
	Common Name	Scientific Name	Indicator Status[1]		
Riparian Wetland	Narrow-leaved willow	*Salix exigua*	OBL	Listed on local hydric soils list; gleyed or low-chroma colors; frequent flooding.	Inundated; saturated in upper 12 inches; drainage patterns in wetlands; sediment deposits; water marks; drift lines; local soil survey data; water-stained leaves; FAC-neutral test.
	California wild grape	*Vitis californica*	FACW		
	Himalayan blackberry	*Rubus discolor*	FACW*		
	Velvetgrass	*Holcus lanatus*	FAC		
	Narrow-leaved plantain	*Plantago lanceolata*	FAC-		
	White sweetclover	*Melilotus alba*	FACU+		
	California wild rose	*Rosa californica*	FAC+		
	Mugwort	*Artemisia douglasiana*	FACW		
	Arroyo willow	*Salix lasiolepis*	FACW		
	Gooseberry	*Ribes divaricatum*	FACW		
	White alder	*Alnus rhombifolia*	FACW		
	Tall flatsedge	*Cyperus eragrostis*	FACW		
	Bermuda grass	*Cynodon dactylon*	FAC		
	Smooth scouring rush	*Equisetum laevigatum*	FACW		
Emergent Wetland	Narrow-leaved cattail	*Typha angustifolia*	OBL	Reducing conditions; gleyed or low chroma colors.	Inundated; saturated in upper 12”; drainage patterns in wetlands; FAC-neutral test.
	Broadleaf cattail	*Typha latifolia*	OBL		
	Sandbar willow	*Salix exigua*	OBL		
	Arroyo willow	*Salix lasiolepis*	FACW		
	Common rush	*Juncus effusus*	OBL		
	Himalayan blackberry	*Rubus discolor*	FACW*		
	Whitewater crowfoot	*Ranunculus aquatilis*	OBL		
	Slenderbeaked sedge	*Carex athrostachya*	FACW		
Seasonal Wet Meadow	Smooth scouring rush	*Equisetum laevigatum*	FACW	Gleyed or low-chroma colors.	Drainage patterns in wetlands; water marks.
	Canada bluegrass	*Poa compressa*	FAC		
	Himalayan blackberry	*Rubus discolor*	FACW*		

[1]Obligate (OBL) - Plants that occur almost always in wetlands
Facultative Wetland (FACW) - Plants that usually occur in wetlands, but also occur in nonwetlands
Facultative (FAC) – Plants with a similar likelihood of occurring in both wetlands and nonwetlands

Table 2. Summary of U.S. Army Corps of Engineers Jurisdictional Waters, Trinity River Mechanical Channel Rehabilitation Pilot Project, Hocker Flat, Trinity County, California.

Wetland Type	Total Acreage
	Hocker Flat
Total Wetlands	
Riparian Wetlands	17.87
Seasonal Wet Meadow	0.36
Fresh Emergent	0.29
Total Wetlands	**18.52**
Other Waters	
Trinity River (Riverine)	10.59
Perennial Creek	0.21
Pond	0.19
Total Other Waters	**10.99**
Total Jurisdictional Waters	**29.51**

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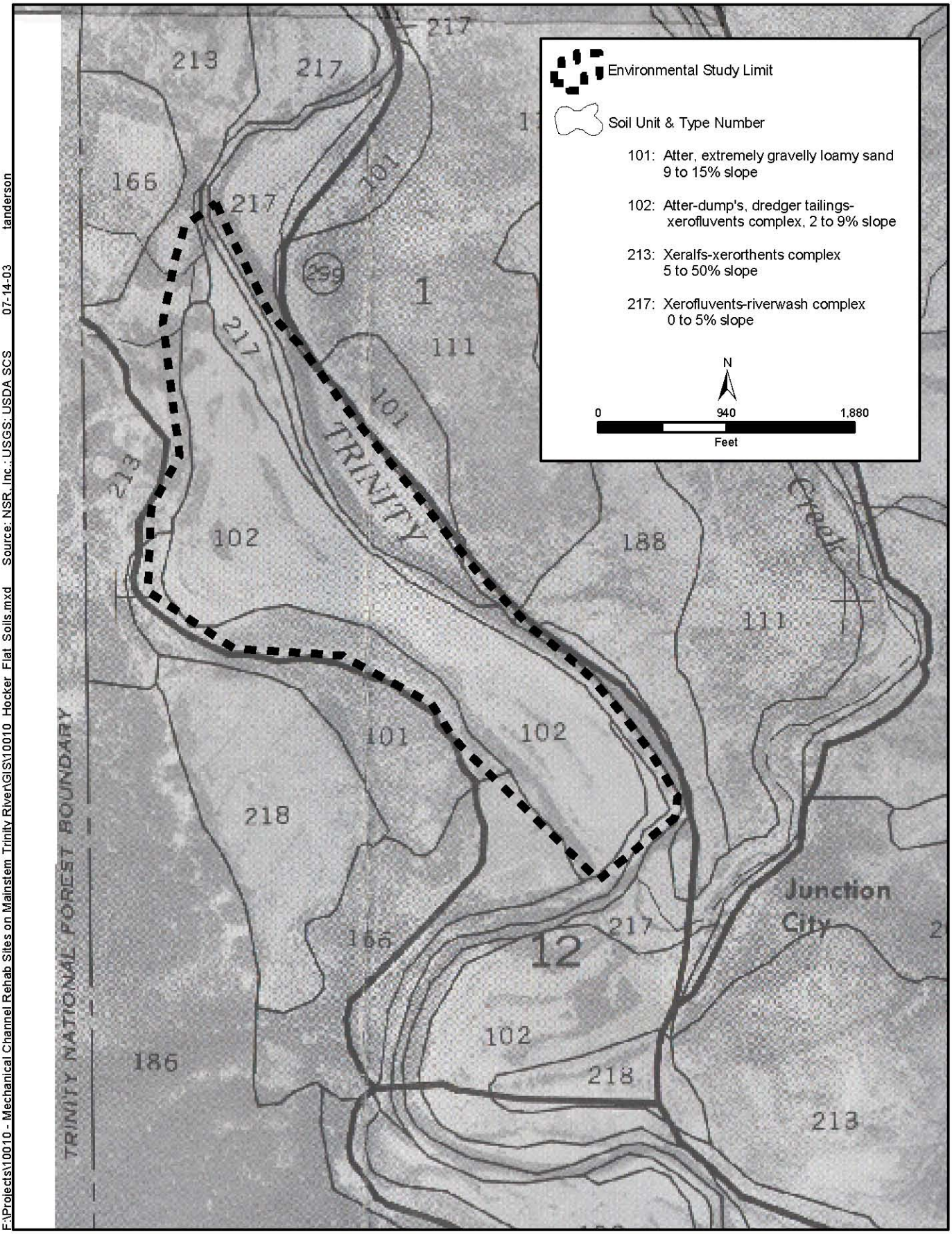
APPENDIX A

Soil Map Unit Figure



F:\Projects\10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River\GIS\10010_Hocker_Flat_Soils.mxd Source: NSR, Inc.; USGS; USDA SCS 07-14-03 tanderson

Appendix A
Hocker Flat Soils Map

APPENDIX B

Wetland Determination Data Forms

DATA FORM: ROUTINE WETLAND DETERMINATION

Comm. ID: Upland Plot ID: #1

Project/Site: Trinity River Channel Rehabilitation – Hocker Flat Date: June 19 2002

Applicant/Owner: ~~US Forest Service~~ BOR County: Trinity

Investigator: A. Pitts, C. Boggs State: California

Do normal circumstances exist on the site? (Y) or N Explain: —

Is the site significantly disturbed (atypical situation)? Y or (N)

Is the area a potential problem area. Y or (N)

VEGETATION

Dominant Plant Species	Cover	Stratum	Indicator
1. Salix exigua	10	T	OBL
2. Arctostaphylos patula	20	S	UPL
3. Bromus tectorum	20	H	UPL
4. Anthriscus sp	20	H	UPL
5. Brassica nigra	20	H	UPL
6. Artemisia douglasiana	10	H	FACW
7.			
8.			
9.			
10.			

Percent of dominant species that are OBL, FACW or FAC 0/4 = 0%

Remarks: Insufficient Hydrophytic Veg.

HYDROLOGY

- ❒ Recorded Data (Describe in Remarks)
  - ❒ steam, lake, or tide gauge
  - ☒ aerial photographs
  - ❒ other
- ❒ No Recorded data available

Field Observation:

Depth of Surface Water: None (in.)

Depth of Free Water in Pit: None (in.)

Depth of Saturated Soil: None (in.)

Wetland Hydrology Indicators

Primary Indicators	Secondary Indicators
❒ inundated	❒ oxidized root channels in upper 12"
❒ saturated in upper 12 "	❒ water-stained leaves
❒ water marks	❒ local soil survey data
❒ drift lines	❒ FAC-neutral test
❒ sediment deposits	❒ other (explain in remarks)
❒ drainage patterns in wetlands	

Remarks: Insufficient wetland Hydrology

SOILS

Map Unit Name (Series and Phase): 102 - Arter-Dumps, Dredge Tailings Xerorthents complex - 2-9% slopes

Drainage Class: Somewhat

Taxonomy (Subgroup): Typic Xerorthents

Field Observations Confirm Mapped Type? (Y) or N

Hydric Status on SCS Field Office List: Hydric Inclusions

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/contrast	Texture, Concretions, Structure, Etc.
0-12"	A	10YR 3/2	—	—	Sandy

Remarks: Insufficient hydric Soil Indicators

Hydric Soil Indicators:

- ❒ Histosol
- ❒ Histic Epipedon
- ❒ Sulfidic odor
- ❒ Aquic moisture regime
- ❒ Reducing conditions
- ❒ Gleyed or low-chroma colors
- ❒ Positive alpha-alpha dipyridyl test
- ❒ Concretions
- ❒ High organic content in surface layer in sandy soil
- ❒ Organic streaking in sandy soils
- ❒ Listed on local hydric soils list
- ❒ Listed on national hydric soils list
- ❒ Other

WETLAND DETERMINATION

Hydrophytic vegetation present? Y or (N) **Wetland Hydrology Present? Y or (N)** **Hydric Soils Present? Y or (N)**

Is this sampling Point within a wetland? Y or (N)

Remarks: Photo 1 Disc 1.

DATA FORM: ROUTINE WETLAND DETERMINATION | Comm. ID: Riparian Wetland | Plot ID: DP2

Project/Site: Trinity River Channel Rehabilitation - Hocker Flat | Date: June 19, 2002
Applicant/Owner: ~~US Forest Service~~ BOR | County: Trinity
Investigator: A. Pitts, C. Boggs | State: California

Do normal circumstances exist on the site? (Y) or N
Is the site significantly disturbed (atypical situation)? Y or (N)
Is the area a potential problem area. Y or (N)

Explain: —

VEGETATION

Dominant Plant Species	Cover	Stratum	Indicator
1. Salix exigua	25	S	OBL
2. Rubus discolor	25	S	FACW*
3. Artemisia douglasiana	25	H	FACW
4. Cynodon dactylon	25	H	FAC
5.			
6.			
7.			
8.			
9.			
10.			

Percent of dominant species that are OBL, FACW or FAC: 4/4=100%

Remarks: Sufficient hydrophytic vegetation.

HYDROLOGY

- ☐ Recorded Data (Describe in Remarks)
  - ☐ steam, lake, or tide gauge
  - ☒ aerial photographs
  - ☐ other
- ☐ No Recorded data available

Field Observation:
Depth of Surface Water: None (in.)
Depth of Free Water in Pit: None (in.)
Depth of Saturated Soil: None (in.)

Wetland Hydrology Indicators

Primary Indicators	Secondary Indicators
☐ inundated	☐ oxidized root channels in upper 12"
☐ saturated in upper 12 "	☐ water-stained leaves
☐ water marks	☐ local soil survey data
☐ drift lines	☒ FAC-neutral test
☒ sediment deposits	☐ other (explain in remarks)
☒ drainage patterns in wetlands	

Remarks: Sufficient wetland hydrology indicators.

SOILS

Map Unit Name (Series and Phase): 102 - Atter Dumps Dredge Tailings, Xerorthents complex, 2-9% slopes | Drainage Class: Somewhat excessive
Taxonomy (Subgroup): Typic Xerorthents | Field Observations Confirm Mapped Type? (Y) or N
Hydric Status on SCS Field Office List: Hydric Inclusions

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/contrast	Texture, Concretions, Structure, Etc.
0"-4"	—	10YR 4/1	—	—	sandy
4"-12"	—	10YR 4/3	—	—	sandy

Remarks: Sufficient hydric soil indicators.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic odor
- ☐ Aquic moisture regime
- ☐ Reducing conditions
- ☒ Gleyed or low-chroma colors
- ☐ Positive alpha-alpha dipyridyl test
- ☐ Concretions
- ☐ High organic content in surface layer in sandy soil
- ☐ Organic streaking in sandy soils
- ☐ Listed on local hydric soils list
- ☐ Listed on national hydric soils list
- ☐ Other

WETLAND DETERMINATION

Hydrophytic vegetation present? (Y) or N **Wetland Hydrology Present?** (Y) or N **Hydric Soils Present?** (Y) or N
Is this sampling Point within a wetland? (Y) or N

Remarks: Photo 2 & 3; Depression in river wash dominated by wetland plant spp.

DATA FORM: ROUTINE WETLAND DETERMINATION | Comm. ID: Upland | Plot ID: DP 3

Project/Site: Trinity River Channel Rehabilitation - Hocker Flat | Date: June 19 2002
Applicant/Owner: ~~US Forest Service~~ BoR | County: Trinity
Investigator: A. Pitts, C. Boggs | State: California

Do normal circumstances exist on the site? (Y) or N
Is the site significantly disturbed (atypical situation)? Y or (N)
Is the area a potential problem area. Y or (N)

Explain: —

VEGETATION

Dominant Plant Species	Cover	Stratum	Indicator
1. Pinus sabiniana	20	T	UPL
2. Arctostaphylos patula	20	S	UPL
3. Pinus ponderosa	20	S	UPL
4. Centaurea solstitialis	20	H	UPL
5. Poa bulbosa	10	H	UPL
6. Linaria genistifolia	10	H	UPL
7.			
8.			
9.			
10.			

Percent of dominant species that are OBL, FACW or FAC 0/4 = 0%

Remarks: Insufficient hydrophylic vegetation.

HYDROLOGY

- ❒ Recorded Data (Describe in Remarks)
  - ❒ steam, lake, or tide gauge
  - ☒ aerial photographs
  - ❒ other
- ❒ No Recorded data available

Field Observation:
Depth of Surface Water: None (in.)
Depth of Free Water in Pit: None (in.)
Depth of Saturated Soil: None (in.)

Wetland Hydrology Indicators

Primary Indicators	Secondary Indicators
❒ inundated	❒ oxidized root channels in upper 12"
❒ saturated in upper 12 "	❒ water-stained leaves
❒ water marks	❒ local soil survey data
❒ drift lines	❒ FAC-neutral test
❒ sediment deposits	❒ other (explain in remarks)
❒ drainage patterns in wetlands	

Remarks: Insufficient wetland hydrology indicators.

SOILS

Map Unit Name (Series and Phase): 102 - Atlas Dumps Sludge Tailings, Xerofluvents complex, 2-9% slopes
Taxonomy (Subgroup): Typic Xerorthents
Hydric Status on SCS Field Office List: Hydric inclusions

Drainage Class: Somewhat Excessive
Field Observations Confirm Mapped Type? (Y) or N

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/contrast	Texture, Concretions, Structure, Etc.
0"-12"	—	10YR 3/2	—	—	sandy/gravelly

Remarks: Insufficient hydric soil indicators.

Hydric Soil Indicators:
- ❒ Histosol
- ❒ Histic Epipedon
- ❒ Sulfidic odor
- ❒ Aquic moisture regime
- ❒ Reducing conditions
- ❒ Gleyed or low-chroma colors
- ❒ Positive alpha-alpha dipyridyl test
- ❒ Concretions
- ❒ High organic content in surface layer in sandy soil
- ❒ Organic streaking in sandy soils
- ❒ Listed on local hydric soils list
- ❒ Listed on national hydric soils list
- ❒ Other _____

WETLAND DETERMINATION

Hydrophytic vegetation present? Y or (N) **Wetland Hydrology Present? Y or (N)** **Hydric Soils Present? Y or (N)**
Is this sampling Point within a wetland? Y or (N)

Remarks: Photo 4. Paired to riparian wetland (DP 2).

DATA FORM: ROUTINE WETLAND DETERMINATION | Comm. ID: Riparian Wetland | Plot ID: DP4

Project/Site: Trinity River Channel Rehabilitation - Hocker Flat | Date: June 19 2002
Applicant/Owner: ~~US Forest Service~~ BLM | County: Trinity
Investigator: A. Pitts, C. Boggs | State: California

Do normal circumstances exist on the site? (Y) or N | Explain: —
Is the site significantly disturbed (atypical situation)? Y or (N)
Is the area a potential problem area. Y or (N)

VEGETATION

Dominant Plant Species	Cover	Stratum	Indicator
1. Salix exigua	25	S	OBL
2. Salix lasiolepis	20	S	FACW
3. Holcus lanatus	15	H	FAC
4. Plantago lanceolata	10	H	FAC-
5. Melilotus alba	15	H	FACU+
6. Vitis californica	10	V	FACW
7. Cyperus eragrostis	5	H	FACW
8.			
9.			
10.			

Percent of dominant species that are OBL, FACW or FAC 7/2 = 100%

Remarks: Sufficient hydrophytic vegetation

HYDROLOGY

- ☐ Recorded Data (Describe in Remarks)
  - ☐ steam, lake, or tide gauge
  - ☒ aerial photographs
  - ☐ other
- ☐ No Recorded data available

Field Observation:
Depth of Surface Water: None (in.)
Depth of Free Water in Pit: None (in.)
Depth of Saturated Soil: None (in.)

Wetland Hydrology Indicators

Primary Indicators	Secondary Indicators
☐ inundated	☐ oxidized root channels in upper 12"
☐ saturated in upper 12 "	☐ water-stained leaves
☐ water marks	☒ local soil survey data
☒ drift lines	☒ FAC-neutral test
☒ sediment deposits	☐ other (explain in remarks)
☐ drainage patterns in wetlands	

Remarks: Sufficient Wetland Hydrology

SOILS

Map Unit Name (Series and Phase): 217 - Xerofluvents Riverwash complex 0-5% slopes | Drainage Class: Well
Taxonomy (Subgroup): Xerofluvents | Field Observations Confirm
Hydric Status on SCS Field Office List: Hydric | Mapped Type? (Y) or N

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/contrast	Texture, Concretions, Structure, Etc.
—	—	—	—	—	—

Remarks: Sufficient Hydric Soils Indicators

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic odor
- ☐ Aquic moisture regime
- ☐ Reducing conditions
- ☐ Gleyed or low-chroma colors
- ☐ Positive alpha-alpha dipyridyl test
- ☐ Concretions
- ☐ High organic content in surface layer in sandy soil
- ☐ Organic streaking in sandy soils
- ☒ Listed on local hydric soils list
- ☐ Listed on national hydric soils list
- ☒ Other Frequent flooding

WETLAND DETERMINATION

Hydrophytic vegetation present? (Y) or N **Wetland Hydrology Present?** (Y) or N **Hydric Soils Present?** (Y) or N
Is this sampling Point within a wetland? (Y) or N

Remarks: Photo 5

DATA FORM: ROUTINE WETLAND DETERMINATION | Comm. ID: uPland | Plot ID: DP5

Project/Site: Trinity River Channel Rehabilitation - Hocker Flat | Date: June 19 2002
Applicant/Owner: ~~US Forest Service~~ SOR | County: Trinity
Investigator: A. Pitts, C. Boggs | State: California

Do normal circumstances exist on the site? (Y) or N
Is the site significantly disturbed (atypical situation)? Y or (N)
Is the area a potential problem area. Y or (N)

Explain: —

VEGETATION

Dominant Plant Species	Cover	Stratum	Indicator
1. Linaria genistifolia	25	H	UPL
2. Brassica nigra	20	H	UPL
3. Bromus madritensis	25	H	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Percent of dominant species that are OBL, FACW or FAC: 0/3 = 0%

Remarks: Insufficient hydrophylic vegetation.

HYDROLOGY

- ☐ Recorded Data (Describe in Remarks)
  - ☐ steam, lake, or tide gauge
  - ☒ aerial photographs
  - ☐ other
- ☐ No Recorded data available

Field Observation:
Depth of Surface Water: None (in.)
Depth of Free Water in Pit: None (in.)
Depth of Saturated Soil: None (in.)

Wetland Hydrology Indicators

Primary Indicators	Secondary Indicators
☐ inundated	☐ oxidized root channels in upper 12"
☐ saturated in upper 12 "	☐ water-stained leaves
☐ water marks	☒ local soil survey data
☐ drift lines	☐ FAC-neutral test
☐ sediment deposits	☐ other (explain in remarks)
☐ drainage patterns in wetlands	

Remarks: Insufficient wetland hydrology indicators.

SOILS

Map Unit Name (Series and Phase): 217 - Xerofluvents & Riverwash complex, 0-5% slopes
Taxonomy (Subgroup): Xerofluvents
Hydric Status on SCS Field Office List: Hydric

Drainage Class: well
Field Observations Confirm Mapped Type? (Y) or N

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/contrast	Texture, Concretions, Structure, Etc.
—	—	—	—	—	—

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic odor
- ☐ Aquic moisture regime
- ☐ Reducing conditions
- ☐ Gleyed or low-chroma colors
- ☐ Positive alpha-alpha dipyridyl test
- ☐ Concretions
- ☐ High organic content in surface layer in sandy soil
- ☐ Organic streaking in sandy soils
- ☒ Listed on local hydric soils list
- ☐ Listed on national hydric soils list
- ☐ Other

Remarks: Sufficient hydric soil indicators.

WETLAND DETERMINATION

Hydrophytic vegetation present? Y or (N) **Wetland Hydrology Present?** Y or (N) **Hydric Soils Present?** (Y) or N
Is this sampling Point within a wetland? Y or (N)

Remarks: Photo 6, Paired to riparian wetland (DP 4).

DATA FORM: ROUTINE WETLAND DETERMINATION | Comm. ID: Riparian Wetland | Plot ID: 6

Project/Site: Trinity River Channel Rehabilitation - Hocker Flat | Date: June 19 2002
Applicant/Owner: ~~US Forest Service~~ US BOR | County: Trinity
Investigator: A. Pitts, C. Boggs | State: California

Do normal circumstances exist on the site? (Y) or N | Explain: —
Is the site significantly disturbed (atypical situation)? Y or (N)
Is the area a potential problem area. Y or (N)

VEGETATION

Dominant Plant Species	Cover	Stratum	Indicator
1. Rubus discolor	30	S	FACW*
2. Salix exigua	25	S	OBL
3. Alnus rhombifolia	35	T	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Percent of dominant species that are OBL, FACW or FAC 3/3=100%

Remarks: Sufficient hydrophytic veg.

HYDROLOGY

- ☐ Recorded Data (Describe in Remarks)
  - ☐ steam, lake, or tide gauge
  - ☒ aerial photographs
  - ☐ other
- ☐ No Recorded data available

Field Observation:
Depth of Surface Water: — None (in.)
Depth of Free Water in Pit: — None (in.)
Depth of Saturated Soil: — None (in.)

Wetland Hydrology Indicators

Primary Indicators	Secondary Indicators
☐ inundated	☐ oxidized root channels in upper 12"
☐ saturated in upper 12 "	☐ water-stained leaves
☒ water marks	☒ local soil survey data
☒ drift lines	☒ FAC-neutral test
☒ sediment deposits	☐ other (explain in remarks)
☐ drainage patterns in wetlands	

Remarks: Sufficient wetland hydrology indicators

SOILS

Map Unit Name (Series and Phase): 217-Xerofluvents Riverwash complex, 0-5% slopes | Drainage Class: well
Taxonomy (Subgroup): Xerofluvents | Field Observations Confirm Mapped Type? (Y) or N
Hydric Status on SCS Field Office List: Hydric

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/contrast	Texture, Concretions, Structure, Etc.
—	—	—	—	—	Sandy/Gravelly

Remarks: Sufficient Hydric Soils Indicators

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic odor
- ☐ Aquic moisture regime
- ☐ Reducing conditions
- ☐ Gleyed or low-chroma colors
- ☐ Positive alpha-alpha dipyridyl test
- ☐ Concretions
- ☐ High organic content in surface layer in sandy soil
- ☐ Organic streaking in sandy soils
- ☒ Listed on local hydric soils list
- ☐ Listed on national hydric soils list
- ☐ Other _____

WETLAND DETERMINATION

Hydrophytic vegetation present? (Y) or N **Wetland Hydrology Present?** (Y) or N **Hydric Soils Present?** (Y) or N
Is this sampling Point within a wetland? (Y) or N

Remarks: Riparian Wetland - Photo 7

DATA FORM: ROUTINE WETLAND DETERMINATION | Comm. ID: Upland | Plot ID: 7

Project/Site: Trinity River Channel Rehabilitation - Hocker Flat | Date: June 19 2002
Applicant/Owner: US ~~Forest Service~~ BOR | County: Trinity
Investigator: A. Pitts, C. Boggs | State: California

Do normal circumstances exist on the site? (Y) or N | Explain: —
Is the site significantly disturbed (atypical situation)? Y or (N)
Is the area a potential problem area. Y or (N)

VEGETATION

Dominant Plant Species	Cover	Stratum	Indicator
1. Linaria genistifolia	25	H	UPL
2. Brassica nigra	25	H	UPL
3. Heterotheca oregona	25	H	UPL
4. Bromus tectorum	25	H	UPL
5.			
6.			
7.			
8.			
9.			
10.			

Percent of dominant species that are OBL, FACW or FAC: 0/4 = 0%

Remarks: Insufficient hydrophytic vegetation.

HYDROLOGY

- ☐ Recorded Data (Describe in Remarks)
  - ☐ steam, lake, or tide gauge
  - ☒ aerial photographs
  - ☐ other
- ☐ No Recorded data available

Field Observation:
Depth of Surface Water: None (in.)
Depth of Free Water in Pit: None (in.)
Depth of Saturated Soil: None (in.)

Wetland Hydrology Indicators

Primary Indicators	Secondary Indicators
☐ inundated	☐ oxidized root channels in upper 12"
☐ saturated in upper 12 "	☐ water-stained leaves
☐ water marks	☐ local soil survey data
☐ drift lines	☐ FAC-neutral test
☐ sediment deposits	☐ other (explain in remarks)
☐ drainage patterns in wetlands	

Remarks: Insufficient wetland hydrology indicators

SOILS

Map Unit Name (Series and Phase): 102 - Alter Dumps Dredge Tailings - Xerofluvents complex 2%
Taxonomy (Subgroup): Typic Xerorthents
Hydric Status on SCS Field Office List: Hydric Inclusions
Drainage Class: Somewhat excessive
Field Observations Confirm Mapped Type? (Y) or N

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/contrast	Texture, Concretions, Structure, Etc.
0"-8"	—	—	—	—	sandy, gravelly river wash
8"+	—	10YR 3/3	—	—	sandy

Remarks: Insufficient hydric soil indicators.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic odor
- ☐ Aquic moisture regime
- ☐ Reducing conditions
- ☐ Gleyed or low-chroma colors
- ☐ Positive alpha-alpha dipyridyl test
- ☐ Concretions
- ☐ High organic content in surface layer in sandy soil
- ☐ Organic streaking in sandy soils
- ☐ Listed on local hydric soils list
- ☐ Listed on national hydric soils list
- ☐ Other

WETLAND DETERMINATION

Hydrophytic vegetation present? Y or (N) **Wetland Hydrology Present? Y or (N)** **Hydric Soils Present? Y or (N)**
Is this sampling Point within a wetland? Y or (N)

Remarks: Photo 8. Paired to riparian wetland (DP 6).

DATA FORM: ROUTINE WETLAND DETERMINATION | Comm. ID: Riparian Wetland | Plot ID: DP 8

Project/Site: Trinity River Channel Rehabilitation – Hocker Flat | Date: June 20, 2002
Applicant/Owner: ~~US Forest Service~~ BOR | County: Trinity
Investigator: A. Pitts, C. Boggs | State: California

Do normal circumstances exist on the site? (Y) or N
Is the site significantly disturbed (atypical situation)? Y or (N)
Is the area a potential problem area. Y or (N)

Explain: —

VEGETATION

Dominant Plant Species	Cover	Stratum	Indicator
1. Salix exigua	20	S	OBL
2. Salix lasiolepis	20	S	FACW
3. Rubus discolor	20	S	FACW
4. Ribes divaricatum	10	S	FACW
5. Rubus vitifolius	20	S	FACW*
6. Artemisia douglasiana	10	H	FACW
7.			
8.			
9.			
10.			

Percent of dominant species that are OBL, FACW or FAC 4/4 = 100%

Remarks: Sufficient hydrophytic veg.

HYDROLOGY

- ☐ Recorded Data (Describe in Remarks)
  - ☐ steam, lake, or tide gauge
  - ☒ aerial photographs
  - ☐ other
- ☐ No Recorded data available

Field Observation:
Depth of Surface Water: None (in.)
Depth of Free Water in Pit: None (in.)
Depth of Saturated Soil: 8" (in.)

Wetland Hydrology Indicators

Primary Indicators	Secondary Indicators
☐ inundated	☐ oxidized root channels in upper 12"
☒ saturated in upper 12 "	☐ water-stained leaves
☐ water marks	☒ local soil survey data
☐ drift lines	☒ FAC-neutral test
☐ sediment deposits	☐ other (explain in remarks)
☒ drainage patterns in wetlands	

Remarks: Sufficient wetland hydrology indicators.

SOILS

Map Unit Name (Series and Phase): 217 - Xerofluvents - Riverwash Complex 0-5% Slopes
Taxonomy (Subgroup): Xerofluvents
Hydric Status on SCS Field Office List: Hydric

Drainage Class: Well
Field Observations Confirm Mapped Type? (Y) or N

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/contrast	Texture, Concretions, Structure, Etc.
0-12"	A	10YR 3/1	—	—	Sandy

Remarks: Sufficient hydric soil indicators.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic odor
- ☐ Aquic moisture regime
- ☐ Reducing conditions
- ☒ Gleyed or low-chroma colors
- ☐ Positive alpha-alpha dipyridyl test
- ☐ Concretions
- ☐ High organic content in surface layer in sandy soil
- ☐ Organic streaking in sandy soils
- ☒ Listed on local hydric soils list
- ☐ Listed on national hydric soils list
- ☐ Other _____

WETLAND DETERMINATION

Hydrophytic vegetation present? (Y) or N **Wetland Hydrology Present?** (Y) or N **Hydric Soils Present?** (Y) or N
Is this sampling Point within a wetland? (Y) or N

Remarks: Photo 9

DATA FORM: ROUTINE WETLAND DETERMINATION | Comm. ID: Upland | Plot ID: DP9

Project/Site: Trinity River Channel Rehabilitation - Hocker Flat | Date: June 20, 2002
Applicant/Owner: ~~US Forest Service~~ BOR | County: Trinity
Investigator: A. Pitts, C. Boggs | State: California

Do normal circumstances exist on the site? (Y) or N
Is the site significantly disturbed (atypical situation)? Y or (N)
Is the area a potential problem area. Y or (N)
Explain: —

VEGETATION

Dominant Plant Species	Cover	Stratum	Indicator
1. Centaurea solstitialis	25	H	UPL
2. Bromus tectorum	25	H	UPL
3. Brassica nigra	25	H	UPL
4. Bromus mollis	25	H	FACU-
5.			
6.			
7.			
8.			
9.			
10.			

Percent of dominant species that are OBL, FACW or FAC 0/4 : 0%

Remarks: Insufficient hydrophytic vegetation.

HYDROLOGY

- ❒ Recorded Data (Describe in Remarks)
  - ❒ steam, lake, or tide gauge
  - ☒ aerial photographs
  - ❒ other
- ❒ No Recorded data available

Field Observation:
Depth of Surface Water: None (in.)
Depth of Free Water in Pit: None (in.)
Depth of Saturated Soil: None (in.)

Wetland Hydrology Indicators

Primary Indicators	Secondary Indicators
❒ inundated	❒ oxidized root channels in upper 12"
❒ saturated in upper 12 "	❒ water-stained leaves
❒ water marks	☒ local soil survey data
❒ drift lines	❒ FAC-neutral test
❒ sediment deposits	❒ other (explain in remarks)
❒ drainage patterns in wetlands	

Remarks: Insufficient wetland hydrology.

SOILS

Map Unit Name (Series and Phase): 217 Xerofluvents - Riverwash Complex 0-5% slopes | Drainage Class: Well
Taxonomy (Subgroup): Xerofluvents | Field Observations Confirm Mapped Type? (Y) or N
Hydric Status on SCS Field Office List: Hydric

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/contrast	Texture, Concretions, Structure, Etc.
0-12"	A	10YR 3/2	—	—	Sandy

Remarks: Sufficient hydric soils indicators.

Hydric Soil Indicators:
- ❒ Histosol
- ❒ Histic Epipedon
- ❒ Sulfidic odor
- ❒ Aquic moisture regime
- ❒ Reducing conditions
- ❒ Gleyed or low-chroma colors
- ❒ Positive alpha-alpha dipyridyl test
- ❒ Concretions
- ❒ High organic content in surface layer in sandy soil
- ❒ Organic streaking in sandy soils
- ☒ Listed on local hydric soils list
- ❒ Listed on national hydric soils list
- ❒ Other

WETLAND DETERMINATION

Hydrophytic vegetation present? Y or (N) **Wetland Hydrology Present? Y or (N)** **Hydric Soils Present? (Y) or N**
Is this sampling Point within a wetland? Y or (N)

Remarks: Photo 10, Paired to riparian wetland (DP 8).

DATA FORM: ROUTINE WETLAND DETERMINATION | Comm. ID: Riparian wetland | Plot ID: DP 10

Project/Site: Trinity River Channel Rehabilitation - Hocker Flat | Date: June 20, 2002
Applicant/Owner: ~~US Forest Service~~ BOR | County: Trinity
Investigator: A. Pitts, C. Boggs | State: California

Do normal circumstances exist on the site? (Y) or N
Is the site significantly disturbed (atypical situation)? Y or (N)
Is the area a potential problem area. Y or (N)

Explain: —

VEGETATION

Dominant Plant Species	Cover	Stratum	Indicator
1. Salix exigua	20	T	OBL
2. Rubus vitifolius	20	S	FACW*
3. Rosa californica	20	S	FAC+
4. Vitis californica	20	S	FACW
5. Artemisia douglasiana	20	H	FACW
6.			
7.			
8.			
9.			
10.			

Percent of dominant species that are OBL, FACW or FAC 5/5 = 100%

Remarks: Sufficient hydrophytic vegetation.

HYDROLOGY

- ☐ Recorded Data (Describe in Remarks)
  - ☐ steam, lake, or tide gauge
  - ☒ aerial photographs
  - ☐ other
- ☐ No Recorded data available

Field Observation:
Depth of Surface Water: None (in.)
Depth of Free Water in Pit: None (in.)
Depth of Saturated Soil: None (in.)

Wetland Hydrology Indicators

Primary Indicators	Secondary Indicators
☐ inundated	☐ oxidized root channels in upper 12"
☐ saturated in upper 12 "	☒ water-stained leaves
☐ water marks	☐ local soil survey data
☐ drift lines	☒ FAC-neutral test
☐ sediment deposits	☐ other (explain in remarks)
☒ drainage patterns in wetlands	

Remarks: Sufficient wetland hydrology indicators.

SOILS

Map Unit Name (Series and Phase): 102 - Atter Dumps, Dredge Tailings - xerofluvents complex 2-9% slopes
Taxonomy (Subgroup): Typic Xerorthents
Hydric Status on SCS Field Office List: Hydric Inclusions

Drainage Class: Somewhat Excessive
Field Observations Confirm Mapped Type? (Y) or N

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/contrast	Texture, Concretions, Structure, Etc.
0-8"	A	10YR 3/1	—	—	Sandy, Gravelly

Remarks: Sufficient hydric soil indicators.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic odor
- ☐ Aquic moisture regime
- ☐ Reducing conditions
- ☒ Gleyed or low-chroma colors
- ☐ Positive alpha-alpha dipyridyl test
- ☐ Concretions
- ☐ High organic content in surface layer in sandy soil
- ☐ Organic streaking in sandy soils
- ☐ Listed on local hydric soils list
- ☐ Listed on national hydric soils list
- ☐ Other

WETLAND DETERMINATION

Hydrophytic vegetation present? (Y) or N **Wetland Hydrology Present?** (Y) or N **Hydric Soils Present?** (Y) or N
Is this sampling Point within a wetland? (Y) or N

Remarks: Photo 13 (Photo 11 in report)

DATA FORM: ROUTINE WETLAND DETERMINATION | Comm. ID: Upland | Plot ID: DP 11

Project/Site: Trinity River Channel Rehabilitation - Harker Flat | Date: June 20, 2002
Applicant/Owner: ~~US Forest Service~~ BOR | County: Trinity
Investigator: A. Pitts, C. Boggs | State: California

Do normal circumstances exist on the site? (Y) or N
Is the site significantly disturbed (atypical situation)? Y or (N)
Is the area a potential problem area. Y or (N)

Explain: —

VEGETATION

Dominant Plant Species	Cover	Stratum	Indicator
1. Centaurea solstitialis	20	H	UPL
2. Linaria genistifolius	20	H	UPL
3. Bromus tectorum	20	H	UPL
4. Medicago polymorpha	20	H	UPL
5. Vulpia octoflora	20	H	UPL
6.			
7.			
8.			
9.			
10.			

Percent of dominant species that are OBL, FACW or FAC 0/5 = 0%

Remarks: Insufficient hydrophytic vegetation.

HYDROLOGY

- ❒ Recorded Data (Describe in Remarks)
  - ❒ steam, lake, or tide gauge
  - ☒ aerial photographs
  - ❒ other
- ❒ No Recorded data available

Field Observation:
Depth of Surface Water: None (in.)
Depth of Free Water in Pit: None (in.)
Depth of Saturated Soil: None (in.)

Wetland Hydrology Indicators

Primary Indicators	Secondary Indicators
❒ inundated	❒ oxidized root channels in upper 12"
❒ saturated in upper 12 "	❒ water-stained leaves
❒ water marks	❒ local soil survey data
❒ drift lines	❒ FAC-neutral test
❒ sediment deposits	❒ other (explain in remarks)
❒ drainage patterns in wetlands	

Remarks: Insufficient wetland hydrology indicators.

SOILS

Map Unit Name (Series and Phase): 102-Arrey Dumps-Dredge Tailings-Xerofluvents complex, 2-9% slopes
Taxonomy (Subgroup): Typic Xerorthents
Hydric Status on SCS Field Office List: Hydric Inclusions

Drainage Class: somewhat excessive
Field Observations Confirm Mapped Type? (Y) or N

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/contrast	Texture, Concretions, Structure, Etc.
0-8"	A	10YR 3/2	—	—	Sandy, Gravelly

Hydric Soil Indicators:
- ❒ Histosol
- ❒ Histic Epipedon
- ❒ Sulfidic odor
- ❒ Aquic moisture regime
- ❒ Reducing conditions
- ❒ Gleyed or low-chroma colors
- ❒ Positive alpha-alpha dipyridyl test
- ❒ Concretions
- ❒ High organic content in surface layer in sandy soil
- ❒ Organic streaking in sandy soils
- ❒ Listed on local hydric soils list
- ❒ Listed on national hydric soils list
- ❒ Other

Remarks: Insufficient hydric soils indicators.

WETLAND DETERMINATION

Hydrophytic vegetation present? Y or (N) **Wetland Hydrology Present?** Y or (N) **Hydric Soils Present?** Y or (N)
Is this sampling Point within a wetland? Y or (N)

Remarks: Photo 1 (Photo 12 in report). Paired to riparian wetland (DP 10).

DATA FORM: ROUTINE WETLAND DETERMINATION | Comm. ID: Fresh Emergent wetland | Plot ID: DP12

Project/Site: Trinity River Channel Rehabilitation - Hocker Flat | Date: June 20, 2002
Applicant/Owner: ~~US Forest Service~~ BOR | County: Trinity
Investigator: A. Pitts, C. Boggs | State: California

Do normal circumstances exist on the site? (Y) or N
Is the site significantly disturbed (atypical situation)? Y or (N)
Is the area a potential problem area. Y or (N)

Explain: —

VEGETATION

Dominant Plant Species	Cover	Stratum	Indicator
1. Typha angustifolia	25	H	OBL
2. Ranunculus aquatilis	25	H	OBL
3. Carex athrostachya	25	H	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Percent of dominant species that are OBL, FACW or FAC 3/3 = 100%

Remarks: Sufficient wetland veg.

HYDROLOGY

- [x] Recorded Data (Describe in Remarks)
  - [ ] steam, lake, or tide gauge
  - [x] aerial photographs
  - [ ] other
- [ ] No Recorded data available

Field Observation:
Depth of Surface Water: 6 (in.)
Depth of Free Water in Pit: Inundated (in.)
Depth of Saturated Soil: Inundated (in.)

Wetland Hydrology Indicators

Primary Indicators	Secondary Indicators
[x] inundated	[ ] oxidized root channels in upper 12"
[x] saturated in upper 12 "	[ ] water-stained leaves
[ ] water marks	[ ] local soil survey data
[ ] drift lines	[x] FAC-neutral test
[ ] sediment deposits	[ ] other (explain in remarks)
[x] drainage patterns in wetlands	

Remarks: Sufficient wetland hydrology indicators.

SOILS

Map Unit Name (Series and Phase): 192 Aiwer Dumps dredge tailings - xerofluvents, complex 2-9% slopes
Taxonomy (Subgroup): Typic Xerorthents
Hydric Status on SCS Field Office List: Hydric Inclusions
Drainage Class: somewhat ~~poorly~~ excessive
Field Observations Confirm Mapped Type? (Y) or N

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/contrast	Texture, Concretions, Structure, Etc.
0-6	—	7.5YR 4/6	—	—	Clayey, Sandy.
6-12	—	7.5YR 4/6	7.5YR 4/4	common	Sandy.

Remarks: Sufficient hydric soils indicators

Hydric Soil Indicators:
- [ ] Histosol
- [ ] Histic Epipedon
- [ ] Sulfidic odor
- [ ] Aquic moisture regime
- [x] Reducing conditions
- [x] Gleyed or low-chroma colors
- [ ] Positive alpha-alpha dipyridyl test
- [ ] Concretions
- [ ] High organic content in surface layer in sandy soil
- [ ] Organic streaking in sandy soils
- [ ] Listed on local hydric soils list
- [ ] Listed on national hydric soils list
- [ ] Other

WETLAND DETERMINATION

Hydrophytic vegetation present? (Y) or N **Wetland Hydrology Present?** (Y) or N **Hydric Soils Present?** (Y) or N
Is this sampling Point within a wetland? (Y) or N

Remarks: Photo 15 (Photo 13 in report)

DATA FORM: ROUTINE WETLAND DETERMINATION | Comm. ID: Riparian Wetland | Plot ID: DP 13

Project/Site: Trinity River Channel Rehabilitation - Hocker Flat | Date: June 20, 2002
Applicant/Owner: ~~US Forest Service~~ BOR | County: Trinity
Investigator: A. Pitts, C. Boggs | State: California

Do normal circumstances exist on the site? (Y) or N | Explain: —
Is the site significantly disturbed (atypical situation)? Y or (N)
Is the area a potential problem area. Y or (N)

VEGETATION

Dominant Plant Species	Cover	Stratum	Indicator
1. Salix exigua	25	S	OBL
2. Rubus discolor	25	S	FACW*
3. Artemisia douglasiana	25	H	FACW
4. Equisetum laevigatum	25	H	FACW
5.			
6.			
7.			
8.			
9.			
10.			

Percent of dominant species that are OBL, FACW or FAC 4/4 = 100%

Remarks: Sufficient hydrophytic vegetation.

HYDROLOGY

- [x] Recorded Data (Describe in Remarks)
  - [ ] steam, lake, or tide gauge
  - [x] aerial photographs
  - [ ] other
- [ ] No Recorded data available

Field Observation:
Depth of Surface Water: None (in.)
Depth of Free Water in Pit: None (in.)
Depth of Saturated Soil: None (in.)

Wetland Hydrology Indicators

Primary Indicators	Secondary Indicators
[ ] inundated	[ ] oxidized root channels in upper 12"
[ ] saturated in upper 12 "	[ ] water-stained leaves
[ ] water marks	[ ] local soil survey data
[ ] drift lines	[x] FAC-neutral test
[x] sediment deposits	[ ] other (explain in remarks)
[x] drainage patterns in wetlands	

Remarks: Sufficient wetland hydrology.

SOILS

Map Unit Name (Series and Phase): 102 - Alter Dumps Sludge Tailings - Xerofluvents Complex, 2-9% Slopes | Drainage Class: Somewhat excessive
Taxonomy (Subgroup): Typic Xerorthents | Field Observations Confirm Mapped Type? (Y) or N
Hydric Status on SCS Field Office List: Hydric Inclusions

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/contrast	Texture, Concretions, Structure, Etc.
0-15"	—	10YR 3/1	—	—	Sandy.

Hydric Soil Indicators:
- [ ] Histosol
- [ ] Histic Epipedon
- [ ] Sulfidic odor
- [ ] Aquic moisture regime
- [ ] Reducing conditions
- [x] Gleyed or low-chroma colors
- [ ] Positive alpha-alpha dipyridyl test
- [ ] Concretions
- [ ] High organic content in surface layer in sandy soil
- [ ] Organic streaking in sandy soils
- [ ] Listed on local hydric soils list
- [ ] Listed on national hydric soils list
- [ ] Other

Remarks: Sufficient hydric soil indicators.

WETLAND DETERMINATION

Hydrophytic vegetation present? (Y) or N **Wetland Hydrology Present?** (Y) or N **Hydric Soils Present?** (Y) or N
Is this sampling Point within a wetland? (Y) or N

Remarks: Photo 16 (Photo 14 in report)

DATA FORM: ROUTINE WETLAND DETERMINATION | Comm. ID: Upland | Plot ID: DP 14

Project/Site: Trinity River Channel Rehabilitation - Hocker Flat | Date: June 20, 2002
Applicant/Owner: ~~US Forest Service~~ BOR | County: Trinity
Investigator: A. Pitts, C. Boggs | State: California

Do normal circumstances exist on the site? (Y) or N
Is the site significantly disturbed (atypical situation)? Y or (N)
Is the area a potential problem area. Y or (N)

Explain: —

VEGETATION

Dominant Plant Species	Cover	Stratum	Indicator
1. Linaria genistifolius	20	H	UPL
2. Centaurea solstitialis	20	H	UPL
3. Hypochaeris glabra	20	H	UPL
4. Petrorhagia dubia	10	H	UPL
5. Bromus tectorum	20	H	UPL
6. Vulpia octoflora	10	H	UPL
7.			
8.			
9.			
10.			

Percent of dominant species that are OBL, FACW or FAC 0/4 = 0%

Remarks: Insufficient hydrophytic vegetation.

HYDROLOGY

☒ Recorded Data (Describe in Remarks)
- ☐ steam, lake, or tide gauge
- ☒ aerial photographs
- ☐ other

☐ No Recorded data available

Field Observation:
Depth of Surface Water: None (in.)
Depth of Free Water in Pit: None (in.)
Depth of Saturated Soil: None (in.)

Wetland Hydrology Indicators

Primary Indicators	Secondary Indicators
☐ inundated	☐ oxidized root channels in upper 12"
☐ saturated in upper 12 "	☐ water-stained leaves
☐ water marks	☐ local soil survey data
☐ drift lines	☐ FAC-neutral test
☐ sediment deposits	☐ other (explain in remarks)
☐ drainage patterns in wetlands	

Remarks: Insufficient wetland hydrology indicators.

SOILS

Map Unit Name (Series and Phase): 102 Alter Dumps Hedge Tailings - Xerofluvents Complex, 2-9% slopes
Taxonomy (Subgroup): Typic Xerorthents
Hydric Status on SCS Field Office List: Hydric Inclusions

Drainage Class: somewhat excessive
Field Observations Confirm Mapped Type? (Y) or N

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/contrast	Texture, Concretions, Structure, Etc.
0-12	—	10YR 3/1	—	—	Sandy

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic odor
- ☐ Aquic moisture regime
- ☐ Reducing conditions
- ☒ Gleyed or low-chroma colors
- ☐ Positive alpha-alpha dipyridyl test
- ☐ Concretions
- ☐ High organic content in surface layer in sandy soil
- ☐ Organic streaking in sandy soils
- ☐ Listed on local hydric soils list
- ☐ Listed on national hydric soils list
- ☐ Other

Remarks: Sufficient hydric soil indicators.

WETLAND DETERMINATION

Hydrophytic vegetation present? Y or (N) **Wetland Hydrology Present?** Y or (N) **Hydric Soils Present?** (Y) or N
Is this sampling Point within a wetland? Y or (N)

Remarks: Photo 17 (Photo 15 in report). Paired to riparian wetland (DP 13).

DATA FORM: ROUTINE WETLAND DETERMINATION | Comm. ID: Seasonal Wet Meadow | Plot ID: DP 15

Project/Site: Trinity River Channel Rehabilitation - Hocker Flat | Date: June 20, 2002
Applicant/Owner: ~~US Forest Service~~ BOR | County: Trinity
Investigator: A. Pitts, C. Boggs | State: California

Do normal circumstances exist on the site? (Y) or N | Explain: —
Is the site significantly disturbed (atypical situation)? Y or (N)
Is the area a potential problem area. Y or (N)

VEGETATION

Dominant Plant Species	Cover	Stratum	Indicator
1. Equisetum laevigatum	35	H	FACW
2. Poa compressa	20	H	FAC
3. Rubus discolor	15	S	FACW*
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Percent of dominant species that are OBL, FACW or FAC 2/2 = 100%

Remarks: Sufficient hydrophylic vegetation.

HYDROLOGY

- ☒ Recorded Data (Describe in Remarks)
  - ☐ steam, lake, or tide gauge
  - ☒ aerial photographs
  - ☐ other
- ☐ No Recorded data available

Field Observation:
Depth of Surface Water: None (in.)
Depth of Free Water in Pit: None (in.)
Depth of Saturated Soil: None (in.)

Wetland Hydrology Indicators

Primary Indicators	Secondary Indicators
☐ inundated	☐ oxidized root channels in upper 12"
☐ saturated in upper 12 "	☐ water-stained leaves
☒ water marks	☐ local soil survey data
☐ drift lines	☐ FAC-neutral test
☐ sediment deposits	☐ other (explain in remarks)
☒ drainage patterns in wetlands	

Remarks: Sufficient wetland hydrology.

SOILS

Map Unit Name (Series and Phase): 102 - Arter Pumps Dredge Tailings - Xerofluvents complex, 2-9% slopes | Drainage Class: Somewhat excessive
Taxonomy (Subgroup): Typic Xerorthents | Field Observations Confirm Mapped Type? (Y) or N
Hydric Status on SCS Field Office List: Hydric Inclusions

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/contrast	Texture, Concretions, Structure, Etc.
0-12"	A	10YR 3/1	—	—	Sandy Loam

Remarks: Sufficient hydric soil indicators.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic odor
- ☐ Aquic moisture regime
- ☐ Reducing conditions
- ☒ Gleyed or low-chroma colors
- ☐ Positive alpha-alpha dipyridyl test
- ☐ Concretions
- ☐ High organic content in surface layer in sandy soil
- ☐ Organic streaking in sandy soils
- ☐ Listed on local hydric soils list
- ☐ Listed on national hydric soils list
- ☐ Other

WETLAND DETERMINATION

Hydrophytic vegetation present? (Y) or N **Wetland Hydrology Present?** (Y) or N **Hydric Soils Present?** (Y) or N
Is this sampling Point within a wetland? (Y) or N

Remarks: Photo 18 (Photo 16 in report)

DATA FORM: ROUTINE WETLAND DETERMINATION | Comm. ID: upland | Plot ID: DP16

Project/Site: Trinity River Channel Rehabilitation - Hocker Flat | Date: June 20, 2002
Applicant/Owner: ~~US Forest Service~~ BOR | County: Trinity
Investigator: A. Pitts, C. Boggs | State: California

Do normal circumstances exist on the site? (Y) or N
Is the site significantly disturbed (atypical situation)? Y or (N)
Is the area a potential problem area. Y or (N)

Explain: —

VEGETATION

Dominant Plant Species	Cover	Stratum	Indicator
1. Pinus Ponderosa	20	T	UPL
2. Pinus sabiniana	10	T	UPL
3. Arctostaphylos patula	5	S	UPL
4. Salix exigua	5	S	OBL
5. Linaria genistifolius	15	H	UPL
6. Brassica nigra	20	H	UPL
7. Hypochaeris glabra	15	H	UPL
8. Vulpia octoflora	10	H	UPL
9.			
10.			

Percent of dominant species that are OBL, FACW or FAC 0/2 = 0%

Remarks: Insufficient hydrophytic vegetation.

HYDROLOGY

- [x] Recorded Data (Describe in Remarks)
  - [ ] steam, lake, or tide gauge
  - [x] aerial photographs
  - [ ] other
- [ ] No Recorded data available

Field Observation:
Depth of Surface Water: None (in.)
Depth of Free Water in Pit: None (in.)
Depth of Saturated Soil: None (in.)

Wetland Hydrology Indicators

Primary Indicators	Secondary Indicators
[ ] inundated	[ ] oxidized root channels in upper 12"
[ ] saturated in upper 12 "	[ ] water-stained leaves
[ ] water marks	[ ] local soil survey data
[ ] drift lines	[ ] FAC-neutral test
[ ] sediment deposits	[ ] other (explain in remarks)
[ ] drainage patterns in wetlands	

Remarks: Insufficient wetland hydrology indicators.

SOILS

Map Unit Name (Series and Phase): 102 - After Dumps, Dredge Tailings - Xerofluvents Cambic, 2-9% slopes
Taxonomy (Subgroup): Typic Xerorthents
Hydric Status on SCS Field Office List: Hydric Inclusions

Drainage Class: Somewhat excessive
Field Observations Confirm Mapped Type? (Y) or N

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/contrast	Texture, Concretions, Structure, Etc.
0"-16"	—	10YR 3/3	—	—	sandy gravel

Remarks: Insufficient hydric soil indicators.

Hydric Soil Indicators:
- [ ] Histosol
- [ ] Histic Epipedon
- [ ] Sulfidic odor
- [ ] Aquic moisture regime
- [ ] Reducing conditions
- [ ] Gleyed or low-chroma colors
- [ ] Positive alpha-alpha dipyridyl test
- [ ] Concretions
- [ ] High organic content in surface layer in sandy soil
- [ ] Organic streaking in sandy soils
- [ ] Listed on local hydric soils list
- [ ] Listed on national hydric soils list
- [ ] Other

WETLAND DETERMINATION

Hydrophytic vegetation present? Y or (N) **Wetland Hydrology Present?** Y or (N) **Hydric Soils Present?** (Y) or N
Is this sampling Point within a wetland? Y or (N)

Remarks: Photo 19 (Photo 17 on report). Paired to seasonal wet meadow (DP 15).

DATA FORM: ROUTINE WETLAND DETERMINATION | Comm. ID: Riparian Wetland | Plot ID: 17

Project/Site: Trinity River Channel Rehabilitation - Hocker Flat | Date: June 20 2002
Applicant/Owner: US ~~Forest Service~~ BLM | County: Trinity
Investigator: A. Pitts, C. Boggs | State: California

Do normal circumstances exist on the site? (Y) or N | Explain: —
Is the site significantly disturbed (atypical situation)? Y or (N)
Is the area a potential problem area. Y or (N)

VEGETATION

Dominant Plant Species	Cover	Stratum	Indicator
1. Salix exigua	20	S	OBL
2. Salix lasiolepis	20	S	FACW
3. Rubus discolor	20	S	FACW*
4. Vitis californica	20	S	FACW
5. Artemisia douglasiana	20	H	FACW
6.			
7.			
8.			
9.			
10.			

Percent of dominant species that are OBL, FACW or FAC 5/5 = 100%

Remarks: Sufficient hydrophytic veg.

HYDROLOGY

- ☐ Recorded Data (Describe in Remarks)
  - ☐ steam, lake, or tide gauge
  - ☒ aerial photographs
  - ☐ other
- ☐ No Recorded data available

Field Observation:
Depth of Surface Water: — None (in.)
Depth of Free Water in Pit: — None (in.)
Depth of Saturated Soil: None (in.)

Wetland Hydrology Indicators

Primary Indicators	Secondary Indicators
☐ inundated	☐ oxidized root channels in upper 12"
☐ saturated in upper 12 "	☐ water-stained leaves
☒ water marks	☒ local soil survey data
☒ drift lines	☒ FAC-neutral test
☐ sediment deposits	☐ other (explain in remarks)
☐ drainage patterns in wetlands	

Remarks: Sufficient hydrology indicators

SOILS

Map Unit Name (Series and Phase): 217 - xerofluvents riverwash complex - 0-5% slopes | Drainage Class: well
Taxonomy (Subgroup): xerofluvents | Field Observations Confirm Mapped Type? (Y) or N
Hydric Status on SCS Field Office List: Hydric

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/contrast	Texture, Concretions, Structure, Etc.
0-14	A	10YR 3/1	—	—	Sandy

Remarks: Sufficient hydric soils indicators.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic odor
- ☐ Aquic moisture regime
- ☐ Reducing conditions
- ☒ Gleyed or low-chroma colors
- ☐ Positive alpha-alpha dipyridyl test
- ☐ Concretions
- ☐ High organic content in surface layer in sandy soil
- ☐ Organic streaking in sandy soils
- ☒ Listed on local hydric soils list
- ☐ Listed on national hydric soils list
- ☐ Other

WETLAND DETERMINATION

Hydrophytic vegetation present? (Y) or N **Wetland Hydrology Present?** (Y) or N **Hydric Soils Present?** (Y) or N
Is this sampling Point within a wetland? (Y) or N

Remarks: Photo 1. Disk 2 (Photo 18.) in report

DATA FORM: ROUTINE WETLAND DETERMINATION | Comm. ID: Upland | Plot ID: 18

Project/Site: Trinity River Channel Rehabilitation – Hocker Flat | Date: June 20 2002
Applicant/Owner: US ~~Forest Service~~ BOR | County: Trinity
Investigator: A. Pitts, C. Boggs | State: California

Do normal circumstances exist on the site? (Y) or N
Is the site significantly disturbed (atypical situation)? Y or (N)
Is the area a potential problem area. Y or (N)

Explain: —

VEGETATION

Dominant Plant Species	Cover	Stratum	Indicator
1. Centaurea solstitialis	20	H	UPL
2. Brassica nigra	20	H	UPL
3. Bromus tectorum	20	H	UPL
4. Pinus ponderosa	5	T	UPL
5. Vulpia octoflora	5	H	UPL
6. Melilotus alba	10	H	FACU+
7. Salix exigua	5	S	OBL
8. Pinus sabiniana	5	T	UPL
9. Linaria genistifolius	10	H	UPL
10.			

Percent of dominant species that are OBL, FACW or FAC 0/3 = 0%

Remarks: Insufficient hydrophytic vegetation.

HYDROLOGY

- [x] Recorded Data (Describe in Remarks)
  - [ ] steam, lake, or tide gauge
  - [x] aerial photographs
  - [ ] other
- [ ] No Recorded data available

Field Observation:
Depth of Surface Water: None (in.)
Depth of Free Water in Pit: None (in.)
Depth of Saturated Soil: None (in.)

Wetland Hydrology Indicators

Primary Indicators	Secondary Indicators
❒ inundated	❒ oxidized root channels in upper 12"
❒ saturated in upper 12 "	❒ water-stained leaves
❒ water marks	☒ local soil survey data
❒ drift lines	❒ FAC-neutral test
❒ sediment deposits	❒ other (explain in remarks)
❒ drainage patterns in wetlands	

Remarks: Insufficient wetland hydrology indicators.

SOILS

Map Unit Name (Series and Phase): 217-xerofluvents riverwash complex 0-5% slopes
Taxonomy (Subgroup): Xerofluvents
Hydric Status on SCS Field Office List: Hydric

Drainage Class: well
Field Observations Confirm Mapped Type? (Y) or N

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/contrast	Texture, Concretions, Structure, Etc.
0"-12"	—	10YR 3/1	—	—	sandy

Remarks: Sufficient hydric soil indicators

Hydric Soil Indicators:
- ❒ Histosol
- ❒ Histic Epipedon
- ❒ Sulfidic odor
- ❒ Aquic moisture regime
- ❒ Reducing conditions
- ☒ Gleyed or low-chroma colors
- ❒ Positive alpha-alpha dipyridyl test
- ❒ Concretions
- ❒ High organic content in surface layer in sandy soil
- ❒ Organic streaking in sandy soils
- ❒ Listed on local hydric soils list
- ❒ Listed on national hydric soils list
- ❒ Other

WETLAND DETERMINATION

Hydrophytic vegetation present? Y or (N) **Wetland Hydrology Present?** Y or (N) **Hydric Soils Present?** (Y) or N
Is this sampling Point within a wetland? Y or (N)

Remarks: Photo 2 (Photo 19 in report). Paired to riparian wetland (DP 17).

DATA FORM: ROUTINE WETLAND DETERMINATION | Comm. ID: Fresh Emergent Wetland Plot ID: DP 19

Project/Site: Trinity River Mechanical Channel Rehabilitation - Hocker Flat | Date: May 14, 2003
Applicant/Owner: U.S. Bureau of Reclamation | County: Trinity
Investigator: C. Boggs, F. Levitan | State: California

Do normal circumstances exist on the site? (Y) or N
Is the site significantly disturbed (atypical situation)? Y or (N)
Is the area a potential problem area. Y or (N)

Explain: Photo 20

VEGETATION

Dominant Plant Species	Cover	Stratum	Indicator
1. Salix exigua	15	S	OBL
2. Salix lasiolepis	10	S	FACW
3. Typha latifolia	5	H	OBL
4. open water	70	—	—
5.			
6.			
7.			
8.			
9.			
10.			

Percent of dominant species that are OBL, FACW or FAC: 3/3=100%

Remarks: Fresh emergent wetland feature mostly devoid of vegetation, but where present hydrophytes are dominant.

HYDROLOGY

☒ Recorded Data (Describe in Remarks)
- ☐ steam, lake, or tide gauge
- ☒ aerial photographs
- ☐ other

☐ No Recorded data available

Field Observation:
Depth of Surface Water: 1-36 (in.)
Depth of Free Water in Pit: Inundated (in.)
Depth of Saturated Soil: Inundated (in.)

Wetland Hydrology Indicators

Primary Indicators	Secondary Indicators
☒ inundated	☐ oxidized root channels in upper 12"
☒ saturated in upper 12 "	☐ water-stained leaves
☐ water marks	☐ local soil survey data
☐ drift lines	☐ FAC-neutral test
☐ sediment deposits	☐ other (explain in remarks)
☐ drainage patterns in wetlands	

Remarks: Feature is currently inundated. Sufficient wetland hydrology indicators present.

SOILS

Map Unit Name (Series and Phase): 102 - After Dumps Dredger Tailings, Xerofluvents complex, 2-9% slopes
Taxonomy (Subgroup): Typic Xerorthents
Hydric Status on SCS Field Office List: Hydric Inclusions

Drainage Class: Somewhat excessive
Field Observations Confirm Mapped Type? (Y) or N

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/contrast	Texture, Concretions, Structure, Etc.

Remarks: No pit dug. Feature is currently inundated, indicating long-duration ponding. Sufficient hydric soil indicators.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic odor
- ☐ Aquic moisture regime
- ☐ Reducing conditions
- ☐ Gleyed or low-chroma colors
- ☐ Positive alpha-alpha dipyridyl test
- ☐ Concretions
- ☐ High organic content in surface layer in sandy soil
- ☐ Organic streaking in sandy soils
- ☐ Listed on local hydric soils list
- ☐ Listed on national hydric soils list
- ☒ Other Long-duration ponding

WETLAND DETERMINATION

Hydrophytic vegetation present? (Y) or N **Wetland Hydrology Present?** (Y) or N **Hydric Soils Present?** (Y) or N
Is this sampling Point within a wetland? (Y) or N

Remarks: Fresh emergent wetland within depression in dredger tailings. Riparian habitat surrounds feature.

DATA FORM: ROUTINE WETLAND DETERMINATION | Comm. ID: Dredger Tailings | Plot ID: DP 20

Project/Site: Trinity River Mechanical Channel Rehabilitation - Hocker Flat | Date: May 14, 2003
Applicant/Owner: U.S. Bureau of Reclamation | County: Trinity
Investigator: C. Boggs, F. Levitan | State: California

Do normal circumstances exist on the site? (Y) or N
Is the site significantly disturbed (atypical situation)? (Y) or N
Is the area a potential problem area? (Y) or N

Explain: Photo 21

VEGETATION

Dominant Plant Species	Cover	Stratum	Indicator
1. Bromus mollis	20	H	FACU-
2. Bromus tectorum	20	H	UPL
3. Bromus inermis	40	H	UPL
4. Linaria genistifolia	20	H	UPL
5.			
6.			
7.			
8.			
9.			
10.			

Percent of dominant species that are OBL, FACW or FAC: 0/4=0%

Remarks: insufficient hydrophytic vegetation

HYDROLOGY

- [x] Recorded Data (Describe in Remarks)
  - [ ] steam, lake, or tide gauge
  - [x] aerial photographs
  - [ ] other
- [ ] No Recorded data available

Field Observation:
Depth of Surface Water: 0 (in.)
Depth of Free Water in Pit: 0 (in.)
Depth of Saturated Soil: 0 (in.)

Wetland Hydrology Indicators

Primary Indicators	Secondary Indicators
[ ] inundated	[ ] oxidized root channels in upper 12"
[ ] saturated in upper 12 "	[ ] water-stained leaves
[ ] water marks	[ ] local soil survey data
[ ] drift lines	[ ] FAC-neutral test
[ ] sediment deposits	[ ] other (explain in remarks)
[ ] drainage patterns in wetlands	

Remarks: insufficient wetland hydrology indicators

SOILS

Map Unit Name (Series and Phase): 102 Alluvial-Dumps, Dredger Tailings-Xerofluvents | Drainage Class: somewhat excessive
Taxonomy (Subgroup): Typic Xerofluvents | Field Observations Confirm Mapped Type? (Y) or N
Hydric Status on SCS Field Office List: Hydric inclusions

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/contrast	Texture, Concretions, Structure, Etc.
	no soil at dug pit - too rocky				

Remarks: insufficient hydric soil indicators

Hydric Soil Indicators:
- [ ] Histosol
- [ ] Histic Epipedon
- [ ] Sulfidic odor
- [ ] Aquic moisture regime
- [ ] Reducing conditions
- [ ] Gleyed or low-chroma colors
- [ ] Positive alpha-alpha dipyridyl test
- [ ] Concretions
- [ ] High organic content in surface layer in sandy soil
- [ ] Organic streaking in sandy soils
- [ ] Listed on local hydric soils list
- [ ] Listed on national hydric soils list
- [ ] Other

WETLAND DETERMINATION

Hydrophytic vegetation present? Y or (N) | Wetland Hydrology Present? Y or (N) | Hydric Soils Present? Y or (N)
Is this sampling Point within a wetland? Y or (N)

Remarks: upland data point, paired w/ dp 1 (fresh emergent wetland)

DATA FORM: ROUTINE WETLAND DETERMINATION | Comm. ID: Fresh Emergent Wetland | Plot ID: DP 21

Project/Site: Trinity River Mechanical Channel Rehabilitation - Hocker Flat | Date: May 14, 2003
Applicant/Owner: U.S. Bureau of Reclamation | County: Trinity
Investigator: C. Boggs, F. Levitan | State: California

Do normal circumstances exist on the site? (Y) or N
Is the site significantly disturbed (atypical situation)? Y or (N)
Is the area a potential problem area. Y or (N)

Explain: Photo 22

VEGETATION

Dominant Plant Species	Cover	Stratum	Indicator
1. Juncus effusus	20	H	OBL
2. Alnus rhombifolia	20	T	FACW
3. Populus balsamifera	20	T	FACW
4. Salix exigua	20	S	OBL
5. open water	20	N/A	N/A
6.			
7.			
8.			
9.			
10.			

Percent of dominant species that are OBL, FACW or FAC 4/4=100%

Remarks: Sufficient hydrophytic vegetation.

HYDROLOGY

☒ Recorded Data (Describe in Remarks)
- ☐ steam, lake, or tide gauge
- ☒ aerial photographs
- ☐ other

☐ No Recorded data available

Field Observation:
Depth of Surface Water: 1-14 (in.)
Depth of Free Water in Pit: Inundated (in.)
Depth of Saturated Soil: Inundated (in.)

Wetland Hydrology Indicators

Primary Indicators	Secondary Indicators
☒ inundated	☐ oxidized root channels in upper 12"
☒ saturated in upper 12 "	☒ water-stained leaves
☐ water marks	☐ local soil survey data
☐ drift lines	☒ FAC-neutral test
☐ sediment deposits	☐ other (explain in remarks)
☒ drainage patterns in wetlands	

Remarks: Feature is currently inundated. Sufficient wetland hydrology indicators.

SOILS

Map Unit Name (Series and Phase): 102 - After Dredge Tailings, Xerofluvents Complex, 2-9% slopes
Taxonomy (Subgroup): Typic Xerorthents
Hydric Status on SCS Field Office List: Hydric Inclusions

Drainage Class: Somewhat Excessive
Field Observations Confirm Mapped Type? (Y) or N

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/contrast	Texture, Concretions, Structure, Etc.

Remarks: No pit dug. Feature is currently inundated, indicating long-duration ponding. Sufficient hydric soil indicator.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic odor
- ☐ Aquic moisture regime
- ☐ Reducing conditions
- ☐ Gleyed or low-chroma colors
- ☐ Positive alpha-alpha dipyridyl test
- ☐ Concretions
- ☐ High organic content in surface layer in sandy soil
- ☐ Organic streaking in sandy soils
- ☐ Listed on local hydric soils list
- ☐ Listed on national hydric soils list
- ☒ Other Long duration ponding

WETLAND DETERMINATION

Hydrophytic vegetation present? (Y) or N | Wetland Hydrology Present? (Y) or N | Hydric Soils Present? (Y) or N
Is this sampling Point within a wetland? (Y) or N

Remarks: Fresh emergent wetland within depression between Red Hill Rd. and dredger tailings. Mature riparian habitat surrounds feature.

DATA FORM: ROUTINE WETLAND DETERMINATION | Comm. ID: Montane Riparian | Plot ID: DP 22

Project/Site: Trinity River Mechanical Channel Rehabilitation - Hocker Flat | Date: May 14, 2003
Applicant/Owner: U.S. Bureau of Reclamation | County: Trinity
Investigator: C. Boggs, F. Levitan | State: California

Do normal circumstances exist on the site? (Y) or N
Is the site significantly disturbed (atypical situation)? Y or (N)
Is the area a potential problem area. Y or (N)

Explain: —

VEGETATION

Dominant Plant Species	Cover	Stratum	Indicator
1. Salix exigua	30	S	OBL
2. Rubus discolor	40	S	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Percent of dominant species that are OBL, FACW or FAC 2/2 = 100%

Remarks: Sufficient hydrophytic vegetation.

HYDROLOGY

- [x] Recorded Data (Describe in Remarks)
  - [ ] steam, lake, or tide gauge
  - [x] aerial photographs
  - [ ] other
- [ ] No Recorded data available

Field Observation:
Depth of Surface Water: None (in.)
Depth of Free Water in Pit: None (in.)
Depth of Saturated Soil: None (in.)

Wetland Hydrology Indicators

Primary Indicators	Secondary Indicators
[ ] inundated	[ ] oxidized root channels in upper 12"
[ ] saturated in upper 12 "	[ ] water-stained leaves
[ ] water marks	[ ] local soil survey data
[ ] drift lines	[x] FAC-neutral test
[ ] sediment deposits	[ ] other (explain in remarks)
[ ] drainage patterns in wetlands	

Remarks: Insufficient wetland hydrology indicators.

SOILS

Map Unit Name (Series and Phase): 102 - Atter Dump Dredge Tailings, Xerorthents complex, 2-4% slopes
Taxonomy (Subgroup): Typic Xerorthents
Hydric Status on SCS Field Office List: Hydric Inclusions

Drainage Class: Somewhat excessive
Field Observations Confirm Mapped Type? (Y) or N

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/contrast	Texture, Concretions, Structure, Etc.
0-12"	A	10YR 3/2	N/A	N/A	Sandy

Hydric Soil Indicators:
- [ ] Histosol
- [ ] Histic Epipedon
- [ ] Sulfidic odor
- [ ] Aquic moisture regime
- [ ] Reducing conditions
- [ ] Gleyed or low-chroma colors
- [ ] Positive alpha-alpha dipyridyl test
- [ ] Concretions
- [ ] High organic content in surface layer in sandy soil
- [ ] Organic streaking in sandy soils
- [ ] Listed on local hydric soils list
- [ ] Listed on national hydric soils list
- [ ] Other

Remarks: Insufficient hydric soil indicators.

WETLAND DETERMINATION

Hydrophytic vegetation present? (Y) or N | Wetland Hydrology Present? Y or (N) | Hydric Soils Present? Y or (N)
Is this sampling Point within a wetland? Y or (N)

Remarks: Upland data point, paired to fresh emergent wetland (DP 21).

DATA FORM: ROUTINE WETLAND DETERMINATION | Comm. ID: Pond | Plot ID: DP 23

Project/Site: Trinity River Mechanical Channel Rehabilitation - Hocker Flat | Date: May 14, 2003
Applicant/Owner: U.S. Bureau of Reclamation | County: Trinity
Investigator: C. Boggs, F. Levitan | State: California

Do normal circumstances exist on the site? (Y) or N
Is the site significantly disturbed (atypical situation)? Y or (N)
Is the area a potential problem area. Y or (N)

Explain: Photo 23

VEGETATION

Dominant Plant Species	Cover	Stratum	Indicator
1. Open Water	100	N/A	N/A
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Percent of dominant species that are OBL, FACW or FAC N/A

Remarks: Pond feature is devoid of vegetation.

HYDROLOGY

☒ Recorded Data (Describe in Remarks)
- ☐ steam, lake, or tide gauge
- ☒ aerial photographs
- ☐ other

☐ No Recorded data available

Field Observation:
Depth of Surface Water: 1-60 (in.)
Depth of Free Water in Pit: Inundated (in.)
Depth of Saturated Soil: Inundated (in.)

Wetland Hydrology Indicators

Primary Indicators	Secondary Indicators
☒ inundated	☐ oxidized root channels in upper 12"
☒ saturated in upper 12 "	☐ water-stained leaves
☐ water marks	☐ local soil survey data
☐ drift lines	☐ FAC-neutral test
☐ sediment deposits	☐ other (explain in remarks)
☒ drainage patterns in wetlands	

Remarks: Sufficient wetland hydrology indicators. Feature is currently inundated.

SOILS

Map Unit Name (Series and Phase): 102 - After Dumps Dredge Tailings Xerofluvents complex, 2-15% slopes
Taxonomy (Subgroup): Typic Xerorthents
Hydric Status on SCS Field Office List: Hydric Inclusions

Drainage Class: Somewhat Excessive
Field Observations Confirm Mapped Type? (Y) or N

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/contrast	Texture, Concretions, Structure, Etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic odor
- ☐ Aquic moisture regime
- ☐ Reducing conditions
- ☐ Gleyed or low-chroma colors
- ☐ Positive alpha-alpha dipyridyl test
- ☐ Concretions
- ☐ High organic content in surface layer in sandy soil
- ☐ Organic streaking in sandy soils
- ☐ Listed on local hydric soils list
- ☐ Listed on national hydric soils list
- ☒ Other long duration ponding

Remarks: No pit dug. Deep pond that is currently inundated indicating long duration ponding. Sufficient hydric soil indicators.

WETLAND DETERMINATION

Hydrophytic vegetation present? Y or (N) | Wetland Hydrology Present? (Y) or N | Hydric Soils Present? (Y) or N
Is this sampling Point within a wetland? Y or (N) → "Other waters"

Remarks: Pond is located in depression adjacent to dredger tailings and surrounded by montane riparian habitat.

DATA FORM: ROUTINE WETLAND DETERMINATION | Comm. ID: Upland | Plot ID: DP 24

Project/Site: Trinity River Mechanical Channel Rehabilitation - Hocker Flat | Date: May 14, 2003
Applicant/Owner: U.S. Bureau of Reclamation | County: Trinity
Investigator: C. Boggs, F. Levitan | State: California

Do normal circumstances exist on the site? (Y) or N
Is the site significantly disturbed (atypical situation)? Y or (N)
Is the area a potential problem area. Y or (N)

Explain: —

VEGETATION

Dominant Plant Species	Cover	Stratum	Indicator
1. Populus balsamifera	20	T	FACW
2. Salix exigua	25	S	OBL
3. Rubus discolor	45	S	FACW*
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Percent of dominant species that are OBL, FACW or FAC 3/3 = 100%

Remarks: Sufficient hydrophytic vegetation

HYDROLOGY

☒ Recorded Data (Describe in Remarks)
- ☐ steam, lake, or tide gauge
- ☒ aerial photographs
- ☐ other

☐ No Recorded data available

Field Observation:
Depth of Surface Water: None (in.)
Depth of Free Water in Pit: None (in.)
Depth of Saturated Soil: None (in.)

Wetland Hydrology Indicators

Primary Indicators	Secondary Indicators
☐ inundated	☐ oxidized root channels in upper 12"
☐ saturated in upper 12 "	☐ water-stained leaves
☐ water marks	☐ local soil survey data
☐ drift lines	☒ FAC-neutral test
☐ sediment deposits	☐ other (explain in remarks)
☐ drainage patterns in wetlands	

Remarks: Insufficient wetland hydrology indicators.

SOILS

Map Unit Name (Series and Phase): 102 - Aiton Pinns Dredge Tailings, Xerofluvents Complex, 2-9% slopes
Taxonomy (Subgroup): Typic Xerorthents
Hydric Status on SCS Field Office List: Hydric Inclusions

Drainage Class: Somewhat excessive
Field Observations Confirm Mapped Type? (Y) or N

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/contrast	Texture, Concretions, Structure, Etc.
0-14"	A	10YR 3/2	N/A	N/A	Sandy

Remarks: Insufficient hydric soil indicators.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic odor
- ☐ Aquic moisture regime
- ☐ Reducing conditions
- ☐ Gleyed or low-chroma colors
- ☐ Positive alpha-alpha dipyridyl test
- ☐ Concretions
- ☐ High organic content in surface layer in sandy soil
- ☐ Organic streaking in sandy soils
- ☐ Listed on local hydric soils list
- ☐ Listed on national hydric soils list
- ☐ Other _____

WETLAND DETERMINATION

Hydrophytic vegetation present? (Y) or N | Wetland Hydrology Present? Y or (N) | Hydric Soils Present? Y or (N)
Is this sampling Point within a wetland? Y or (N)

Remarks: Upland data point, paired to pond (DP 23).

DATA FORM: ROUTINE WETLAND DETERMINATION | Comm. ID: Fresh Emergent Wetland | Plot ID: DP 25

Project/Site: Trinity River Mechanical Channel Rehabilitation - Hocker Flat | Date: May 14, 2003
Applicant/Owner: U.S. Bureau of Reclamation | County: Trinity
Investigator: C. Boggs, F. Levitan | State: California

Do normal circumstances exist on the site? (Y) or N
Is the site significantly disturbed (atypical situation)? Y or (N)
Is the area a potential problem area. Y or (N)

Explain: Photo 24

VEGETATION

Dominant Plant Species	Cover	Stratum	Indicator
1. Salix exigua	30	S	OBL
2. Salix lasiolepis	20	S	FACW
3. Typha latifolia	20	H	OBL
4. Carex barbarae	10	H	FACW
5. open water	20	N/A	N/A
6.			
7.			
8.			
9.			
10.			

Percent of dominant species that are OBL, FACW or FAC 3/3=100%

Remarks: Sufficient hydrophytic vegetation.

HYDROLOGY

☒ Recorded Data (Describe in Remarks)
- ☐ steam, lake, or tide gauge
- ☒ aerial photographs
- ☐ other

☐ No Recorded data available

Field Observation:
Depth of Surface Water: 1-36 (in.)
Depth of Free Water in Pit: Inundated (in.)
Depth of Saturated Soil: Inundated (in.)

Wetland Hydrology Indicators

Primary Indicators	Secondary Indicators
☒ inundated	☐ oxidized root channels in upper 12"
☒ saturated in upper 12 "	☐ water-stained leaves
☐ water marks	☐ local soil survey data
☐ drift lines	☒ FAC-neutral test
☐ sediment deposits	☐ other (explain in remarks)
☐ drainage patterns in wetlands	

Remarks: Feature is currently inundated. Sufficient wetland hydrology indicators.

SOILS

Map Unit Name (Series and Phase): 102. Aiken Dredge Tailings Xerorthents complex, 2-8% slopes
Taxonomy (Subgroup): Typic Xerorthents
Hydric Status on SCS Field Office List: Hydric Inclusions

Drainage Class: Somewhat Excessive
Field Observations Confirm Mapped Type? (Y) or N

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/contrast	Texture, Concretions, Structure, Etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic odor
- ☐ Aquic moisture regime
- ☐ Reducing conditions
- ☐ Gleyed or low-chroma colors
- ☐ Positive alpha-alpha dipyridyl test
- ☐ Concretions
- ☐ High organic content in surface layer in sandy soil
- ☐ Organic streaking in sandy soils
- ☐ Listed on local hydric soils list
- ☐ Listed on national hydric soils list
- ☒ Other Long-duration Ponding

Remarks: No pit dug. Feature is inundated, indicating long-duration ponding. Sufficient hydric soil indicator.

WETLAND DETERMINATION

Hydrophytic vegetation present? (Y) or N | Wetland Hydrology Present? (Y) or N | Hydric Soils Present? (Y) or N
Is this sampling Point within a wetland? (Y) or N

Remarks: 50'x250' polygon represents fresh emergent wetland within depression in dredger tailings. Feature is surrounded by riparian habitat.

DATA FORM: ROUTINE WETLAND DETERMINATION | Comm. ID: Upland | Plot ID: DP 26

Project/Site: Trinity River Mechanical Channel Rehabilitation - Hocker Flat | Date: May 14, 2003
Applicant/Owner: U.S. Bureau of Reclamation | County: Trinity
Investigator: C. Boggs, F. Levitan | State: California

Do normal circumstances exist on the site? (Y) or N
Is the site significantly disturbed (atypical situation)? Y or (N)
Is the area a potential problem area. Y or (N)

Explain: —

VEGETATION

Dominant Plant Species	Cover	Stratum	Indicator
1. Populus balsamifera	25	T	FACW
2. Alnus rhombifolia	25	T	FACW
3. Salix exigua	25	S	OBL
4. Rubus discolor	25	S	FACW*
5.			
6.			
7.			
8.			
9.			
10.			

Percent of dominant species that are OBL, FACW or FAC: 4/4 = 100%

Remarks: Sufficient hydrophytic vegetation.

HYDROLOGY

- [x] Recorded Data (Describe in Remarks)
  - [ ] steam, lake, or tide gauge
  - [x] aerial photographs
  - [ ] other
- [ ] No Recorded data available

Field Observation:
Depth of Surface Water: None (in.)
Depth of Free Water in Pit: None (in.)
Depth of Saturated Soil: None (in.)

Wetland Hydrology Indicators

Primary Indicators	Secondary Indicators
[ ] inundated	[ ] oxidized root channels in upper 12"
[ ] saturated in upper 12 "	[ ] water-stained leaves
[ ] water marks	[ ] local soil survey data
[ ] drift lines	[x] FAC-neutral test
[ ] sediment deposits	[ ] other (explain in remarks)
[ ] drainage patterns in wetlands	

Remarks: Insufficient wetland hydrology indicators.

SOILS

Map Unit Name (Series and Phase): 102 - Arbuckle Gravelly Loam, 2-9% slopes
Taxonomy (Subgroup): Typic xerorthents
Hydric Status on SCS Field Office List: Hydric Inclusions

Drainage Class: Somewhat Excessive
Field Observations Confirm Mapped Type? (Y) or N

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/contrast	Texture, Concretions, Structure, Etc.
0-6"	A	10YR 3/2	N/A	N/A	sandy gravelly

Remarks: Insufficient hydric soil indicators.

Hydric Soil Indicators:
- [ ] Histosol
- [ ] Histic Epipedon
- [ ] Sulfidic odor
- [ ] Aquic moisture regime
- [ ] Reducing conditions
- [ ] Gleyed or low-chroma colors
- [ ] Positive alpha-alpha dipyridyl test
- [ ] Concretions
- [ ] High organic content in surface layer in sandy soil
- [ ] Organic streaking in sandy soils
- [ ] Listed on local hydric soils list
- [ ] Listed on national hydric soils list
- [ ] Other

WETLAND DETERMINATION

Hydrophytic vegetation present? (Y) or N | Wetland Hydrology Present? Y or (N) | Hydric Soils Present? Y or (N)
Is this sampling Point within a wetland? Y or (N)

Remarks: Upland data point, paired to fresh emergent wetland (DP 25)

APPENDIX C

Data Point Photographs

HOCKER FLAT

Photo 1. Data Point 1. Upland.

Photo 2. Data Point 2. Riparian Wetland.

Photo 3. Data Point 2. Riparian Wetland.

Photo 4. Data Point 3. Upland Pair to Data Point 2.

Photo 5. Data Point 4. Riparian Wetland.

Photo 6. Data Point 5 (on left). Upland Pair to Data Point 4.

Photo 7. Data Point 6. Riparian Wetland.

Photo 8. Data Point 7. Upland Pair to Data Point 6.

Photo 9. Data Point 8. Riparian Wetland.

Photo 10. Data Point 9. Upland Pair to Data Point 8.

Photo 11. Data Point 10. Riparian Wetland.

Photo 12. Data Point 11. Upland Pair to Data Point 10.

Photo 13. Data Point 12. Emergent Wetland.

Photo 14. Data Point 13. Riparian Wetland.

Photo 15. Data Point 14. Upland Pair to Data Point 13.

Photo 16. Data Point 15. Wet Meadow.

Photo 17. Data Point 16. Upland Pair to Data Point 15.

Photo 18. Data Point 17. Wetland Riparian.

Photo 19. Data Point 18. Upland Pair to Data Point 17.

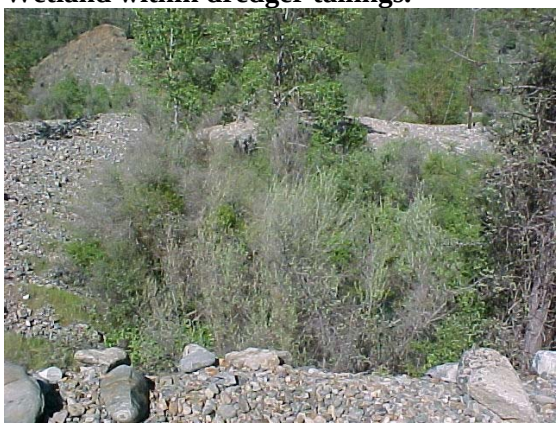
Photo 20. Data Point 19. Fresh Emergent Wetland.

Photo 21. Data Point 20. Dredger tailings.

Photo 22. Data Point 21. Fresh Emergent Wetland.

Photo 23. Data Point 23. Pond.

Photo 24. Data Point 25. Fresh Emergent Wetland within dredger tailings.



DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
333 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94105-2197

JUL - 8 2004

Regulatory Branch

SUBJECT: File Number 28083N

Mr. Douglas P. Schleusner
Trinity River Restoration Program
P.O. Box 1300
Weaverville, California 96093

RECEIVED
JUL 12 2004
NORTH STATE RESOURCES, INC.

Dear Mr. Schleusner:

Thank you for your letter dated July 30, 2003, requesting confirmation of the extent of Corps of Engineers jurisdiction at Hocker Flat (APN #s 012-120-3900, 012-120-4900, and 012-120-4200), located adjacent to the Trinity River and downstream from its confluence with Canyon Creek, west of the community of Junction City, in Trinity County, California.

Enclosed is a map showing the extent and location of Corps of Engineers jurisdiction on wetlands and other waters of the United States adjacent to the Trinity River, at Hocker Flat (Enclosure 1). We have based this jurisdictional delineation on the current conditions of the site. A change in those conditions may also change the extent of our jurisdiction. This jurisdictional delineation will expire in five years from the date of this letter. However, if there has been a change in circumstances that affects the extent of Corps jurisdiction, a revision may be done before that date. The jurisdictional determination is based on a site inspection by our Eureka Office staff on August 21, 2003 and on information obtained from the document titled, *Trinity River Mechanical Channel Rehabilitation Pilot Project, Delineation of Waters of the U.S. Including Wetlands – Final*, prepared by North State Resources, Inc. for the U.S. Department of the Interior, Bureau of Reclamation, dated July 15, 2003.

All proposed discharges of dredged or fill material into waters of the United States must be authorized by the Corps of Engineers pursuant to Section 404 of the Clean Water Act (CWA) (33 U.S.C. Section 1344). Waters of the United States generally include tidal waters, lakes, ponds, rivers, streams (including intermittent streams), and wetlands.

Your proposed work is within our jurisdiction and a permit may be required. Application for Corps authorization should be made to this office using the application form and instructions enclosed (Enclosure 2). The application must include plans showing the location, extent and character of the proposed activity, prepared in accordance with the requirements contained in this pamphlet. You should note, in planning your work, that upon receipt of a properly completed application and plans, it may be necessary to advertise the proposed work by issuing a public notice for a period of 30 days.

Our nationwide or regional permits have already authorized certain activities provided specified conditions are met. Your completed application will enable us to determine whether your activity is already authorized. You are advised to refrain from commencement of your proposed activity until a determination has been made that an existing permit covers it. Commencement of work before you received our notification may be interpreted as a violation of our regulations.

You are advised that the Corps has established an Administrative Appeal Process, as described in 33 C.F.R. Part 331 (65 Fed. Reg. 16,486; Mar. 28, 2000), and outlined in the enclosed flowchart and "Notification of Administrative Appeal Options, Process, and Request for Appeal" form (NAO-RFA)(Enclosure 3). If you do not intend to accept the approved jurisdictional determination, you may elect to provide new information to the District Engineer for reconsideration or submit a completed NAO-RFA form to the Division Engineer to initiate the appeal process. You will relinquish all rights to appeal, unless the Corps receives new information or a completed NAO-RFA form within sixty (60) days of the date of the NAO-RFA.

If you have any questions, please call David Ammerman of our Eureka Office, Regulatory Branch at telephone 707-443-0855. All correspondence should be addressed to the Eureka Office, U.S. Army Corps of Engineers, P.O. Box 4863, Eureka, California 95502, referencing the file number at the head of this letter.

Sincerely,

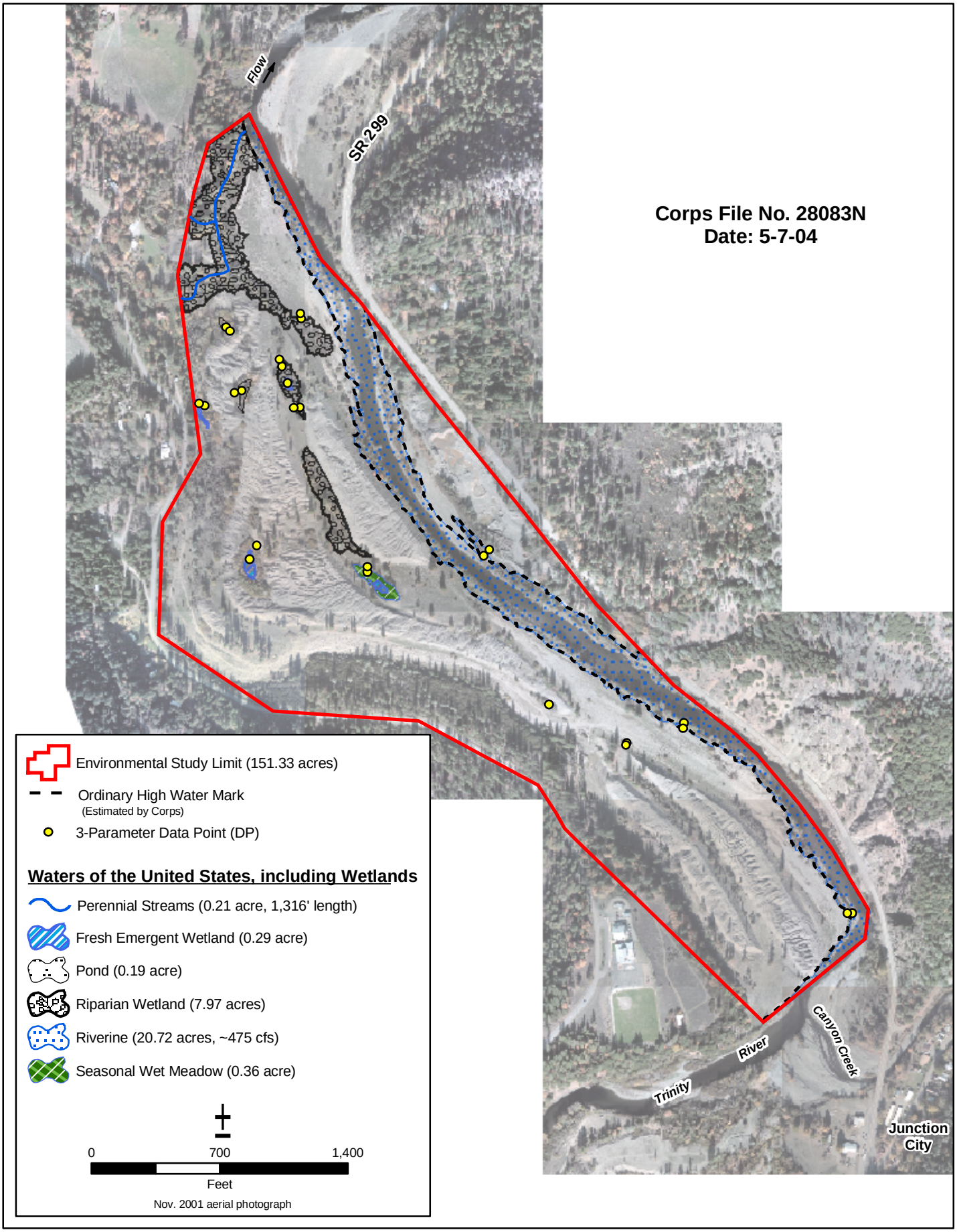
ORIGINAL SIGNED
BY
CHIEF, NORTH SECTION
FOR

Calvin C. Fong
Chief, Regulatory Branch

Enclosures

Copy Furnished (w/encl 1 only):

North State Resources, Inc.
Redding, CA



F:\Projects\10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River\GIS\Hocker Flat EIR\Enclosure_1_revised_wetlands.mxd Source: NSR, Inc.; USBR, Mid-Pacific Region 08-17-04 TLA

North State Resources, Inc.

Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1

Enclosure 1
Boundaries of Waters of the United States, including Wetlands
August 17, 2004

Appendix E

APPENDIX E

WILD AND SCENIC RIVER, SECTION 7 ANALYSIS AND DETERMINATION

INTRODUCTION

Federal protection of this section of the Trinity River in the Wild and Scenic System was completed in order to preserve the Outstandingly Remarkable Values (ORV) identified on the date of designation. These ORV's include the free-flowing condition, anadromous and resident fisheries, outstanding geologic resource values, scenic values, recreational values, cultural and historic values, and the values associated with water quality. BLM has classified the Trinity River (mainstem) as a Recreational River from 100 yards below Lewiston Dam downstream to Cedar Flat.

This analysis and subsequent determination evaluates the effects of the proposed project (Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1) on the Trinity River's free-flowing attributes and ORV's, and ensures their protection as required under Section 7 of the Wild and Scenic Rivers Act. Due to the level of detail provided in the EA/DEIR, this analysis is presented in a summary format and refers the reader to the specific sections of Chapter 2, 3 and 4 of the EA/DEIR for additional information on water quality, fisheries, wildlife, flora and fauna, recreational, and aesthetic values.

SECTION 7 ANALYSIS

This analysis and determination follows the Evaluation Procedure presented in Appendix C of the Technical Report of the Interagency Wild and Scenic Rivers Coordinating Council, Wild and Scenic Rivers Act: Section 7. Under interagency agreement between the National Park Service, the Bureau of Land Management (BLM), and the U.S. Forest Service, the BLM generally has responsibility for conducting Section 7 determinations for this river segment.

1) Establish Need

a. The specific purpose of the proposed project is to protect or enhance the values for which the river was designated as eligible, restores the natural characteristics of the river, and/or improves the water quality of the river. The proposed project will initiate channel rehabilitation activities as described in Chapter 2 of the EA/DEIR. The proposed project was included in the Record of Decision (ROD) issued by DOI in 2000 to restore the fish resources of the Trinity River. This project will be implemented in conjunction with other programs and projects under the direction of the Trinity River Restoration Program (TRRP). The

implementation of the proposed action will incorporate measures to assure that the project is consistent with the goals established under the BLM's Redding Resource Management Plan, specifically to support management actions that will result in enhancing the fishery. The project will not diminish the scenic, recreational, or water quality values of the river.

b. Associated impacts on free-flowing characteristics of the river are minimized to the extent practicable. The proposed project would have no adverse impact on the free-flowing characteristics of the river.

c. The Proponent and manager of the project is a Federal governmental entity. The proposed project was developed through a cooperative effort by the Bureau of Reclamation (Reclamation), BLM and the Department of Water Resources (DWR) under the direction of the TRRP. The proposed action will actually improve the conveyance of flows by reestablishing alluvial attributes of the Trinity River, namely floodplains, and decreasing the potential for channel constriction by removal of the riparian berms.

The proposed activity is consistent with management goals and objectives for the Trinity River and is designed to maintain and/or enhance the ORV's. The proposal is consistent with BLM objectives to support the TRRP.

2) Define a Proposed activity

The project proponents, the project purpose and need for the project, the geographic location of the project are described in Chapter 1 of the EA/DEIR. Specific information on the duration of the proposed activities, and the magnitude/extent of the proposed activities is described in Chapter 2 of the DEA/EIR. Chapter 4 describes the relationship to past and future management activities with an emphasis on cumulative effects.

3) Describe How the Proposed Activity Will Directly Alter Within-Channel Conditions

The proposed project will have short-term and long-term impacts associated with project implementation. These impacts and relevant mitigation measures associated with in-channel conditions are described in Section 3.3 (Geology), Section 3.4 (Water Resources), Section 3.5 (Water Quality), and 3.6 (Fishery Resources) in the DEA/EIR. This evaluation recognizes that the existing condition of the Hocker Flat site has been subjected to a variety of natural and management disturbance mechanisms over the past 75 years. The channelization of the Trinity River associated with historic dredge activities was exacerbated by the flow modifications imposed by the Trinity River Division of the Central Valley Project. At the date of designation, the riparian berms had been developing for more than 20 years, and scientists recognized that the alluvial nature of the river had been modified extensively. Although recent changes in the flow regime provide some opportunity to modify the form and function of the Trinity River, the ROD (Department of Interior, 2000) recognized that mechanical channel rehabilitation would be required to reconfigure sections of the river and provide opportunities for alluvial processes to occur.

Although there are short-term effects anticipated during construction of the proposed action, primarily with regards to water quality, juvenile salmonid rearing habitat and riparian vegetation, the long-term effects are expected to be positive and cumulatively significant over time.

4) Describe How the Proposed Activity Will Directly Alter Riparian and/or Floodplain Condition

The proposed project is anticipated to impact the alluvial deposits adjacent to the Trinity River within the 1.1 mile reach associated with the proposed project. Although it's generally recognized that these alluvial deposits existed on the date of designation, the transitory nature of riverine environments precludes the ability to quantify these features. The extensive body of scientific evidence available for the Trinity River suggest that the riparian berms and floodplain features had extensive riparian communities that were well established on the date of designation. The modification of the flow regime, has provided the opportunity to establish a monoculture of riparian vegetation on the riparian berm on either side of the Trinity River. The interaction between vegetation and fine sediment continued to expand this condition, although large floods (i.e., 1997) modified this riparian community to some degree. In addition to modifying the riparian vegetation, the riparian berm inhibited access to the floodplain (1.5 year return interval), and subsequently affected the amount and nature of vegetation on the floodplain. Section 3.4 (Water Resources), Section 3.6 (Fishery Resources), and Section 3.7 (Vegetation, Wildlife and Wetlands) discuss the specific impacts and relevant mitigation measures relative to riparian and floodplain conditions. Although there are short-term effects anticipated during construction, the long-term effects are expected to be positive and cumulatively significant over time. As a component of the overall TRRP, the proposed project is expected to provide a positive benefit to the ORV's, including anadromous fish resources.

5) Describe How the Proposed Activity Will Directly Alter Upland Conditions

The proposed project would remove material (primarily fine textured sediments) from the riparian berm and floodplain and place this material on dredge tailings in the immediate area, but above the 100-year floodplain. These tailing deposits are remnant of the bucket-line dredge activity that occurred in the Trinity River between 1930 and 1950. These features are long linear piles of sand, grave, cobbles and boulders that are piled on floodplains and terrace features adjacent to the present channel of the river, and are essentially devoid of vegetation. Placement of excavated material provides the opportunity to enhance the productivity of these features in terms of vegetation and wildlife species. A revegetation program will be incorporated into the proposed project and will emphasize reestablishing native species and increasing the diversity of vegetation throughout the project area. Section 3.4 (Water Resources), Section 3.6 (Fishery Resources), Section 3.7 (Vegetation, Wildlife and Wetlands), Section 3.8 (Recreation), Section 3.11 (Cultural Resources) and Section 3.14 (Aesthetics) discuss the specific impacts and relevant mitigation measures relative to upland conditions as they relate to the ORV's for the Trinity River.

6) Evaluate and Describe How Changes in On-Site Conditions Can/Will Alter Existing Hydrologic or Biologic Processes

As discussed in previous sections, the EA/DEIR provides a detailed description of the existing condition and environmental impacts associated with the project, including a substantial number of mitigation measures. A primary objective of the proposed project is to reestablish alluvial processes within the project area, and provide the opportunity for the river to reoccupy the floodplain on a more frequent and reoccurring basis. A basic premise of the TRRP is to promote changes to the alluvial reaches of the river in a manner that restores the physical processes and biological resources that were recognized as ORV's at the date of designation.

7) Estimate the Magnitude and Spatial Extent of Potential Off-Site Changes

Chapter 4 of the EA/DEIR discusses the other impacts of the proposed project, including cumulative impacts that may result from incremental actions throughout the river corridor. With the exception of short-term water quality impacts (construction related turbidity) associated with the proposed project, implementation will not influence other parts of the river in a negative fashion. In fact, the implementation of the mechanical channel rehabilitation program described in Chapter 4 is intended to promote large-scale changes in the physical habitat. These changes are expected to assist the efforts to restore the fishery resources of the Trinity River.

8) Define the Time Scale Over Which Steps 3-7 are Likely to Occur

Project implementation is anticipated to occur between Summer 2004 and Fall 2007. Specific limitations on project operations may be incorporated into the project as a result of the applicable legal requirements.

9) Compare Project Analyses to Management Goals

Management goals relative to free-flow, water quality, riparian area and floodplain conditions would not be affected by the proposed action. It is expected that the benefits of this project will increase the likelihood of enhancing the ORV (anadromous fishery) of the Trinity River. The impacts to the visual resources of the Trinity River would be minimal with the implementation of design criteria and mitigation measures. The project would be consistent with any future actions taken by the TRRP.

10) Section 7 Determination

The proposed implementation of the proposed action described in Chapter 2 of the EA/DEIR will not affect the free-flowing condition of this segment of the Trinity River.

Appendix F

HOCKER FLAT HYDRAULICS REPORT

(08/10/04)

Introduction

The completion of Trinity and Lewiston Dams in 1964 led to years of low flows in the Trinity River, which greatly decreased the ability of the river to transport its bed and bank material. This decreased sediment transport ability has created a simplification and fossilization of the mainstem river channel from Lewiston dam downstream to the North Fork Trinity River. The Hocker Flat project is designed to return a one-mile reach of river to a functional dynamic alluvial system. This will be done by scaling the river channel down to better fit with the existing and future flow regimes described in the 2000 Trinity River Record of Decision.

This document describes the hydrologic flow conditions that were considered as part of the project design, and the hydraulic changes that will occur as a result of project implementation.

Hydrology

Three separate hydrologic flow conditions were factored into the design of the Hocker Flat project: the summer low-flow condition, the bankfull flow condition, and the flood flow condition.

Low Flow Condition

A dam release of 300 cfs and tributary accretion of approximately 150 cfs combine to make a summer low-flow condition of 450 cfs in channel. This flow and the corresponding water surface elevation are important because in many areas earthwork will begin at the rivers edge and work back onto the bank and floodplain.

Bankfull Flow Condition

The bankfull flow is the flow that occurs on average approximately every 1.5 years. The bankfull flow for Hocker Flat was calculated in a document prepared by McBain and Trush titled *Trinity River Hocker Flat Bank Rehabilitation Project Floodplain Inundation Flow Determination Using 1.5 Year Flood as Inundation Index* (attached in this appendix). In that document the calculated bankfull flow for Hocker Flat is identified as 6,600 cfs. This bankfull flow is based on a dam release of 6,000 cfs and tributary accretion of approximately 600 cfs.

This flow is important in the design process because the river should inundate the floodplain relatively frequently. Having frequent water flows over the floodplain enhances the likelihood that the structural complexity, area, and quality of the riverine habitat will increase. Because the amount of tributary accretion is relatively small, and because it is highly desirable that the river have access to

the floodplain, the designers chose not to rely on the presence of tributary accretion and based the designs at Hocker Flat on the 6,000 cfs ROD flow.

Flood Flow Condition

The 100-year flood flow is the flow that has a 1% chance of occurring in any one year. This 100-year discharge includes both dam releases and tributary inflow. The magnitude of this flood flow is identified in the Trinity County Flood Insurance Study as 46,000 cfs in Junction City upstream of Canyon Creek, but recent hydrologic studies elsewhere in the watershed suggest that this value might be too low.

For the Trinity River bridges projects, hydrologic investigations were performed by Reclamation and McBain and Trush. The flood magnitudes calculated in these investigations were significantly higher than the flood magnitudes identified in the Flood Insurance Study. The McBain and Trush investigation, described in the document titled *Estimation of 50-and 100-Year Tributary Accretion Floods Lewiston Dam to Treadwell Bridge, Trinity River, California* (attached in this appendix), calculated that the 100-year flood at Douglas City is approximately 56,000 cfs. This is a 45 percent increase over the 38,500 cfs value listed for Douglas City in the Flood Insurance Study.

For the Hocker Flat project, it is assumed that the Flood Insurance Study underestimates the flood magnitude in Junction City by the same amount that it is underestimated at Douglas City. Increasing the Flood Insurance Study value of 46,000 cfs by 45 percent yields 67,000 cfs. Adding in the Canyon Creek flood contribution of 13,000 cfs, the flood flow at Hocker Flat becomes 80,000 cfs. This is the estimate that will be used for this project at this time, but prior to revision of the flood maps, the detailed hydrologic analysis started for the bridges project will be carried downstream to include Hocker Flat. If the more detailed analysis shows that the flood flow at Hocker Flat is not 80,000 cfs, then the model will be rerun with the new flow.

This flow is important because both the existing ground and proposed ground surfaces need to be modeled with a flood flow to make sure that there are no adverse impacts expected as a result of the project.

Hydraulics

Hydraulic modeling at Hocker Flat was done using HEC-RAS. HEC-RAS is a software program developed by the Hydrologic Engineering Center for the Army Corps of Engineers and is used to perform one dimensional flow calculations. Two separate models were created, one for the low flow and bankfull conditions, and one for the flood condition. The channel geometry used in the models for the existing ground surface was created from surveyed cross sections and photogrammetry contours.

Low Flow Model
The low flow/bankfull flow model was calibrated based on water surface elevations surveyed at approximately 475 cfs and approximately 6,000 cfs. For the proposed ground surface, the existing ground surface was modified to reflect the changes that would occur as a result of constructing the various features that are proposed for the Hocker Flat project.

For the low flow and bankfull flow conditions, the general philosophy was to begin construction activities at the low flow waters edge, and work back from the river. Constructed floodplains are designed to be inundated by approximately six inches of water when 6,000 cfs is present in the river. During the design process, the proposed ground surface geometry was imported into HEC-RAS and the model was executed. If necessary, the proposed ground geometry was adjusted and the model rerun until the desired outcome was achieved.

Flood Flow Model
The flood flow model was developed in much the same way as the lower flow models, except the cross section orientation and locations had to change slightly to better represent the river at this high flow. One difference with this model is that it cannot be calibrated in the same way as the low flow model because there are no surveyed water elevations at Hocker Flat with 80,000 cfs in the river.

DWR chose not to attempt to re-run the FEMA Flood Insurance Study to compare the results to the water surface elevations on the Flood Insurance Rate Map. At Hocker Flat, the Flood Insurance Rate Map is based on surveyed cross sections and water profiles developed in 1976. Since that time the river channel has aggraded by several feet in some areas, there is no record of what amount of water was predicted to be added by Canyon Creek, and the geometry and roughness have changed due to riparian encroachment.

The January 1997 event can be used as a general guide for water elevations and calibration purposes. For example, it is known that the peak flow in January 1997 was about 35,000 cfs at Hocker Flat. At that time the water was at the toe of the tailings in Area R-2, water flowed through the gap between the two tailings piles southwest of area R-4, water flowed along the side of Highway 299 at Area U-4, and water flowed across the floodplain surface in Area R-8. These individual events are all predicted by the flood model used for the Hocker Flat project.

Figure 1 on the following page is a profile of the Trinity River through Hocker Flat. It shows the locations of the riverine project areas, the location of the cutoff between FEMA Zone AE and Zone A, and the predicted water surface elevations for the 80,000 cfs flood flow for the existing conditions and proposed project topography. It is important to note that the proposed project is predicted to lower

the flood elevation in most areas, and will not increase the flood elevation by more than 12 inches in any location.

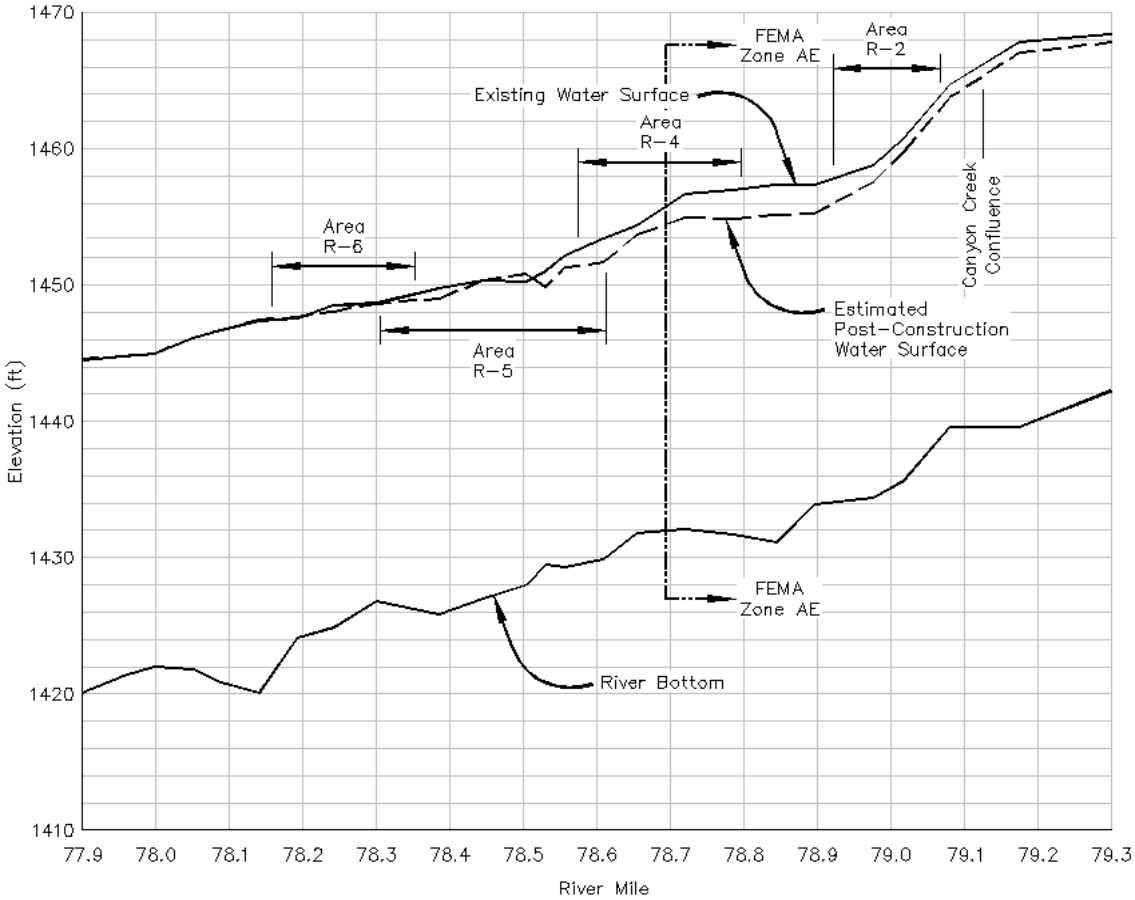


Figure 1. 80,000 cfs water surface profiles at Hocker Flat.

Trinity River Hocker Flat Bank rehabilitation project

Floodplain inundation flow determination using 1.5 year flood as inundation index

Prepared by:

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McBain and Trush, Inc.
January 20, 2004

The purpose of this memorandum is to develop criteria for designing the floodplain inundation flow at the Hocker Flat bank rehabilitation site, to be also used for other bank rehabilitation projects along the river. Floodplains are often designed to inundate by a 1.5 year flood in accordance with observations in unimpaired rivers. Estimating the 1.5 year flood on the Trinity River is difficult because of flow regulation from Trinity and Lewiston dams, tributary accretion downstream of the dams, and the short period of record for several key gaging stations.

The ROD release regime has a 1.5 year flood of approximately 6,000 cfs. At some distance downstream, the 1.5 year flood from tributary accretion surpasses that from the ROD release schedule. Therefore, the analysis below first estimates the 1.5 year flood from tributary accretion only (ignoring dam releases). Then, an analysis is performed that integrates the ROD releases and estimated tributary accretion to predict the 1.5 year flood at the Hocker Flat bank rehabilitation site. Lastly, this estimate is considered in light of floodplain restoration objectives to recommend a floodplain inundation flow design criteria for the Hocker Flat site.

We used a regional skew coefficient of -0.3 to calculate a weighted skewness for each gage (USGS, 1982), and we did not perform a sensitivity analyses on skew coefficients because skew plays virtually no role in predictions of common floods (e.g., 1.5-year flood). Similarly, frequency analyses were performed without weeding potential outliers, as outliers would not significantly influence predictions of common floods.

TRIBUTARY ACCRETION FLOOD FREQUENCY ANALYSIS

The results of the methods described below are summarized in Table 1.

1. **Plot of $Q_{1.5}$ unit runoff for n=19 gaging stations:** Unit runoff for instantaneous peak 1.5-year flows (cfs/mi^2) plotted as a function of drainage area (mi^2). A visual fit if these data suggest unit runoff for Hocker Flat (DA = 404 mi^2) is in the vicinity of 21 cfs/mi^2 ~ 8,480 cfs. Data point is plotted in green on Figure 1.
2. **Scaling Burnt Ranch FFA data (post-WY 1965):**
   a. Burnt Ranch post WY-1965 peak flows identified

b. The average of the Lewiston 3-day daily average flows (same day as Burnt Ranch peak and two days previous) were subtracted from Burnt Ranch peak flows, which removes dam release flows and thereby estimates tributary accretion from Lewiston Dam to Burnt Ranch. The 3 days used to compute the 3-day daily average flows at Lewiston are all very close in magnitude with exception of 1974, 1986, and 1996. The 3-day flows at Lewiston for each of these years are as follows:

> 1974: 168 cfs, 192 cfs, 3,740 cfs, Average=1,367 cfs. Peak discharge at Burnt Ranch = 68,100 cfs, Estimated tributary accretion=66,733 cfs.
>
> 1986: 421 cfs, 1,260 cfs, 1,750 cfs, Average=1,144 cfs. Peak discharge at Burnt Ranch = 37,500 cfs, Estimated tributary accretion=36,356 cfs.
>
> 1996: 331 cfs, 339 cfs, 3,301 cfs, Average=1,324 cfs. Peak disharge at Burnt Ranch = 14,700 cfs, Estimated tributary accretion=13,376 cfs.

Even though the above years do not have similar magnitude flows used to compute the 3-day average at Lewiston, averaging over a 3-day period conservatively accounts for routing time and provides a reasonable estimate of what to subtract from the Burnt Ranch peak in order to estimate tributary accretion minus the dam release. Additionally, even if the 3-day average were modified, it is very likely that because these particular peak flows at Burnt Ranch are large, any changes to the 3-day average would only provide a minor adjustment to the accretion estimate and not significantly affect our estimate of the 1.5-year flood.

c. Frequency analysis done on (Burnt Ranch – Lewiston) flows, $Q_{1.5}$ unit runoff = 14.0 cfs/mi^2. 14.0 cfs/mi^2 x DA Hocker Flat (404 mi^2) = 5,660 cfs. Data point is plotted in red on Figure 1.

3. **Unit runoff regression for gaging stations with n>20 years of record and DA>100 mi^2:** Using the same data set as Method #1 above, we narrowed the field by plotting peak 1.5-year unit runoff (cfs/mi^2) as a function of drainage area (mi^2) for gages that had 20 or more years of peak flow record and had a drainage area greater than 100 mi^2. Eight gages fit this criterion. Plotting the data showed a general trend, and based on fitting a trendline to the data (R^2 = 0.670), the predicted unit runoff for Hocker Flat (DA = 404 mi^2) is 22.5 cfs/mi^2 = 9,070 cfs. See Figure 2. All of the gages have a similar runoff pattern, having a mixture of rainfall dominated runoff with some rain-on-snow events.

4. **Unit runoff regression for mainstem Trinity River gaging stations only:** Using the same analysis as described for Method #3 above, n=4 gages were plotted and the regression (R^2 = 0.833), predicts the unit runoff for Hocker Flat = 19.6 cfs/mi^2 = 7,850 cfs. See Figure 3.

5. **Scaling Junction City FFA data:** Using the same scaling as Method #2 above (scaling peak flows by subtracting the Lewiston 3-day daily average to estimate tributary accretion), FFA of the Junction City data (n=7 years; WY 1996-2002, DA-339 mi^2) shows $Q_{1.5}$ unit runoff = 10.4 cfs/mi^2. For Hocker Flat (DA=404 mi^2), the $Q_{1.5}$ = 4,210 cfs.

   a. As a measure to evaluate the 1996–2002 record with respect to a longer record, we compared the above estimate ($Q_{1.5}$ unit runoff = 10.4 cfs/mi^2 = 4,210 cfs) with the same period of record for GVC (DA = 30.8 mi^2). FFA for GVC WY 1996-2002

period of record shows $Q_{1.5}$ unit runoff = 15.7 cfs/mi^2, however, using the entire period of record for GVC (n=26 years), the $Q_{1.5}$ unit runoff = 12.1 cfs/mi^2. This suggests that this seven year period is wetter than the long-term average.

b. As a second measure to evaluate the 1996–2002 record with respect to a longer record, we performed the same analysis as Method #5a above using the adjusted Burnt Ranch data (DA =719 mi^2; see Method #2). FFA for the adjusted Burnt Ranch WY 1996-2002 period of record shows $Q_{1.5}$ unit runoff = 14.8 cfs/mi^2. Using the entire period of record for the adjusted Burnt Ranch data (n=36 years), the $Q_{1.5}$ unit runoff = 14.0 cfs/mi^2 (this is the result of Method #2). This also suggests that this seven year period is wetter than the long-term average, but less so than the Grass Valley Creek comparison above.

The results of Method #5a show a 3.6 cfs/mi^2 difference between the 7-year and the 26-year period of record, suggesting that the 7-year period of record is wetter than the 26-year period, suggesting that the 1996-2002 estimate at Junction City may over-predict the longer-term $Q_{1.5}$ unit runoff at Hocker Flat. The results of Method #5b show a wetter period for 1996-2002, but the difference between the 7-year and the 36-year period of record (0.8 cfs/mi^2) is smaller than at Grass Valley Creek. We feel that the Burnt Ranch comparison may be more realistic comparison than Grass Valley Creek due to significant differences in watershed characteristics, and that the Hocker Flat site contains approximately half the watershed area of the Burnt Ranch gaging station watershed area. Regardless, the 1996-2002 Junction City flow data is used as a conservatively high estimate for the 1.5 year flood in subsequent analyses.

6. **Regional Regression Equations:** Using Young & Cruff (1967), Waananen & Crippen (1977) and Rantz (1982), $Q_{1.5}$ estimates range from 6,083 to 18,260 cfs (Y&C and Rantz), and Q_2 estimates (W&C) range from 17,560 to 19,070 cfs. These estimates use input parameters (fixed precipitation index = 62 inches, two elevation indices: 2.76 and 3.29) were used for other gages in the basin and can be modified if the site-specific indices are determined and used in the regional equations (although we don't expect the site-specific indices to be significantly different from the ones used).

INTEGRATING ROD RELEASES WITH TRIBUTARY ACCRETION AT HOCKER FLAT BANK REHABILITATION SITE

Method 5b above suggests that the Junction City flow data, with Lewiston flow subtracted to estimate tributary accretion, provides a conservatively high estimate of long-term tributary flood frequency. Therefore, to estimate the 1.5 year flood at the Hocker Flat bank rehabilitation site, we followed the following steps:

1) Subtracted the average Lewiston 3-day daily average flow from the annual peaks at Junction City for each water year between 1996-2002 to estimate the annual peak flow at Junction City due to tributary accretion.

2) Estimated the corresponding flood peak at Hocker Flat by adding the Junction City peak flow with the Canyon Creek peak flow for each year. The Canyon Creek peak flow for each year was estimated by adjusting the Junction City peak by drainage area

[Qhocker=Qjc(AREAcc/AREAjc)], where the drainage area of Canyon Creek and Junction City is 64.6 mi^2 and 339 mi^2, respectively.

3) Assigning the ROD peak flow to each water year between 1996-2002 based on the water year class as predicted by inflows into Trinity Reservoir. For example, water year 2002 was a Normal year, so the corresponding ROD peak release would have been 6,000 cfs.

4) For each year, the hypothetical peak flow at Hocker Flat was computed by taking the larger of 2) and 3). For example, if the tributary accretion at Hocker Flat in 2002 was 4,500 cfs and the ROD release would have been 6,000 cfs, the 6,000 cfs value was chosen as the peak flow for that year. These values were used to generate a hypothetical annual peak data series for a standard flood frequency analysis, and partial duration flood peaks were not considered.

5) A flood frequency analysis was performed on the predicted peak flow data at Hocker Flat between 1996-2002 to estimate the 1.5 year flood only. No extrapolation to larger, less frequent floods was done given the small period of record of the data set.

The result of this analysis predicted that the 1.5 year flood at Hocker Flat would be 8,200 cfs. Again, this value should be considered conservatively high because the 1996-2002 period was wetter than the long-term average at both the Grass Valley Creek and Burnt Ranch gaging stations. Comparing this prediction with the tributary-only estimates of the 1.5 year flood shows that this estimate is close to that predicted by Method 1 and 4, larger than Method 2 and 5, and slightly lower than Method 3. The 1.5 year flood cannot be lower than 6,000 cfs due to ROD releases, so we effectively have the 1.5 flood bounded by 6,000 cfs (ROD releases) and 9,000 cfs (Method 3). Keeping in mind that a significant objective for performing this analysis was to verify that tributary generated floods were not dominating the ROD flow regime in the Junction City reach (e.g., 1.5 year flood estimates are not significantly larger than the ROD 1.5 year flood), and this analysis supports this conclusion.

As for choosing a design flood magnitude for floodplain inundation at Hocker Flat, we revert back to biological and geomorphic objectives of the floodplain construction. Geomorphic objectives for the floodplain include: (1) providing enough confinement to maintain bedload transport through the reach, (2) fine sediment deposition on the floodplains, and (3) larger floods providing some opportunities for infrequent scour and deposition to add topographic diversity. Key biological objectives include: (1) inundation of long enough duration during juvenile salmonid rearing periods to increase habitat and growth rates, (2) inundation of enough duration and gradual ramping rates during seed dispersal periods to periodically recruit native woody riparian vegetation on the floodplains. Floods on tributaries downstream of Lewiston Dam are dominated by rainfall and rain-on-snow precipitation events, and thus are typically of very short duration, have very steep ramping rates, and occur during the winter months prior to riparian seed dispersal period. These flood events may help achieve the geomorphic objectives above, but do not achieve the biological objectives as well as the ROD high flow releases. These late spring ROD releases are timed to take advantage of juvenile rearing and smolt outmigration, as well as riparian seed dispersal period. Additionally, the Normal, Wet, and Extremely Wet water years of the ROD have a 5-day bench of 6,000 cfs, followed by a gradually receding hydrograph that simulates the natural snowmelt recession limb. Wet and Extremely Wet years have higher flows, but they quickly

ramp down to the 6,000 cfs bench. Therefore, the 6,000 cfs flow remains an important design criteria for floodplain construction. The average tributary accretion between Lewiston Dam and Junction City from May 7 to June 10 (time window when 6,000 cfs would be released under the ROD) for 1996-2002 was 500 cfs (1.5 cfs/ mi^2). Adding average accretion from Canyon Creek (DA=64.6 mi^2) of 95 cfs, would result in a target design inundation flow of approximately 6,600 cfs at Hocker Flat (6,000 cfs + 500 cfs + 95 cfs).

What are the tradeoffs for not designing the floodplain for 8,000 cfs or 9,000 cfs, which may better approximate the 1.5 year flood at Hocker Flat? Perhaps one would be that a 6,600 cfs floodplain may not provide enough confinement to route coarse sediment through the reach. However, the pre-ROD 1.5 year flood was most likely smaller than 6,600 cfs (see Methods 2 and 5), and the channel has been able to route its sediment load through the reach (even the large contribution from Canyon Creek). Therefore, sediment routing should not be a problem. What are the disadvantages of using a 8,000 cfs to 9,000 cfs floodplain? The floodplain would be inundated for very short periods of time, and often during times when it would provide no benefit to riparian regeneration. During those years where floodplain inundation releases coincide with riparian seed dispersal, ramping rates down to 6,000 would be much too steep for seedling root development to keep pace with the declining water table. What are the advantages of a 6,600 cfs floodplain? Longer and more frequent inundation, more potential deposition of fine sediment, more potential floodplain scour and deposition, and slower ramping rates during riparian seed dispersal period would all better achieve the objectives listed above. Therefore, we recommend that the floodplain be designed to inundate at approximately 6,600 cfs.

Table 1. Summary of Q1.5 flood magnitude estimates for differing methods.

Method No.	***Hocker Flat $Q_{1.5}$ estimate (cfs)***	***Pros***	***Cons***
1	8,480	Uses a large number of gaging stations with a well-distributed range of drainage areas	Results show large scatter, likely due to watershed precipitation and runoff differences (e.g., geology, topography, soils, vegetation, …)
2	5,660	Uses Trinity River-specific gaging records and is adjusted to exclude dam releases (reflecting actual tributary accretion on the river reach of interest)	Scaling from Burnt Ranch (Regulated DA = 719 mi^2) to Hocker Flat (Regulated DA = 404 mi^2) assumes uniform watershed runoff conditions between Lewiston and Burnt Ranch. Actual differences (if any of significance) have not been investigated.
3	9,070	Larger peak flow data set may reduce accuracy error from gages with short periods of record	Some gages located outside the watershed
4	7,850	Uses mainstem Trinity River-specific gaging records	Only uses 4 gages.
5	4,210	Estimate scaled from data measured immediately upstream, adjusted to exclude dam releases (reflecting actual tributary accretion on the river reach of interest)	Result based on only 7 years of data.
6	Ranges from 6,080 to 19,070.	Regression equations theoretically use the largest data set (many gages used to determine regional regression equations)	Needs more work. Coefficients (MAP, elevation index) estimated based on work done for other local tributaries. These should be calculated specifically for the Hocker Flat site. Regression equations are for a large region and may perform poorly at a given location.
Recommended design floodplain inundation elevation	6,600 cfs	Integrates ROD flow schedule, achieves more biological objectives while not sacrificing geomorphic objectives.	Is probably less than the future 1.5 year flood at the site.

FIGURE 1. **Unit Runoff value regressions for local Trinity River gaging stations.**

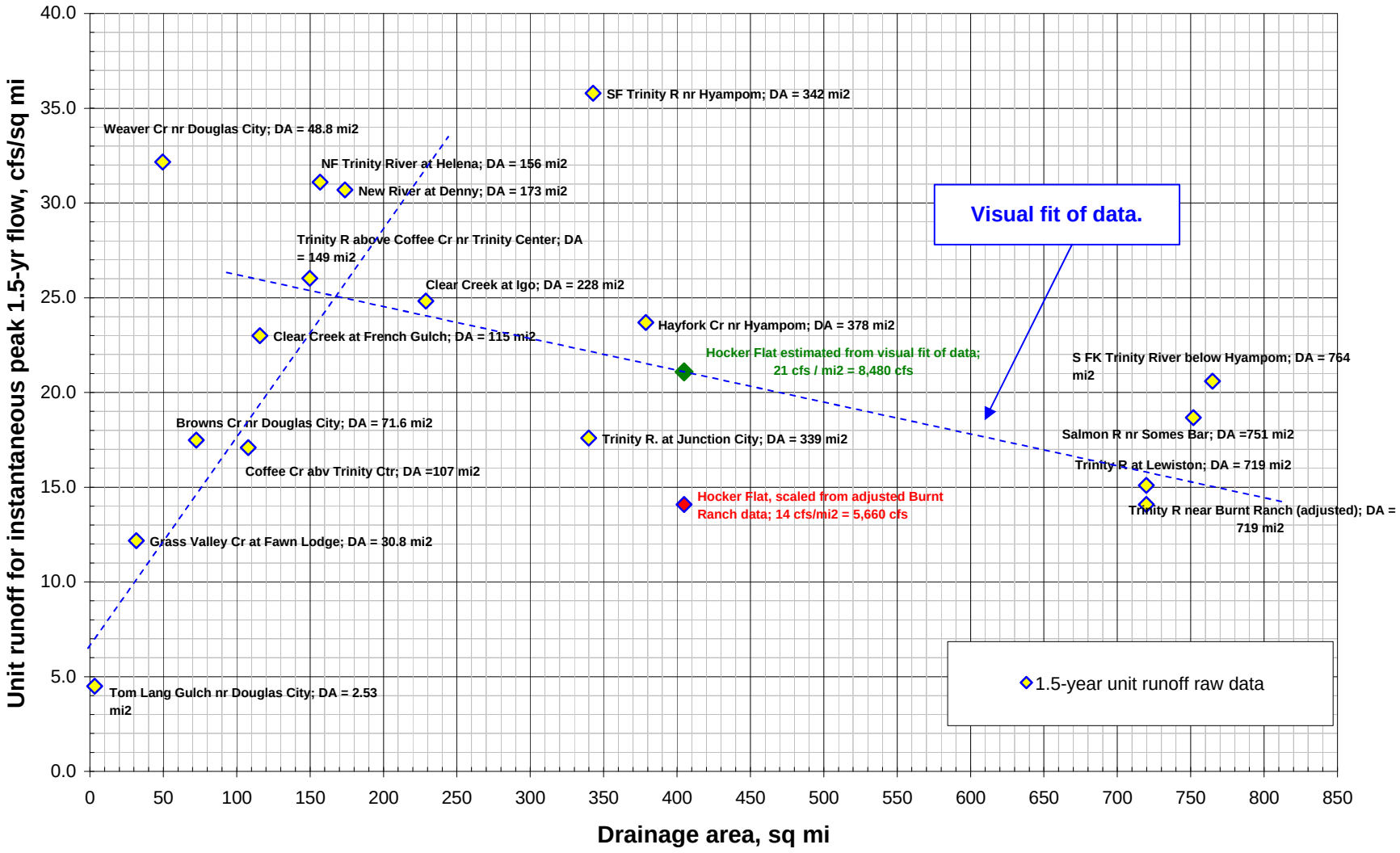


FIGURE 2. **Unit Runoff value regressions for local Trinity River gaging stations using gages with > 20 years of record and drainage area > 100 mi^2.**

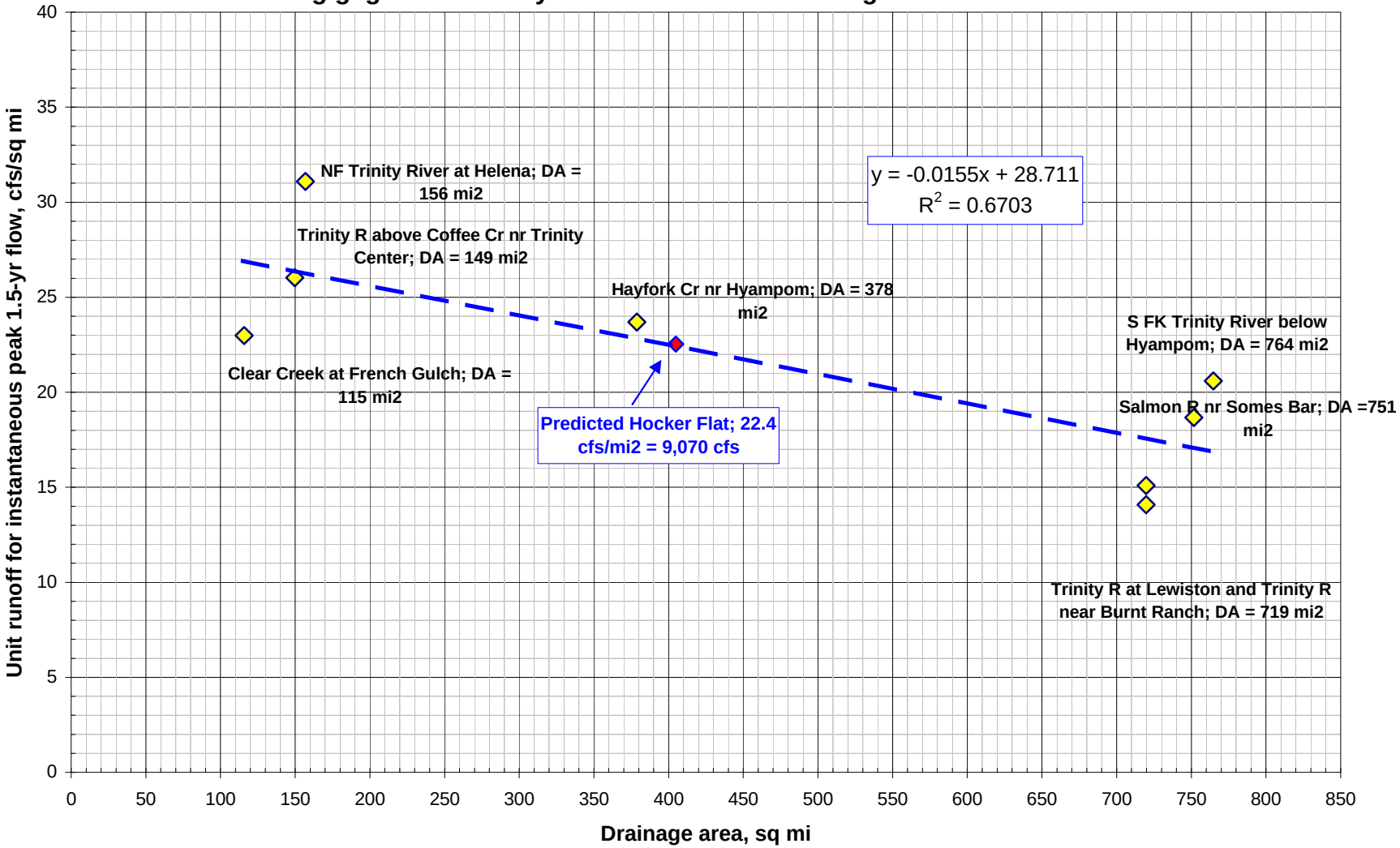
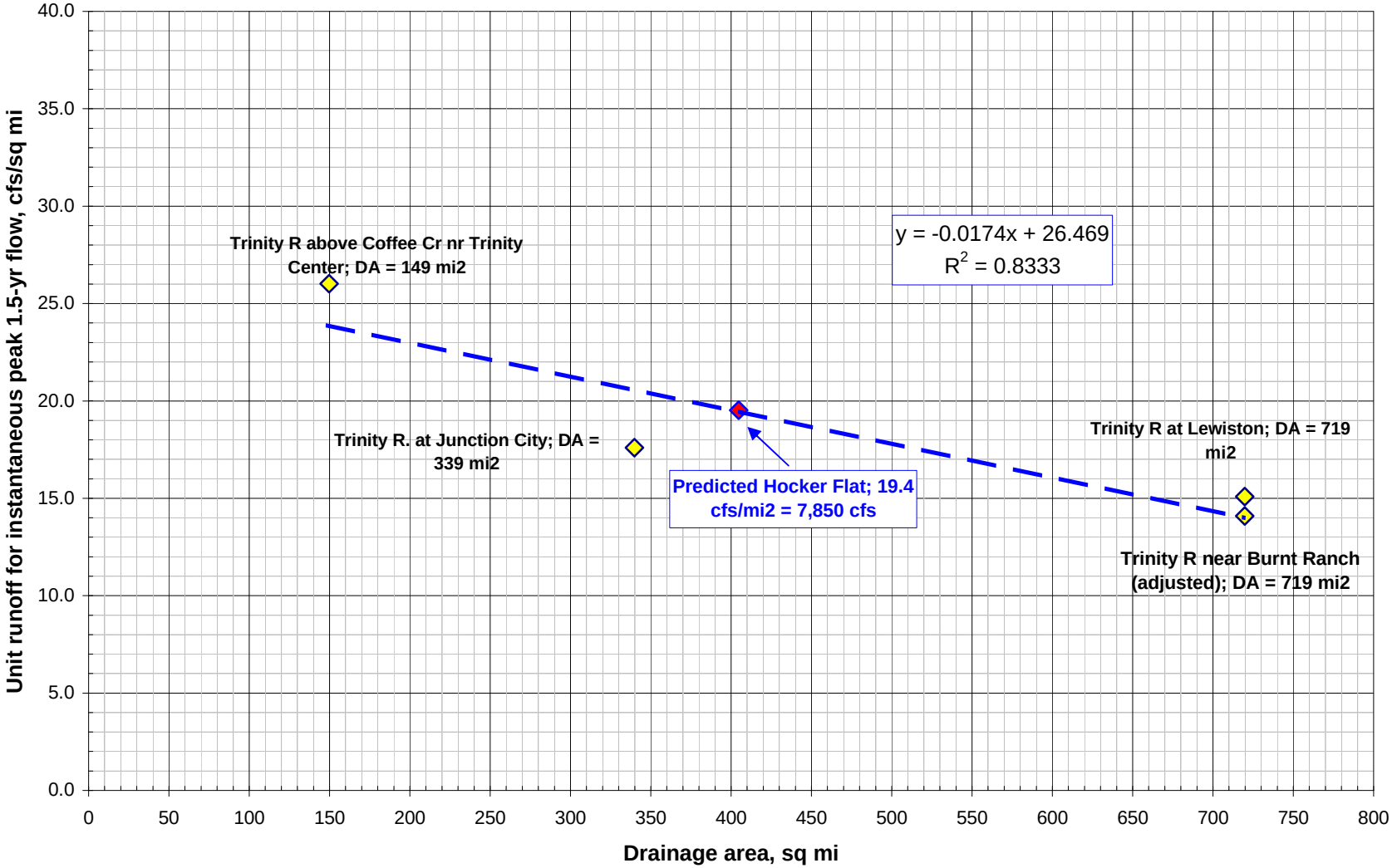


FIGURE 3. **Unit Runoff value regressions for local Trinity River gaging stations using only gages on the mainstem Trinity River.**



Estimation of 50-and 100-Year Tributary Accretion Floods Lewiston Dam to Treadwell Bridge, Trinity River, California

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April 30, 2002

1. INTRODUCTION

The Trinity River, located in the northwest portion of California (Figure 1), has been the focus of study over the past 30 years in an effort to restore salmon populations. This effort culminated in 2001 with the signing of the Secretarial Record of Decision for the Trinity River Restoration Program. An important component of this Record of Decision is to increase instream flow releases from Lewiston Dam up to 11,000 cfs during Extremely Wet water years. However, these higher flow releases from Lewiston Dam is only one of several sources of high flows downstream of Lewiston Dam. In the winter months during large storm events, tributaries between Lewiston Dam (RM 112) and Treadwell Bridge (RM 97.4) can cumulatively cause mainstem Trinity River flows to approach or exceed 11,000 cfs on top of releases from Trinity and Lewiston Dams (McBain and Trush, in press). Additionally, Safety of Dam releases have historically exceeded 11,000 cfs twice since Trinity and Lewiston dams were completed in 1964, and while changed reservoir operations have certainly reduced the magnitude and frequency of Safety of Dams releases, this scale of release could potentially occur again. There are four bridges downstream of Lewiston Dam that are vulnerable to higher flows (Figure 2), with at least one that is impacted by flows as low as 6,000 cfs to 8,500 cfs. All four bridges downstream of Lewiston Dam currently do not have the capacity to convey flows up to 11,000 cfs, and observations during the 1997 flood showed that many of these bridges were overtopped. In response to these new higher flow recommendations up to 11,000 cfs mandated by the 2001 Record of Decision, the Bureau of Reclamation is developing designs to raise or reconstruct these four bridges to safely convey higher flows. The design flow for these bridges will consider several factors, including the Record of Decision flows, Safety of Dams releases, expected tributary accretion on top of dam releases, and desired flood magnitude and frequency that the bridges should safely pass (e.g., 50 or 100 year flood). Several studies have been conducted to estimate downstream flood magnitude due to tributary accretion (e.g., DWR, 1996; ACOE, 1976; McBain and Trush, 1997) using varying techniques. The purpose of this memorandum is to estimate 50 and 100-year tributary flood magnitude at the four bridge sites under the winter flood season (November-March) and the snowmelt runoff season (May-June). These flood magnitude estimates will help develop bridge design criteria.

2. OBJECTIVE

There are three populations of floods that need to be considered in the bridge designs: 1) future Safety of Dams releases, 2) Record of Decision releases, and 3) tributary flow

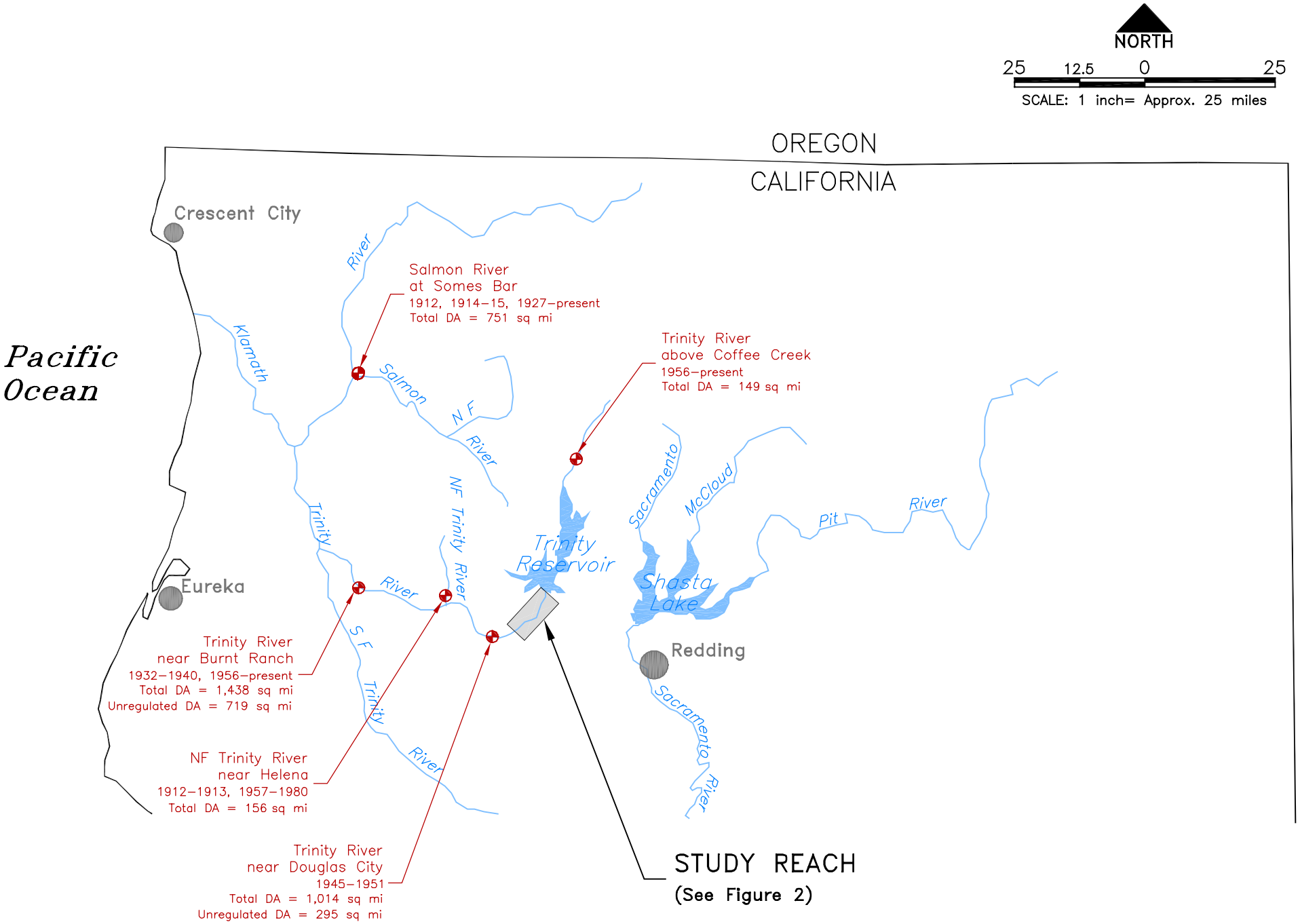


FIGURE 1. LOCATION OF REGIONAL GAGING STATIONS NEAR THE TRINITY RIVER

4/26/02

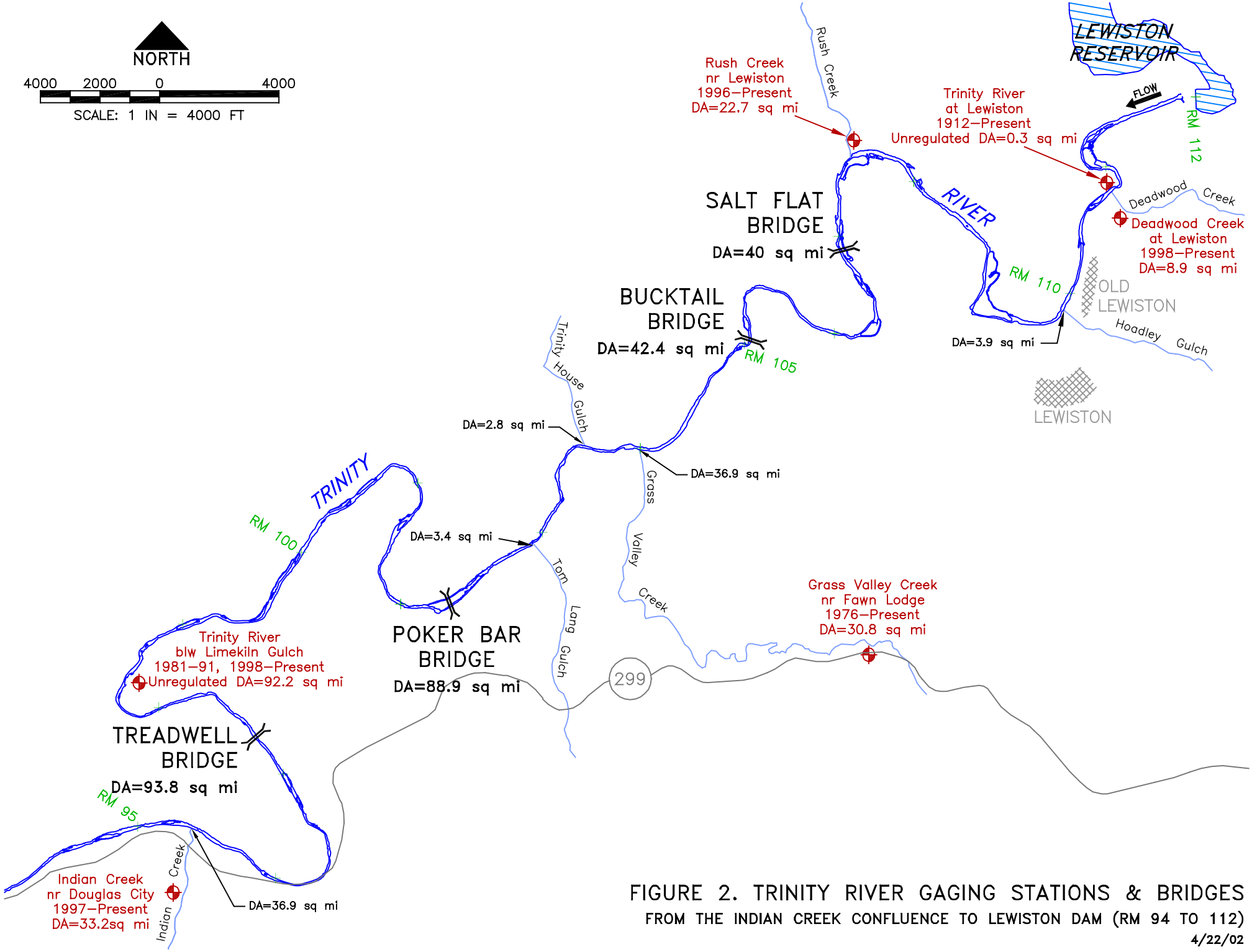


FIGURE 2. TRINITY RIVER GAGING STATIONS & BRIDGES
FROM THE INDIAN CREEK CONFLUENCE TO LEWISTON DAM (RM 94 TO 112)
4/22/02

accretion on top of 1 and 2. The magnitude of tributary accretion depends on the time of year (winter flood period from November-March, or snowmelt runoff period in May-June) and the longitudinal location on the mainstem (tributary accretion increases with distance downstream. The objective of this paper is to facilitate bridge design flow estimates under the following design scenarios:

WINTER FLOOD SEASON (NOVEMBER-MARCH)

A. 300 cfs Record of Decision baseflow release from Lewiston Dam plus 50 and 100-year flood flow accretion from tributaries. The 300 cfs baseflow release would occur between October 15 and the beginning of high flow releases in May.
B. 6,000 cfs Safety of Dams release from Lewiston Dam plus 50 and 100-year flood flow accretion from tributaries. 6,000 cfs is the present-day maximum Safety of Dams release, and can occur between November 1 and March 31 when cumulative storms and/or snowmelt runoff encroaches into the Safety of Dams storage.

SPRING SNOWMELT RUNOFF SEASON (MAY-JUNE)

C. 11,000 cfs Record of Decision release for Extremely Wet water year from Lewiston Dam plus 50 and 100 year May-June snowmelt runoff flow accretion from tributaries.
D. 13,750 cfs Safety of Dams release from Lewiston Dam plus 50 and 100 year May-June snowmelt runoff flow accretion from tributaries.

We need to develop these estimates longitudinally along the river from Lewiston Dam to Treadwell Bridge by estimating tributary flood accretion for the 50 and 100-year flood recurrences during the winter flood season (November-March) and during the snowmelt runoff season (May-June). Concurrently, Reclamation is evaluating whether anticipated future Safety of Dam releases from Lewiston Dam are larger than 50 and 100-year tributary floods.

3. DATA SOURCES

Estimating flood frequency at the bridges required an analysis that estimated flood magnitudes from tributaries between Lewiston Dam and Treadwell Bridge during the two seasons listed above. Flood frequency analyses for these two seasons used two different data sources. Floods generated during the winter season are generated from high intensity rainfall or rain-on-snow events, and are almost always the largest flood peaks of the year; therefore, annual instantaneous peak flows were used for the 50 and 100-year winter flood season analysis. Higher flows generated during the May-June period are primarily snowmelt runoff events, which are usually more gradual and much smaller than the winter floods. Therefore, we used the maximum daily average flow during the May-June period, and adjusted the daily average flow to an estimated instantaneous peak flow to estimate the 50 and 100-year peak spring snowmelt runoff season flow magnitude. The pertinent gaging stations providing data used in various analyses in this report are listed

in Table 1. Regional gaging stations are shown on Figure 1, and the study reach with local gages, tributaries, and the four bridges are shown in Figure 2.

Table 1. Gaging stations used in various analyses contained in this report.

Gaging Station	Gage #	Trinity River Mile	Drainage Area	Operator	Period of Record	Years of Record [total] (regulated)
Trinity River at Lewiston	11-525500	110.9	719 mi^2	USGS[a]	1911-present	[89] (36)
Deadwood Creek near Lewiston	N/A	N/A	8.9 mi^2	HVT[b]	1998-present	[4]
Rush Creek near Lewiston [d]	N/A	N/A	22.7 mi^2	HVT[b]	1997-present	[5]
Grass Valley Creek near Fawn Lodge	11-525600	N/A	30.8 mi^2	USGS[a]	1976-present	[26]
Trinity River near Limekiln Gulch [d]	11-525650	98.3	810 mi^2	USGS[a]/HVT[b]	1981-1991, 1998-present	[15] (15)
Indian Creek near Douglas City [d]	N/A	N/A	33.2 mi^2	HVT[b]	1997-present	[5]
Weaver Creek near Douglas City	11-525800	N/A	48.4 mi^2	DWR[c]	1959-1969	[11]
Browns Creek near Douglas City	11-525900	N/A	71.6 mi^2	DWR[c]	1957-1967	[11]
Trinity River near Douglas City	11-526000	87.7	1,014[d] mi^2	USGS[a]	1945-1951	[7]
Trinity River near Burnt Ranch	11-527000	48.6	1,438[e] mi^2	USGS[a]	1932-1940, 1956-present	[55] (36)
Trinity River above Coffee Creek	11-523200	146	149 mi^2	USGS[a]	1956-present	[45]
North Fork Trinity River near Helena	11-526500	N/A	156 mi^2	DWR[c]	1912-1913, 1957-1980	[26]
Salmon River at Somes Bar	11-522500	N/A	751 mi^2	USGS[a]	1912, 1914-15, 1927-present	[77]

[a] U.S. Geological Survey
[b] Hoopa Valley Tribe Fisheries Department
[c] State of California Department of Water Resources
[d] 295 mi^2 unregulated
[e] 719 mi^2 unregulated

4. WINTER FLOOD SEASON

The following four methods were used to estimate tributary flood magnitude for the 50 and 100-year floods at the four bridges:

1) Regional Regression Equation method
2) Additive Tributary model
3) Unit Runoff method
4) Regional Flood Frequency Analysis method

The four methods are used to develop a range of estimates; benefits and drawbacks for each method are discussed and considered when making a final recommendation on best

flood magnitude to use at the bridge locations. Many of the methods below use the Log Pearson III flood frequency distribution to compute flood magnitudes on gaged streams. Previous work has estimated generalized skew factors of -0.1 from the map in Bulletin 17B (USGS, 1982); however, Reclamation compiled regional skew factors from nearby gaging stations and weighted them by the period of record. This analysis suggested that a generalized skew factor of -0.3 is more appropriate for the Trinity River basin, thus is used the following analyses.

4.1. Regional Regression Equation method

The regional regression equation method is based on the multivariate statistical analysis of North Coast California gaging stations performed by Waananen and Crippen (1977), and is used in Jennings, et al. (1994). For the North Coast of California, the regional regression equations for the 50- and 100-year floods are as follows:

$$Q_{50} = 8.57\ (A)^{0.87}\ (P)^{0.96}\ (E)^{-0.08}$$
$$Q_{100} = 9.23\ (A)^{0.87}\ (P)^{0.97}\ (E)^{0.00}$$

where A= drainage area, P= average annual precipitation, and E = elevation index. To compute the 50- and 100-year flood estimates at the Salt Flat Bridge and Bucktail Bridge, we added the computed 50- and 100-year flood estimates for Rush Creek and the Trinity River between Lewiston Dam and the bridge of interest. To compute the 50- and 100-year flood estimates at the Poker Bar Bridge and Treadwell Bridge, we added the computed 50- and 100-year flood estimates for Rush Creek, Grass Valley Creek, and the Trinity River between Lewiston Dam and the bridge of interest. We used the regional regression equations to compute the 50- and 100-year flood magnitude for Rush Creek and the mainstem Trinity River, and used the Log-Pearson III flood frequency prediction for Grass Valley Creek at Fawn Lodge (A=30.8 mi^2). The 50-year and 100-year flood prediction at the Grass Valley Creek at Fawn Lodge is 4,802 cfs and 6,022 cfs, respectively (Figure 3).

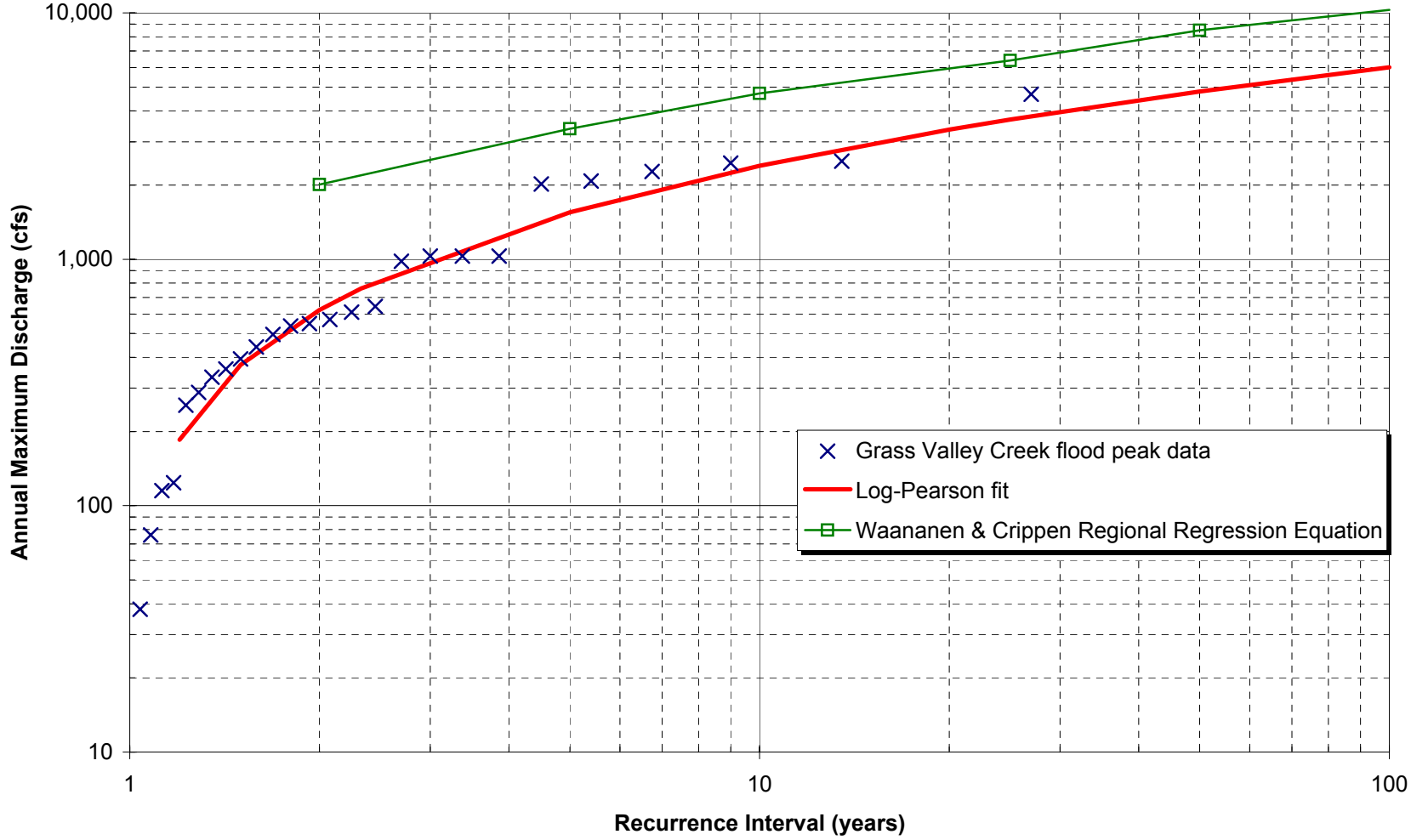
For comparison, we compared the Log-Pearson III 50 and 100-yr flood magnitude estimates from the Grass Valley Creek gaging station to that predicted by the regional regression equations using A = 30.8 mi^2, P = 64 inches, E = 2.54 (Table 2, Figure 3).

Table 2. Comparison of 50- and 100-year flood magnitude predictions at Grass Valley Creek using the Waananen and Crippen (1977) regional regression equations and the Log-Pearson III predictions.

Flood frequency	Regional Regression Equation Prediction	Log-Pearson III prediction from gaging data	Percent over-prediction
50-year flood	8,503 cfs	4,802 cfs	77 %
100-year flood	10,286 cfs	6,022 cfs	71 %

The Grass Valley Creek gaging station is upstream from the confluence with the Trinity River, so we adjusted the flood magnitude predictions to account for the additional drainage area at the mouth ($Q_{mouth}=Q_{gage}*(A_{mouth}/A_{gage})^{0.87}$, where the exponent was taken

Figure 3. Grass Valley Creek at Fawn Lodge (USGS gage #11-5256; 1976-2001) flood frequency curve



from the regional regression equations. Using A_{mouth}=37.0 mi^2, A_{gage}=30.8 mi^2, and Q_{gage}= 4,802 cfs and 6,022 cfs for the 50 and 100-year flood, the resulting flood magnitude predictions that incorporate the additional drainage area between the Grass Valley Creek gaging station and the Trinity River confluence results in a 50-year flood estimate of 5,633 cfs and a 100-year flood estimate of 7,063 cfs. Results of applying the Waananen and Crippen (1977) regional regression equations to Rush Creek and the cumulative small tributaries along the mainstem Trinity River are shown in Table 3, as are the resulting estimates of 50- and 100-year flood magnitudes at the four bridges using this method.

Table 3. Summary of 50- and 100-year flood magnitude predictions at the four bridges using the Waananen and Crippen (1977) regional regression equations.

SALT FLAT BRIDGE	**Area**	**Precipitation**	**Elev. index**	**Q_{50}**	**Q_{100}**
Rush Creek	22.7 mi^2	43 inches[1]	3.230	4,366 cfs	5,363 cfs
Trinity R. & minor tribs	16 mi^2	45 inches [2]	1.803	3,773 cfs	4,425 cfs
Sum at bridge location	**38.7 mi^2**			**8,139 cfs**	**9,788 cfs**
BUCKTAIL BRIDGE	**Area**	**Precipitation**	**Elev. index**	**Q_{50}**	**Q_{100}**
Rush Creek	22.7 mi^2	43 inches[1]	3.230	4,366 cfs	5,363 cfs
Trinity R. & minor tribs	18.4 mi^2	45 inches [2]	1.784	4,228 cfs	4,955 cfs
Sum at bridge location	**41.1 mi^2**			**8,594 cfs**	**10,318 cfs**
POKER BAR BRIDGE	**Area**	**Precipitation**	**Elev. index**	**Q_{50}**	**Q_{100}**
Rush Creek	22.7 mi^2	43 inches[1]	3.23	4,366 cfs	5,363 cfs
Grass Valley Creek	37.0 mi^2		N/A	5,633 cfs	7,063 cfs
Trinity R. & minor tribs	27.9 mi^2	45 inches [2]	1.765	5,960 cfs	6,978 cfs
Sum at bridge location	**87.6 mi^2**			**15,959 cfs**	**19,404 cfs**
TREADWELL BRIDGE	**Area**	**Precipitation**	**Elev. index**	**Q_{50}**	**Q_{100}**
Rush Creek	22.7 mi^2	43 inches[1]	3.23	4,366 cfs	5,363 cfs
Grass Valley Creek	37.0 mi^2		N/A	5,633 cfs	7,063 cfs
Trinity R. & minor tribs	32.8 mi^2	45 inches [2]	1.738	6,829 cfs	7,986 cfs
Sum at bridge location	**92.5 mi^2**			**16,828 cfs**	**20,412 cfs**
DOUGLAS CITY GAGE	**Area**	**Precipitation**	**Elev. index**	**Q_{50}**	**Q_{100}**
Rush Creek	22.7 mi^2	43 inches[1]	3.23	4,366 cfs	5,363 cfs
Grass Valley Creek	37.0 mi^2		N/A	5,633 cfs	7,063 cfs
Indian Creek	33.2 mi^2	61 inches[1]	2.76	8,610 cfs	10,480 cfs
Weaver Creek	49.1 mi^2		N/A	4,930cfs	5,386 cfs
Reading Creek	30.4 mi^2	63 inches[1]	2.90	8,193 cfs	10,015 cfs
Browns Creek	74.1 mi^2		N/A	5,098 cfs	5,804 cfs
Trinity R. & minor tribs	47.2 mi^2	45 inches [2]	1.674	9,307 cfs	10,850 cfs
Sum at Douglas City	**293.7 mi^2**			**46,137 cfs**	**54,961 cfs**
FEMA 1996 Estimate at Douglas City					**38,500 cfs**

[1] Based on average precipitation map in Rantz (1969)
[2]Based on Tom Lang Gulch gage precipitation in Waananen and Crippen (1977)

4.2. Additive Model for Tributary 50 and 100-year flood

Our objective with the Additive Model was to predict mainstem streamflow as a function of distance downstream from Lewiston Dam, using a simple additive model for flood magnitude at common recurrence intervals (Figure 4). This additive model uses the Trinity River near Burnt Ranch gaging station as a calibration point, so we analyzed tributaries larger than 10 mi^2. Flood frequency curves were developed for tributaries larger than 10 mi^2 between Lewiston Dam and the North Fork Trinity River. The 50 and 100 year flood magnitude for each tributary was computed by a combination of Log-Pearson III flood frequency analyses for the gaged streams, and regional flood frequency regression equations for the ungaged streams (Table 4). For those gaging stations that were not at the mouths of the tributaries, the flood magnitudes were adjusted by the additional drainage area at the mouth as done at the bottom of page 6.

Figure 4. Simple additive model for estimating longitudinal 50 and 100-yr annual peak flood magnitudes on the mainstem Trinity River downstream of Lewiston Dam.

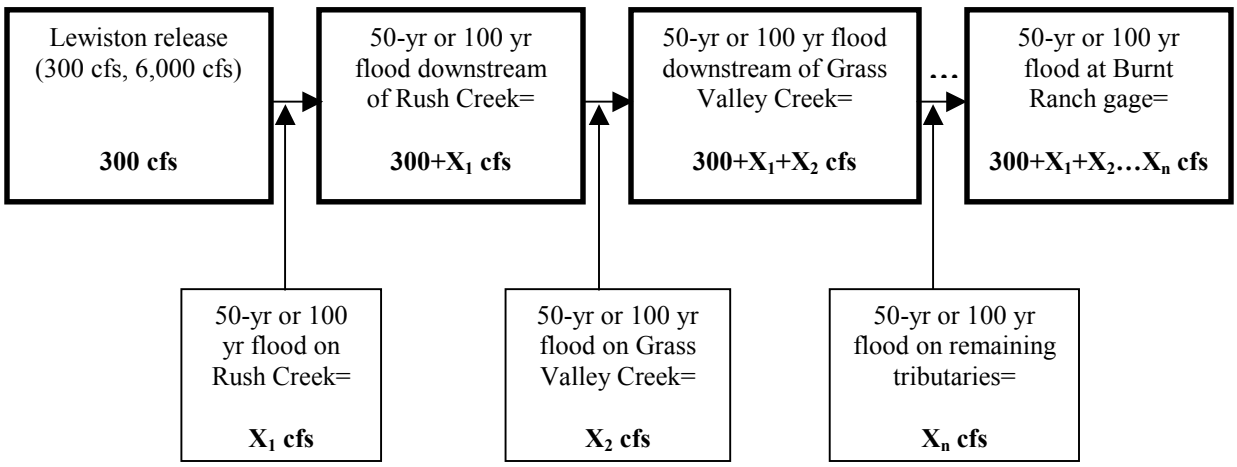


Table 4. Summary of methods used to estimate 50 and 100-year tributary flood magnitude for additive model.

Tributary	Flood Frequency Method
Rush Creek	Waananen and Crippen (1977) regional regression equation adjusted to the NF Trinity River
Grass Valley Creek	Log Pearson III flood frequency analysis
Indian Creek	Waananen and Crippen (1977) regional regression equation adjusted to the NF Trinity River
Weaver Creek	Log Pearson III flood frequency analysis
Reading Creek	Waananen and Crippen (1977) regional regression equation adjusted to the NF Trinity River
Browns Creek	Log Pearson III flood frequency analysis
Canyon Creek	Waananen and Crippen (1977) regional regression equation adjusted to the NF Trinity River
North Fork Trinity River	Log Pearson III flood frequency analysis

Tributaries with drainage areas less than 10 mi^2 were not analyzed. The flow contribution of each tributary to the mainstem Trinity River greater than 10 mi^2 was added for a given flood frequency (Figure 4). This additive model was continued downstream to the Trinity River near Burnt Ranch gaging station (Figure 1), where predicted flood magnitudes from the model were compared to that measured at the gaging station. This gaging station was chosen because it is the first station downstream of the study reach with a sufficiently long post-dam period of record (36 years) adequate to calibrate the model. The deviation of model predictions to that measured at the Trinity River near Burnt Ranch gaging station was then used as a correction factor to all the tributary contributions upstream such that the predicted results at the Burnt Ranch gaging station matched measured values. This simple additive model has many assumptions, including:

(1) flood routing is not considered (no lag or attenuation between gaging nodes).
(2) a flood of a given recurrence occurs on all watersheds during the same storm event (no regional differences).
(3) tributaries <10 mi^2 are ignored (not allowed to contribute to flood peaks in model).
(4) the gaging stations accurately measure discharge.
(5) the period of record used typifies the long-term average.
(6) The cumulative drainage area between the North Fork Trinity River and the Burnt Ranch gage is ignored because the individual streams are less than 10 mi^2 each.

Error inherent to assumptions (1), (3), and (6) are offsetting to a degree. The above methods were used to develop an overall longitudinal flood magnitude prediction along the mainstem Trinity River from Lewiston Dam (RM 112) to the Burnt Ranch gaging station (RM 48.6). From this longitudinal perspective assessing many tributaries, we focus most of our results on the 50 and 100-year flood flows on Rush Creek and Grass Valley Creek (X_1 and X_2 in Figure 4), since they are the primary tributaries affecting the four bridges (Table 4).

For Grass Valley Creek, a Log Pearson III flood frequency analysis using the 26 years of annual peak flow data was performed (Figure 3), which predicted a 50-year flood magnitude of approximately 4,802 cfs and 100-year flood magnitude of approximately 6,022 cfs at the gaging station (drainage area = 30.8 mi^2). These flood magnitudes were adjusted for watershed area at the mouth (37 mi^2) as done at the bottom of page 6, resulting in 50- and 100-year flood magnitude predictions of 5,633 cfs and 7,063 cfs.

Table 4. Summary of bridge location and tributaries contributing to flood hydrology at each bridge.

Bridge	River Mile	Contributing tributaries
Salt Flat Bridge	106.9	Rush Creek
Browns Mtn Bridge	105.0	Rush Creek
Poker Bar Bridge	102.2	Rush Creek and Grass Valley Creek
Treadwell Bridge	97.4	Rush Creek and Grass Valley Creek

Predictions from Rush Creek required a different approach due to limited flood peak data at that station. Therefore, we first used regional regression equations from Waananen and

Crippen (1977) for streams in north coastal California. These regional regression equations predicted the following 50- and 100-year flood magnitudes for Rush Creek:

$Q_{50RUSH} = 8.57\ (A_{RUSH})^{0.87}\ (P_{RUSH})^{0.96}\ (E_{RUSH})^{-0.08} = 4{,}366$ cfs
$Q_{100RUSH} = 9.23\ (A_{RUSH})^{0.87}\ (P_{RUSH})^{0.97}\ (E_{RUSH})^{0.0} = 5{,}363$ cfs

where A_{RUSH}= Rush Creek drainage area (22.7 mi^2), P_{RUSH}= Rush Creek average annual precipitation (43 inches), and E_{RUSH} is a Rush Creek elevation index (3.23). We then attempted to improve these regression equations by using a unit-area, unit-precipitation, unit-elevation adjustment with measured flood frequencies at the North Fork Trinity River gaging station (as shown in Waananen and Crippen, 1977). The North Fork Trinity River was used because it is unregulated, drains a similar portion of the Trinity Alps, and drains a similar elevation of the Trinity Alps. The adjustment was done as follows:

$Q_{50RUSH} = Q_{50NF}\ (A_{RUSH}/A_{NF})^{0.87}\ (P_{RUSH}/P_{NF})^{0.96}\ (E_{RUSH}/E_{NF})^{-0.08}$
$Q_{100RUSH} = Q_{100NF}\ (A_{RUSH}/A_{NF})^{0.87}\ (P_{RUSH}/P_{NF})^{0.97}$

Where A_{RUSH}= 22.7 mi^2, P_{RUSH}=43 inches, E_{RUSH}=3.23, A_{NF}=156 mi^2, P_{NF}=66 inches, E_{NF}=2.51, Q_{50NF}= 26,766 cfs Q_{100NF}= 31,141 cfs, such that the new equations and predicted flood magnitudes for Rush Creek are (Figure 5):

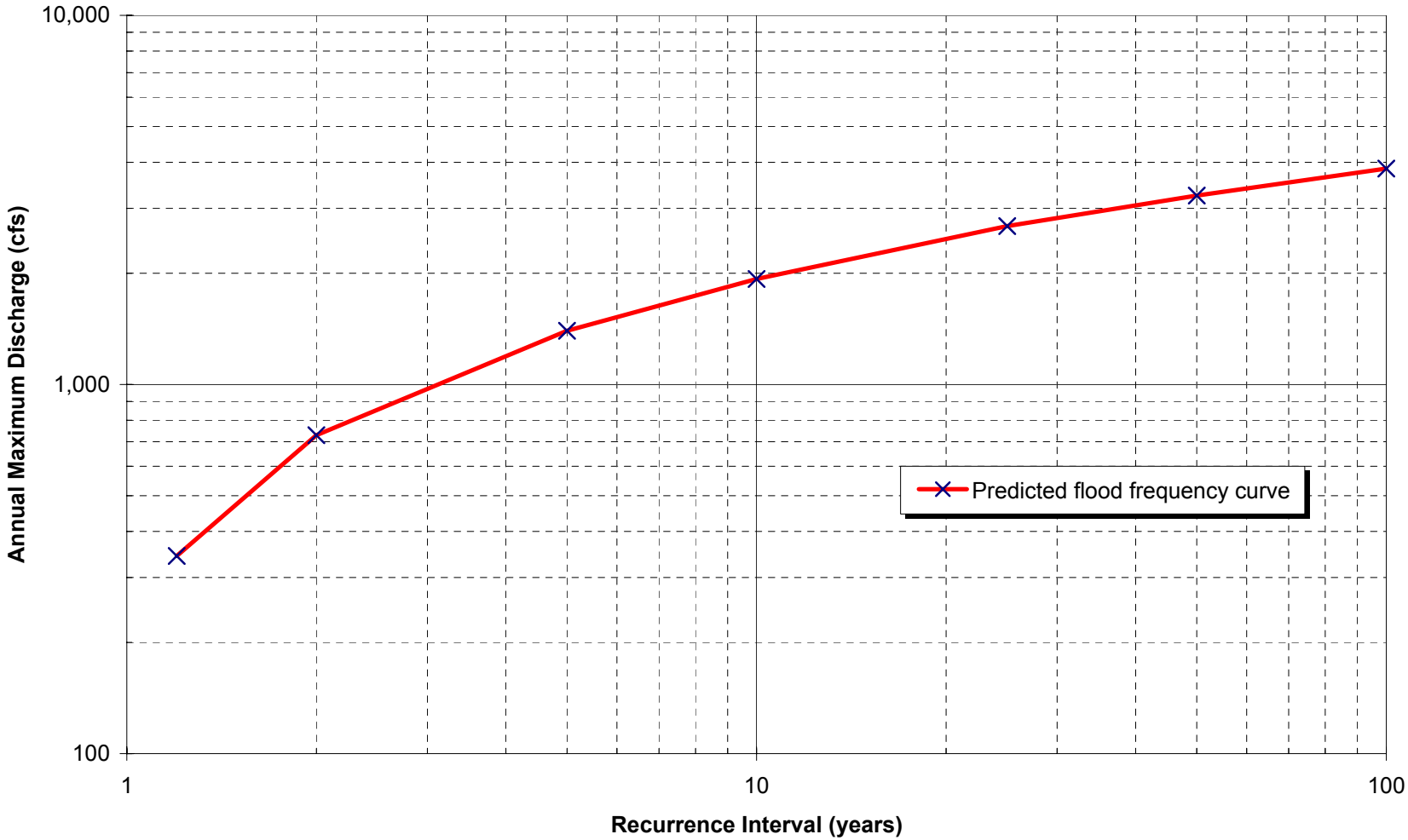
$Q_{50RUSH} = 26{,}766\ (22.4/156)^{0.87}\ (43/66P)^{0.96}\ (3.24/2.51)^{-0.08} = 3{,}249$ cfs
$Q_{100RUSH} = 31{,}141\ (22.4/156)^{0.87}\ (43/66)^{0.97} = 3{,}842$ cfs

Flood magnitudes were computed using Log Pearson III distribution for Weaver Creek and Browns Creek (11 years of data each), as well as the North Fork Trinity River (26 years of data). The unit-adjusted regional regression equations were used to predict the remaining flood magnitudes for Reading Creek (30.2 mi^2) and Canyon Creek (64.5 mi^2). Post-dam flood magnitudes were then computed at the Trinity River near Burnt Ranch gaging station to compare with the additive flood magnitudes downstream of the North Fork Trinity River (Table 5). Comparing the predictions from this simple model with predicted flood frequency estimates at the USGS Burnt Ranch gaging station showed that model predictions did a reasonable job at predicting flood magnitudes at the gaging station at larger recurrence interval floods (Table 5). Our simple model predicted discharges for each recurrence interval at the Burnt Ranch gaging station slightly smaller than "measured" at the Burnt Ranch gaging station, so a correction factor was applied to the flood magnitudes of each tributary at each recurrence interval to satisfy the constraint that predicted flood magnitude at the Burnt Ranch gage must equal the modeled flood frequency curve.

Table 5. Comparison of predicted versus "measured" flood magnitudes at the Burnt Ranch gaging station.

Flood Recurrence	Model prediction at Burnt Ranch gage	"Measured" value at Burnt Ranch gage	Correction Factor
50-yr	69,942 cfs	71,929 cfs	1.028
100-yr	81,831 cfs	86,710 cfs	1.060

Figure 5. Rush Creek near Lewiston flood frequency curve derived from Unit-correction of Waananen and Crippen (1977) regional regression equations.



The predicted 50- and 100-year flood magnitudes on Rush Creek (3,249 cfs and 3,842 cfs, respectively) were multiplied by the Table 5 correction factors (1.028 and 1.060, respectively) to result in predicted 50- and 100-year flood magnitudes of 3,342 cfs and 4,071 cfs. The Log-Pearson III predictions for the 50 and 100-year flood magnitudes at the mouth of Grass Valley Creek (5,633 cfs and 7,063 cfs, respectively) were also multiplied by the same correction factors to resulting predicted 50 and 100-year flood magnitudes of 5,793 cfs and 7,485 cfs. This correction factor adjustment based on the Burnt Ranch gaging station attempts to accommodate sources of error associated with the assumptions listed on page 10.

The flood magnitudes for Grass Valley Creek and Rush Creek 50- and 100-year flood magnitudes were then added to evaluate cumulative tributary contribution at the four bridge sites (Table 6).

Table 6. Summary of predicted 50- and 100-year tributary derived flows at pertinent bridges using the Additive Tributary Model.

Location	Predicted 50-yr flood magnitude: Additive Tributary Model	Predicted 100-yr flood magnitude: Additive Tributary Model
Salt Flat Bridge	3,342 cfs*	4,071 cfs*
Bucktail Bridge	3,342 cfs*	4,071 cfs*
Poker Bar Bridge	9,135 cfs*	11,556 cfs*
Treadwell Bridge	9,135 cfs*	11,556 cfs*

*Assumes 0 cfs release from Lewiston Dam

4.3. Unit Runoff method

The unit runoff method computes the flood magnitude at an ungaged location (e.g., tributary or mainstem Trinity River location) by multiplying a unit runoff magnitude (cfs/mi^2) developed from a nearby gaged stream to the unregulated drainage area at that ungaged location. Unregulated is defined as the drainage area downstream of Lewiston Dam, thus not subject to flow regulation from the Trinity River Division. In our application, we would multiply the unit runoff value for the 50- and 100-year flood with the unregulated drainage area at each bridge (Table 7).

Table 7. Unregulated drainage areas at each of the four bridges.

Location	Unregulated drainage area
Salt Flat Bridge	40.0 mi^2
Bucktail Bridge	42.4 mi^2
Poker Bar Bridge	88.9 mi^2
Treadwell Bridge	93.8 mi^2

Gaging stations used for this analysis should have a long period of record in order to accurately estimate the magnitude of the 50- and 100-year flood magnitudes. Because the unit runoff of a stream is a function of the drainage area (e.g., smaller watersheds have a higher unit runoff than comparable larger watersheds), as well as elevation and geography, gaging stations of similar watershed area, elevation, precipitation, and runoff

patterns are preferable. The unit runoff method was done for two groups of gaging stations: 1) three very local gaging stations with drainage areas less than 160 mi^2 and period of record longer than 25 years, and 2) five local gaging stations with drainage areas less than 751 mi^2 and period of record longer than 25 years. For each gaging station, we computed the 50 and 100-year flood magnitude from Log-Pearson III distribution. One outlier occurred at the Salmon River at Somes Bar gaging station in WY 1965, where a landslide-induced dam break caused a much larger unit-runoff peak flow than that experienced on other nearby streams (133,000 cfs, or 177 cfs/mi^2). To estimate the flood peak at this gaging station, we plotted the unit runoff value for the December 22, 1964 flood at regional gaging stations against drainage area (Figure 6). The data suggest that a more reasonable unit runoff value of 100 cfs/mi^2 for the Salmon River at Somes Bar, resulting in a non-dam break peak flow estimate of 75,100 cfs. This value was substituted into the annual peak flow data and analyzed in the Log Pearson III flood magnitude predictions. The unit runoff values for these gages are summarized in Table 8, and linear regression equations were fitted to the data for each of these two groups of gaging stations (Figure 7).

Table 8. Summary of unit runoff values for the five gaging stations used in the Unit Runoff method.

Gaging Station	Drainage Area	Years of Record	50-year flood	Unit 50-year flood	100-year flood	Unit 100-year flood
Grass Valley Creek near Fawn Lodge	30.8 mi^2	26	4,802 cfs	156 cfs/mi^2	6,022 cfs	195 cfs/mi^2
Trinity River above Coffee Creek	149 mi^2	44	24,022 cfs	161 cfs/mi^2	28,798 cfs	193 cfs/mi^2
North Fork Trinity River near Helena	156 mi^2	26	26,766 cfs	172 cfs/mi^2	31,141 cfs	200 cfs/mi^2
Trinity River at Lewiston	719 mi^2	49	61,521 cfs	86 cfs/mi^2	73,792 cfs	103 cfs/mi^2
Salmon River at Somes Bar	751 mi^2	76	73,200 cfs	97 cfs/mi^2	84,770 cfs	113 cfs/mi^2

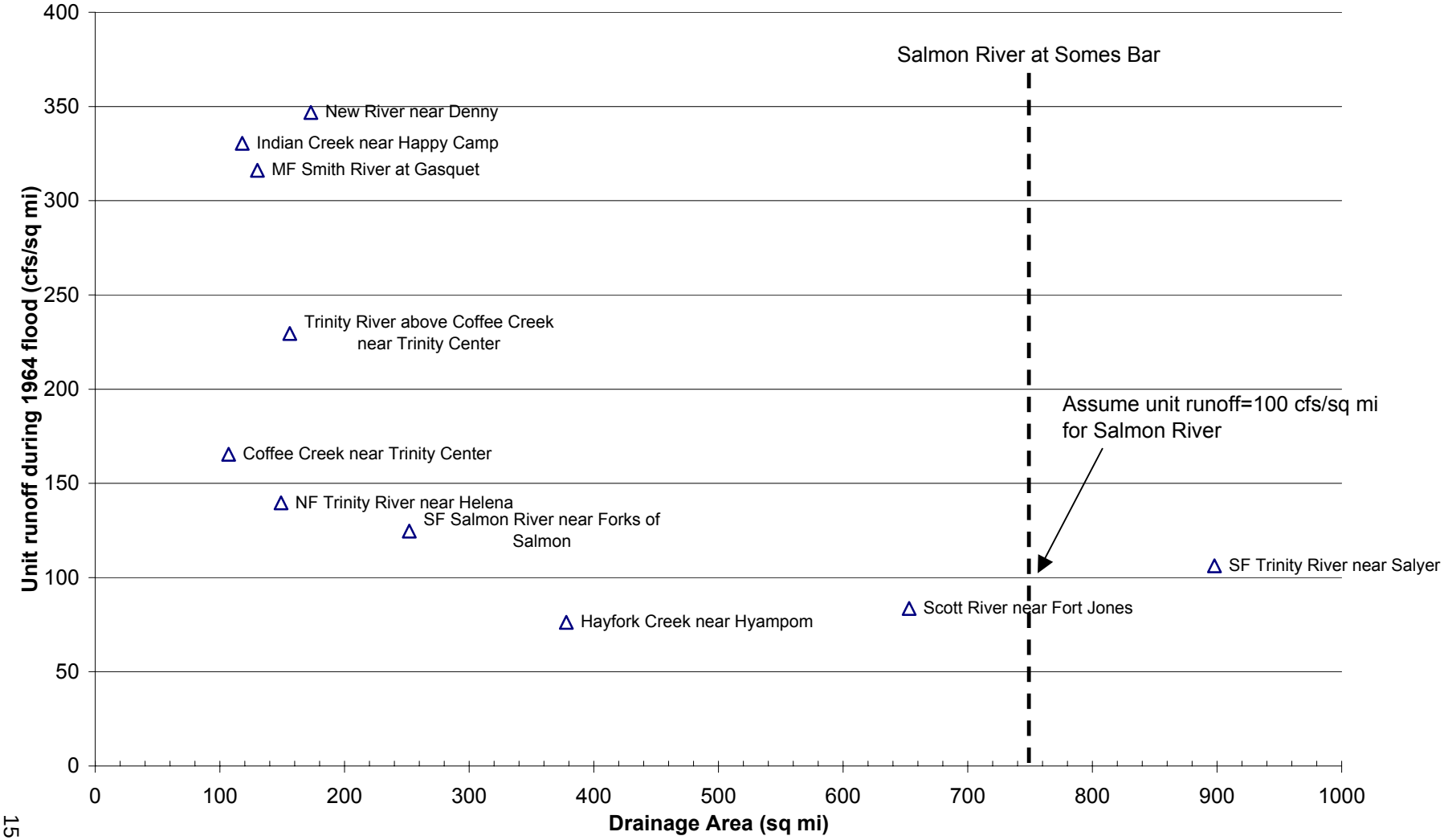
The regression equations enabled a prediction of the unit runoff value at each bridge based on the unregulated drainage area at each bridge. The unregulated drainage area, along with the 50- and 100-yr flood magnitude predictions at each bridge is listed in Table 9.

Table 9. Summary of 50- and 100-year flood magnitude predictions at the four bridges using regression based unit-runoff values from: a) three small local gaging stations with drainage areas < 156 mi^2, and b) five local gaging stations with drainage areas < 751 mi^2. Regression equations are shown in Figure 7.

		Using three small local gages < 156 mi^2		Using five local gages < 751 mi^2	
Location	Unregulated drainage	Predicted 50-yr flood	Predicted 100-yr flood	Predicted 50-yr flood	Predicted 100-yr flood
Salt Flat Br	40.0 mi^2	6,258 cfs	7,817 cfs	6,785 cfs	8,207 cfs
Bucktail Br	42.4 mi^2	6,643 cfs	8,287 cfs	7,180 cfs	8,685 cfs
Poker Bar Br	88.9 mi^2	14,299 cfs	17,416 cfs	14,601 cfs	17,639 cfs
Treadwell Br	93.8 mi^2	15,128 cfs	18,381 cfs	15,356 cfs	18,547 cfs
Douglas City	295 mi^2	52,895 cfs	58,399 cfs	41,777 cfs	50,129 cfs

Assumes 0 cfs release from Lewiston Dam

Figure 6. Comparison of regional estimates for unit-runoff during Dec 22, 1964 flood to estimate peak flow on Salmon River at Somes Bar gaging station



Theoretically, applying the unit runoff method avoids the flood routing assumption and incorporates all the smaller tributaries, providing a better estimator of local flood magnitude for the 50- and 100-year flood than the Additive Tributary Model. Within the unit runoff method, the prediction using the three gages are probably better estimates for the four bridges than predictions using the 5 gages because the drainage area for all four bridges is under 94 mi^2, which is very close to the three gages. Douglas City is included as a means to compare to the FEMA 100-year flood estimates. The estimates using the five gages is probably a better estimate for the Douglas City location, as the Douglas City location is midway between the three small gages and the remaining two larger gages (Figure 7).

4.4. Regional Flood Frequency Analysis

This analysis was performed by Reclamation's Technical Service Center, Denver CO. This method originally analyzed four groups of gages of varying locality, drainage area, and period of record. Ultimately we used the following three groups of regional gages because they were most appropriate for use at the Trinity River bridge sites:

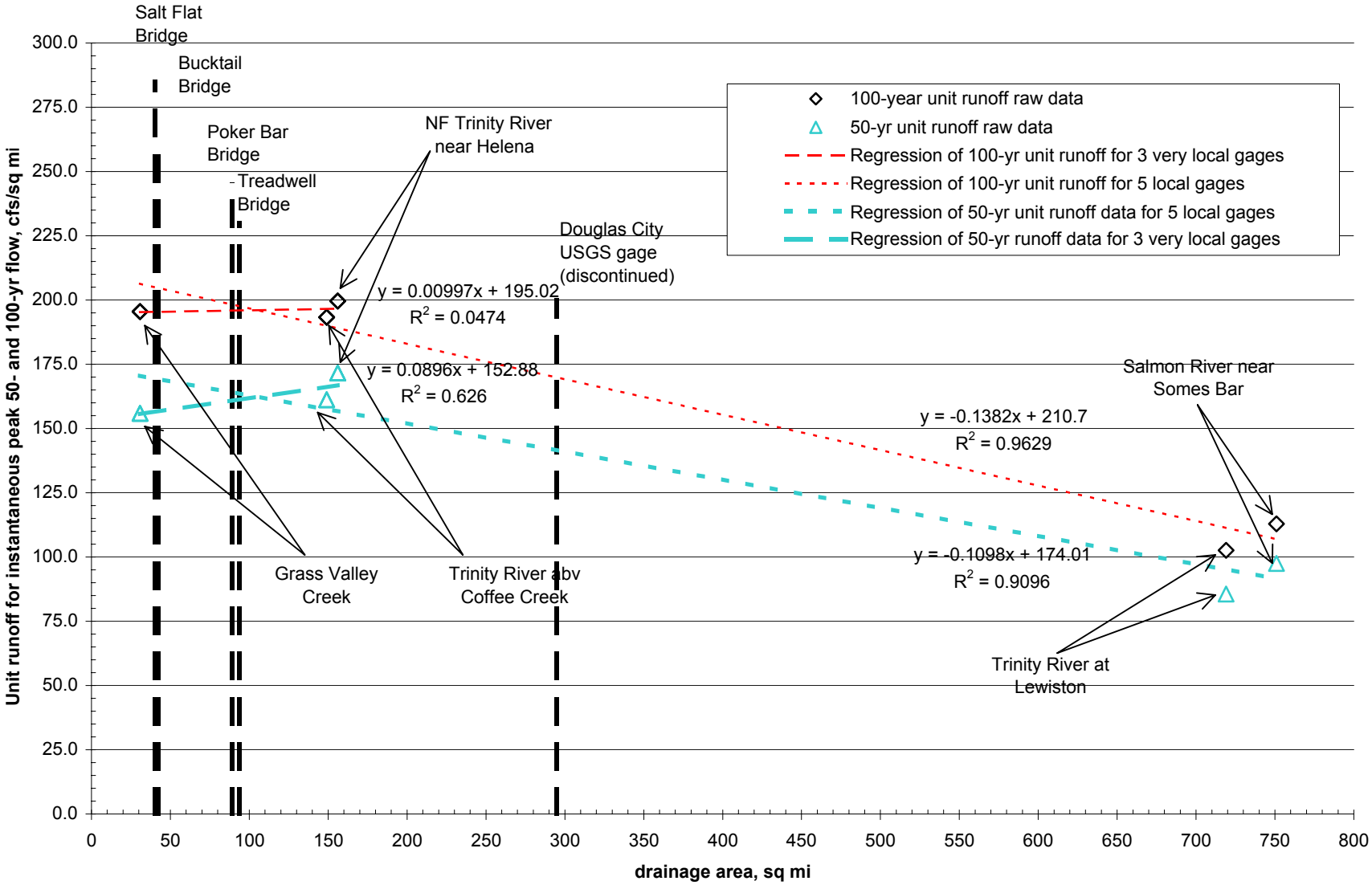
- Three small local gages < 156 mi^2 (Grass Valley Creek, Trinity River above Coffee Creek, NF Trinity River)
- Five local gages < 751 mi^2 (above three streams plus pre-dam Trinity River at Lewiston and Salmon River near Somes Bar)
- Nine regional gages < 764 mi^2 (above five plus SF Trinity River, Clear Creek near French Gulch, Sacramento River at Delta, SF Salmon River)

For each of the three groups of gages, the analysis was done in the following steps:

1. the annual instantaneous peak values were compiled and log-transformed, with the mean, standard deviation, and skew computed for each gage;
2. The mean for each gage ($X_{meanlog}$) was plotted as a function of drainage area, and based on the unregulated drainage area computed at each bridge, the mean log was estimated at each of the four individual bridge sites ($X_{meanlogbridge\text{-}i}$). This was also done for the Douglas City gage location in order to compare results to the 100-year flood magnitude predicted by FEMA (1996).
3. The standard deviation (SD) and skew of the log transformed peak flow values were weighted by the period of record for each gage to develop a weighted mean skew value for that group of gaging stations. The effective period of record was also computed as the sum of years of record for all gages divided by the number of gages.
4. Based on the weighted skew obtained in 3), the Pearson Type III deviate (K) was obtained for the 50- and 100-year flood (p=0.02 and p=0.01) from Bulletin 17B (USGS 1982). We used 2 significant figures on the skew values, therefore, we linearly interpolated between values in the Bulletin 17B K-value table.
5. The estimate of the 50-and 100-year flood magnitude for each bridge was computed from the following equation (USGS 1982):

$$Q_{50}=10^{(Xmeanlogbridge\text{-}i\ +(SDmean*K_{0.02})}$$
$$Q_{100}=10^{(Xmeanlogbridge\text{-}i\ +(SDmean*K_{0.01})}$$

Figure 7. Unit Runoff value regressions for local Trinity River gaging stations



The parameters generated from this approach are shown in Table 10, and the predicted flood magnitudes at each bridge (and Douglas City) are summarized in Table 11.

Table 10. Summary of parameters used in Regional Flood Frequency method.

	Effective period of record	**Weighted mean log SD**	**Weighted mean Skew**	**(50 yr) $K_{0.02}$**	**(100 yr) $K_{0.01}$**
Three gages	42	0.347	-0.65	1.867	2.074
Five gages	44	0.35	-0.31	1.884	2.096
Nine gages	32	0.38	-0.34	1.689	1.839

Table 11. Summary of 50- and 100-year flood magnitude predictions at the four bridges using Regional Flood Frequency method.

	Three gages		Five gages		Nine gages	
Location	Predicted 50-yr flood	Predicted 100-yr flood	Predicted 50-yr flood	Predicted 100-yr flood	Predicted 50-yr flood	Predicted 100-yr flood
Salt Flat Br	4,311 cfs	5,178 cfs	4,864 cfs	5,776 cfs	4,147 cfs	4,678 cfs
Bucktail Br	4,700 cfs	5,645 cfs	5,159 cfs	6,125 cfs	4,405 cfs	4,969 cfs
Poker Bar Br	14,085 cfs	16,918 cfs	10,877 cfs	12,915 cfs	9,465 cfs	10,677 cfs
Treadwell Br	15,251 cfs	18,319 cfs	11,481 cfs	13,633 cfs	10,005 cfs	11,286 cfs
Douglas City	83,374 cfs	100,141 cfs	36,424 cfs	43,250 cfs	32,685 cfs	36,870 cfs

Assumes 0 cfs release from Lewiston Dam

5. DISCUSSION OF WINTER FLOOD RESULTS (NOV 1 – MAR 31)

The compiled prediction of 50- and 100-year flood magnitude due to tributary accretion using all methods above are summarized in Table 12. Table 12 assumes zero release from Lewiston Dam. The two Winter Flood options described on page 4 were then evaluated by adding in Lewiston Dam releases of 300 cfs (winter baseflow) and 6,000 cfs (Safety of Dams). Results are shown in Tables 13-14.

5.1. Discussion and comparison with previous studies

A short description and assessment of each of the four methods summarized in Tables 12-14 follow below. Each method is given a qualitative ranking (low, moderate, high) based on the expected accuracy of the flood magnitude prediction. The ranking is based on the quality of data, length of data, applicability of data, and applicability of analysis.

5.1.1. Method 1: Regional Regression Equations

The predictions using the Waananen and Crippen (1977) regional regression equations should be ranked low because: 1) the were developed using data only through 1973, such that the 27 years of additional data up to the present-day is not used in the equation development, and 2) the equations were developed over a broad “North Coast” area, rather than specifically to the Trinity River basin. Flashy rainfall-dominated coastal streams are lumped together with less flashy snowmelt dominated streams, such that this aggregate effect reduces the precision of the estimated flood magnitude at a specific

Table 12. Summary of 50- and 100-year flood magnitudes at Trinity River bridges using a variety of methods
Assumes Lewiston Dam release of 0 cfs

WINTER FLOOD SEASON

Method 1: Regional Regression Equations to predict 50- and 100-year flood magnitude during Winter Flood season

Recurrence Interval	Flow at Salt Flat Bridge	Flow at Bucktail Bridge	Flow at Poker Bar Bridge	Flow at Treadwell Bridge	Flow at Douglas City
50 yr	8,139 cfs	8,594 cfs	15,959 cfs	16,828 cfs	46,137 cfs
100 yr	9,788 cfs	10,318 cfs	19,404 cfs	20,412 cfs	54,961 cfs

Method 2: Additive Tributary Model method to predict 50- and 100-year flood magnitude during Winter Flood season

Recurrence Interval	Flow at Salt Flat Bridge	Flow at Bucktail Bridge	Flow at Poker Bar Bridge	Flow at Treadwell Bridge	Flow at Douglas City
50 yr	3,342 cfs	3,342 cfs	9,135 cfs	9,135 cfs	32,313 cfs
100 yr	4,071 cfs	4,071 cfs	11,556 cfs	11,556 cfs	38,971 cfs

Method 3a: Unit Runoff method to predict 50- and 100-year flood magnitude during Winter Flood season - 3 LOCAL SMALL GAGES

Recurrence Interval	Flow at Salt Flat Bridge	Flow at Bucktail Bridge	Flow at Poker Bar Bridge	Flow at Treadwell Bridge	Flow at Douglas City
50 yr	6,258 cfs	6,643 cfs	14,299 cfs	15,128 cfs	52,895 cfs
100 yr	7,817 cfs	8,287 cfs	17,416 cfs	18,381 cfs	58,399 cfs

Method 3b: Unit Runoff method to predict 50- and 100-year flood magnitude during Winter Flood season - 5 LOCAL GAGES

Recurrence Interval	Flow at Salt Flat Bridge	Flow at Bucktail Bridge	Flow at Poker Bar Bridge	Flow at Treadwell Bridge	Flow at Douglas City
50 yr	6,785 cfs	7,180 cfs	14,601 cfs	15,356 cfs	41,777 cfs
100 yr	8,207 cfs	8,685 cfs	17,639 cfs	18,547 cfs	50,129 cfs

Method 4a: Regional Flood Frequency method to predict 50- and 100-year flood magnitude during Winter Flood season - 3 LOCAL SMALL GAGES

Recurrence Interval	Flow at Salt Flat Bridge	Flow at Bucktail Bridge	Flow at Poker Bar Bridge	Flow at Treadwell Bridge	Flow at Douglas City
50 yr	4,311 cfs	4,700 cfs	14,085 cfs	15,251 cfs	83,374 cfs
100 yr	5,178 cfs	5,645 cfs	16,918 cfs	18,319 cfs	100,141 cfs

Method 4b: Regional Flood Frequency method to predict 50- and 100-year flood magnitude during Winter Flood season - 5 LOCAL GAGES

Recurrence Interval	Flow at Salt Flat Bridge	Flow at Bucktail Bridge	Flow at Poker Bar Bridge	Flow at Treadwell Bridge	Flow at Douglas City
50 yr	4,864 cfs	5,159 cfs	10,877 cfs	11,481 cfs	36,424 cfs
100 yr	5,776 cfs	6,125 cfs	12,915 cfs	13,633 cfs	43,250 cfs

Table 13. Summary of OPTION A: 50- and 100-year flood magnitudes at Trinity River bridges assuming 300 cfs release from Lewiston Dam

WINTER FLOOD SEASON

Method 1: Regional Regression Equations to predict 50- and 100-year flood magnitude during Winter Flood season

Recurrence Interval	Flow at Salt Flat Bridge	Flow at Bucktail Bridge	Flow at Poker Bar Bridge	Flow at Treadwell Bridge	Flow at Douglas City
50 yr	8,439 cfs	8,894 cfs	16,259 cfs	17,128 cfs	46,437 cfs
100 yr	10,088 cfs	10,618 cfs	19,704 cfs	20,712 cfs	55,261 cfs

Method 2: Additive Tributary Model method to predict 50- and 100-year flood magnitude during Winter Flood season

Recurrence Interval	Flow at Salt Flat Bridge	Flow at Bucktail Bridge	Flow at Poker Bar Bridge	Flow at Treadwell Bridge	Flow at Douglas City
50 yr	3,642 cfs	3,942 cfs	9,435 cfs	9,735 cfs	32,613 cfs
100 yr	4,371 cfs	4,671 cfs	11,856 cfs	12,156 cfs	39,271 cfs

Method 3a: Unit Runoff method to predict 50- and 100-year flood magnitude during Winter Flood season - 3 LOCAL SMALL GAGES

Recurrence Interval	Flow at Salt Flat Bridge	Flow at Bucktail Bridge	Flow at Poker Bar Bridge	Flow at Treadwell Bridge	Flow at Douglas City
50 yr	6,558 cfs	6,943 cfs	14,599 cfs	15,428 cfs	53,195 cfs
100 yr	8,117 cfs	8,587 cfs	17,716 cfs	18,681 cfs	58,699 cfs

Method 3b: Unit Runoff method to predict 50- and 100-year flood magnitude during Winter Flood season - 5 LOCAL GAGES

Recurrence Interval	Flow at Salt Flat Bridge	Flow at Bucktail Bridge	Flow at Poker Bar Bridge	Flow at Treadwell Bridge	Flow at Douglas City
50 yr	7,085 cfs	7,480 cfs	14,901 cfs	15,656 cfs	42,077 cfs
100 yr	8,507 cfs	8,985 cfs	17,939 cfs	18,847 cfs	50,429 cfs

Method 4a: Regional Flood Frequency method to predict 50- and 100-year flood magnitude during Winter Flood season - 3 LOCAL SMALL GAGES

Recurrence Interval	Flow at Salt Flat Bridge	Flow at Bucktail Bridge	Flow at Poker Bar Bridge	Flow at Treadwell Bridge	Flow at Douglas City
50 yr	4,611 cfs	5,000 cfs	14,385 cfs	15,551 cfs	83,674 cfs
100 yr	5,478 cfs	5,945 cfs	17,218 cfs	18,619 cfs	100,441 cfs

Method 4b: Regional Flood Frequency method to predict 50- and 100-year flood magnitude during Winter Flood season - 5 LOCAL GAGES

Recurrence Interval	Flow at Salt Flat Bridge	Flow at Bucktail Bridge	Flow at Poker Bar Bridge	Flow at Treadwell Bridge	Flow at Douglas City
50 yr	5,164 cfs	5,459 cfs	11,177 cfs	11,781 cfs	36,724 cfs
100 yr	6,076 cfs	6,425 cfs	13,215 cfs	13,933 cfs	43,550 cfs

Table 14. Summary of OPTION B: 50- and 100-year flood magnitudes at Trinity River bridges assuming 6000 cfs SOD release from Lewiston Dam

WINTER FLOOD SEASON

Method 1: Regional Regression Equations to predict 50- and 100-year flood magnitude during Winter Flood season

Recurrence Interval	Flow at Salt Flat Bridge	Flow at Bucktail Bridge	Flow at Poker Bar Bridge	Flow at Treadwell Bridge	Flow at Douglas City
50 yr	14,139 cfs	14,594 cfs	21,959 cfs	22,828 cfs	52,137 cfs
100 yr	15,788 cfs	16,318 cfs	25,404 cfs	26,412 cfs	60,961 cfs

Method 2: Additive Tributary Model method to predict 50- and 100-year flood magnitude during Winter Flood season

Recurrence Interval	Flow at Salt Flat Bridge	Flow at Bucktail Bridge	Flow at Poker Bar Bridge	Flow at Treadwell Bridge	Flow at Douglas City
50 yr	9,342 cfs	15,342 cfs	15,135 cfs	21,135 cfs	38,313 cfs
100 yr	10,071 cfs	16,071 cfs	17,556 cfs	23,556 cfs	44,971 cfs

Method 3a: Unit Runoff method to predict 50- and 100-year flood magnitude during Winter Flood season - 3 LOCAL SMALL GAGES

Recurrence Interval	Flow at Salt Flat Bridge	Flow at Bucktail Bridge	Flow at Poker Bar Bridge	Flow at Treadwell Bridge	Flow at Douglas City
50 yr	12,258 cfs	12,643 cfs	20,299 cfs	21,128 cfs	58,895 cfs
100 yr	13,817 cfs	14,287 cfs	23,416 cfs	24,381 cfs	64,399 cfs

Method 3b: Unit Runoff method to predict 50- and 100-year flood magnitude during Winter Flood season - 5 LOCAL GAGES

Recurrence Interval	Flow at Salt Flat Bridge	Flow at Bucktail Bridge	Flow at Poker Bar Bridge	Flow at Treadwell Bridge	Flow at Douglas City
50 yr	12,785 cfs	13,180 cfs	20,601 cfs	21,356 cfs	47,777 cfs
100 yr	14,207 cfs	14,685 cfs	23,639 cfs	24,547 cfs	56,129 cfs

Method 4a: Regional Flood Frequency method to predict 50- and 100-year flood magnitude during Winter Flood season - 3 LOCAL SMALL GAGES

Recurrence Interval	Flow at Salt Flat Bridge	Flow at Bucktail Bridge	Flow at Poker Bar Bridge	Flow at Treadwell Bridge	Flow at Douglas City
50 yr	10,311 cfs	10,700 cfs	20,085 cfs	21,251 cfs	89,374 cfs
100 yr	11,178 cfs	11,645 cfs	22,918 cfs	24,319 cfs	106,141 cfs

Method 4b: Regional Flood Frequency method to predict 50- and 100-year flood magnitude during Winter Flood season - 5 LOCAL GAGES

Recurrence Interval	Flow at Salt Flat Bridge	Flow at Bucktail Bridge	Flow at Poker Bar Bridge	Flow at Treadwell Bridge	Flow at Douglas City
50 yr	10,864 cfs	11,159 cfs	16,877 cfs	17,481 cfs	42,424 cfs
100 yr	11,776 cfs	12,125 cfs	18,915 cfs	19,633 cfs	49,250 cfs

location. As a means to evaluate the predictive accuracy of the regional regression equations to local streams, we applied the regional regression equations for the North Coast to the Grass Valley Creek near Fawn Lodge flood frequency curve (Figure 3) and the Trinity River above Coffee Creek flood frequency curve (Figure 8). This comparison suggests that the regional regression equations over predict flood magnitude at all flood recurrence intervals at these two "measured" locations, particularly at the Grass Valley Creek gaging station. Additionally, the method gives very large flood magnitude predictions at the Salt Flat and Bucktail bridges compared to the other methods, suggesting the bias described above is the source of these overly large predictions. Therefore, we give the flood magnitude predictions from this method a low ranking.

5.1.2. Method 2: Additive Tributary Model

The Additive Tributary Model method is not a standard approach, and the substantial list of simplifying assumptions reduces the confidence in the flood magnitude predictions. Ignoring flood routing, small tributary contributions, and alignment of flood peaks are the primary sources of uncertainty. Using the Trinity River near Burnt Ranch gaging station as a calibration point is useful in concept, but is so far downstream from our reach that the value of the calibration is dubious. Therefore, we give the flood magnitude predictions from this method a low-moderate ranking.

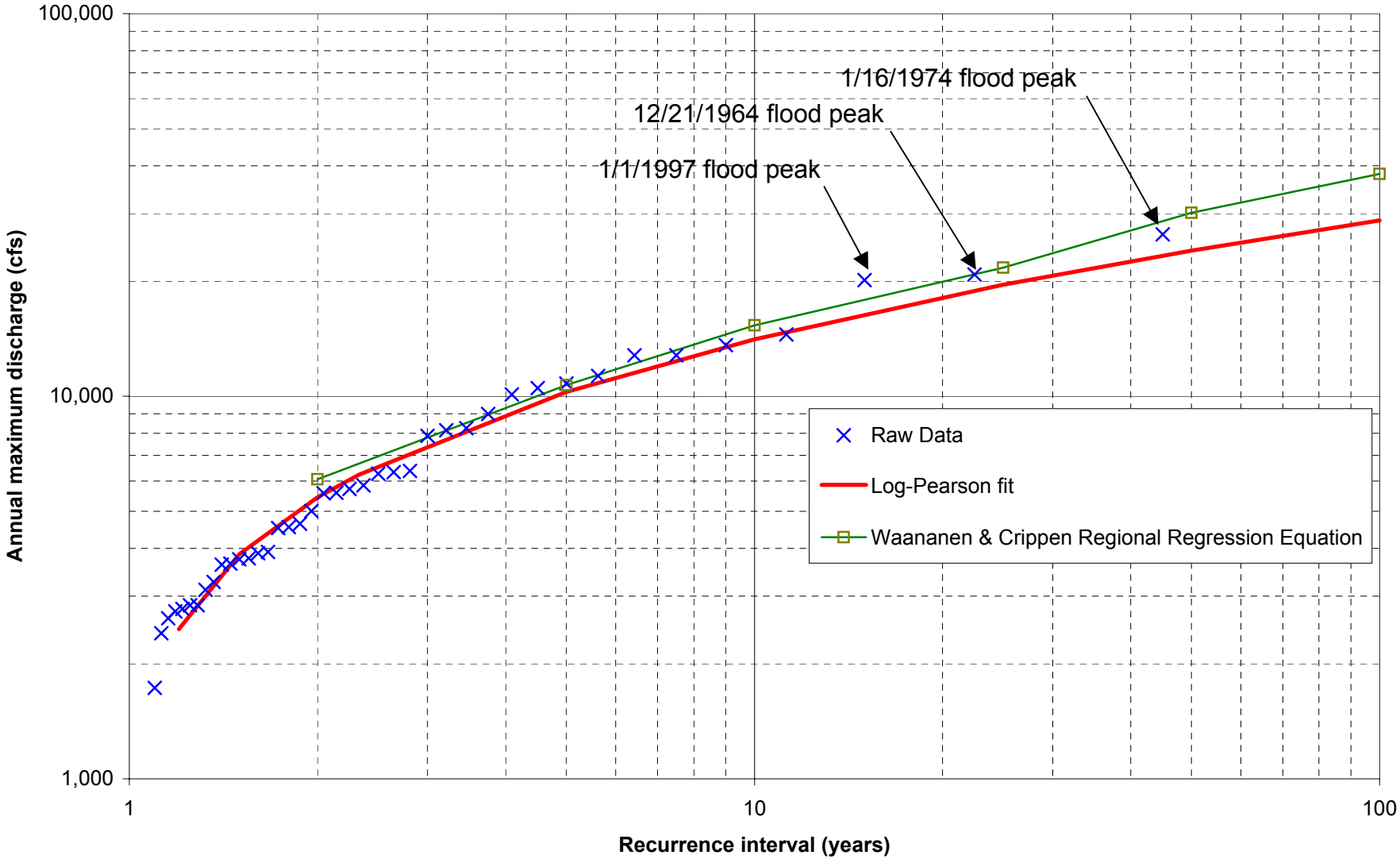
5.1.3. Method 3: Unit Runoff Method

The Unit Runoff method using the three smaller gaging stations provides good flood magnitude predictions because the gages are nearby, have long periods of record, have similar precipitation and runoff patterns, and have similar drainage areas as the four bridge locations. Adding the two additional gages provide additional period of record, but they are much larger watersheds and are not as local as the three smaller gages. These two additional gages cause the regression equation to predict a higher unit-runoff value than just using the three smaller gages alone. A weakness in the Unit Runoff method is that watershed elevation and precipitation is not an explicit variable, and must be accounted for in choosing appropriate local gages with similar elevation and precipitation. The choice of Grass Valley Creek, Trinity River above Coffee Creek, and the North Fork Trinity River near Helena bracket the drainage areas at the bridges, and provide consistent unit runoff values for the 50- and 100-year flood. The Unit Runoff method accounts for all watershed area at the bridge locations, and routing mechanisms are accounted for in the unit-runoff predictions. Therefore, we prefer the three-gage approach, and give the flood magnitude predictions from this method a high ranking.

5.1.4. Method 4: Regional Flood Frequency Method

The Regional Flood Frequency method uses regional drainage area-to-mean flood peak magnitude relationships to modify variables in the Log Pearson III flood frequency computation. As with the Unit Runoff method, groups of local and regional gages are used to develop the drainage area-to-mean flood peak magnitude relationships, so there are tradeoffs between low numbers of very local gages to expanding to larger numbers of more regional gages. The effective period of record shown in Table 10, combined with the "localness" of the gages used, can guide which group provides a better flood

Figure 8. Trinity River above Coffee Creek (USGS Gage #11-523200) flood frequency analysis



magnitude estimate. Based on this possible criterion, the three gage and five gage groups are preferable. Going beyond this delineation is more difficult because we do not have extensive experience using this method. In comparing with the Unit Runoff method, the deviation in predicted log mean values as a function of drainage area appears to be much larger (factor of 2) than the deviation in predicted unit runoff as a function of drainage area (appx 6% maximum), which would add uncertainty to flood magnitude predictions. The predicted 100-year flood magnitude predictions using the three gages (Table 12) are 33% smaller than the Unit Runoff Method predictions for the two upstream bridges; however, for the two downstream bridges, the 100-year predictions are functionally exactly the same as those predicted by the Unit Runoff Method predictions. Therefore, we give the flood magnitude predictions from this method a moderate to high ranking.

5.2. Comparison of 3-gage unit runoff prediction with ACOE (1976) study

The predicted 100-year flood magnitudes from this report are compared with those predicted in FEMA (1996). The FEMA 100-year flood magnitudes on Grass Valley Creek and along the Trinity River are listed in Table 14. The FEMA 100-year flood due to tributary accretion is estimated by subtracting 8,200 cfs as shown in Table 15, and can be compared to the varying modeling predictions summarized in Table 13. Using the Unit Runoff method with 3-gages as a preliminary preferred method, we compared the results with that predicted by the Corp of Engineers (Table 15). The longitudinal flood frequency estimates are quite different, and deserve some attention. Unfortunately, the FEMA flood estimate computations are unavailable and cannot be duplicated. A primary limitation in their analysis, assuming that they used regional gaging stations in their flood magnitude estimates, is the short period of record available (only up through 1973 if they used the regional regression equations) and the absence of the 26 years of record at the Grass Valley Creek gaging station (1976-2001).

Table 15. 100-year flood magnitude estimates based on FEMA (1996).

Location	FEMA 100-yr Flood Flow Estimate	FEMA 100-yr Flood Flow Estimate assuming Lewiston Release=300 cfs	Predicted 100-yr Flood Flow Estimate using 3-gage Unit Runoff method
Lewiston Dam	8,500 cfs	300 cfs	300 cfs
Salt Flat/Bucktail Bridges	20,500 cfs	12,300 cfs	8,587 cfs @ Bucktail
Grass Valley Creek	12,000 cfs	N/A	N/A
Poker Bar/Treadwell Bridge	32,500 cfs	24,300 cfs	18,681 cfs @ Treadwell
Douglas City (downstream of Browns Creek)	38,500 cfs	30,300 cfs	58,699 cfs

Our 100-year flood magnitude estimates are substantially lower than the FEMA numbers at the bridge locations, then larger at the discontinued USGS Douglas City gaging station. First observe the longitudinal trend of the FEMA estimates. The only sizable tributaries contributing flow to the Salt Flat and Bucktail bridges are Deadwood Creek (DA=8.9 mi^2), Hoadley Gulch (DA= 3.8 mi^2), and Rush Creek (DA=22.7 mi^2). The total unregulated drainage area from Lewiston Dam to the Salt Flat Bridge is 40 mi^2 (including minor tributaries), such that the FEMA 100-year flood contribution would be 300 cfs/mi^2. By comparison, the 100-yr flood estimate for the Trinity River above Coffee Creek

(DA=149 mi^2, n=44 years) is 28,800 cfs, for a unit-runoff of only 193 cfs/mi^2, and Grass Valley Creek only has a unit runoff of 195 cfs/mi^2 for the 100-year flood. It seems unlikely that Rush Creek and smaller tributaries could contribute 300 cfs/mi^2 during a 100-yr flood due to their small drainage areas. If the FEMA flood magnitudes at Salt Flat and Bucktail bridges are conservatively large, then they would also be conservatively large at the Poker Bar and Treadwell bridges. The 12,000 cfs accumulation between these two locations from Grass Valley Creek is also large for the drainage area. The drainage area between the Salt Flat Bridge and the Poker Treadwell Bridge is 53 mi^2, such that the FEMA 100-year flood contribution is 226 cfs/mi^2. While this unit-runoff value is more reasonable, it still seems too high. The largest increase in drainage area occurs between the Treadwell Bridge location and Douglas City gage as Indian Creek, Weaver Creek, Reading Creek, and Browns Creek all contribute to mainstem Trinity River flood flows. The 100-year flood magnitude contributed by the watershed between Treadwell Bridge and the Douglas City site (6,000 cfs) seems very small compared to the substantial increase in drainage area (201 mi^2 for a unit runoff of only 30 cfs/mi^2). Therefore, the FEMA flood magnitude estimates probably need revisiting to incorporate the additional gaging period of record, availability of the Grass Valley Creek gage, and the distribution of drainage area contribution to the mainstem Trinity River.

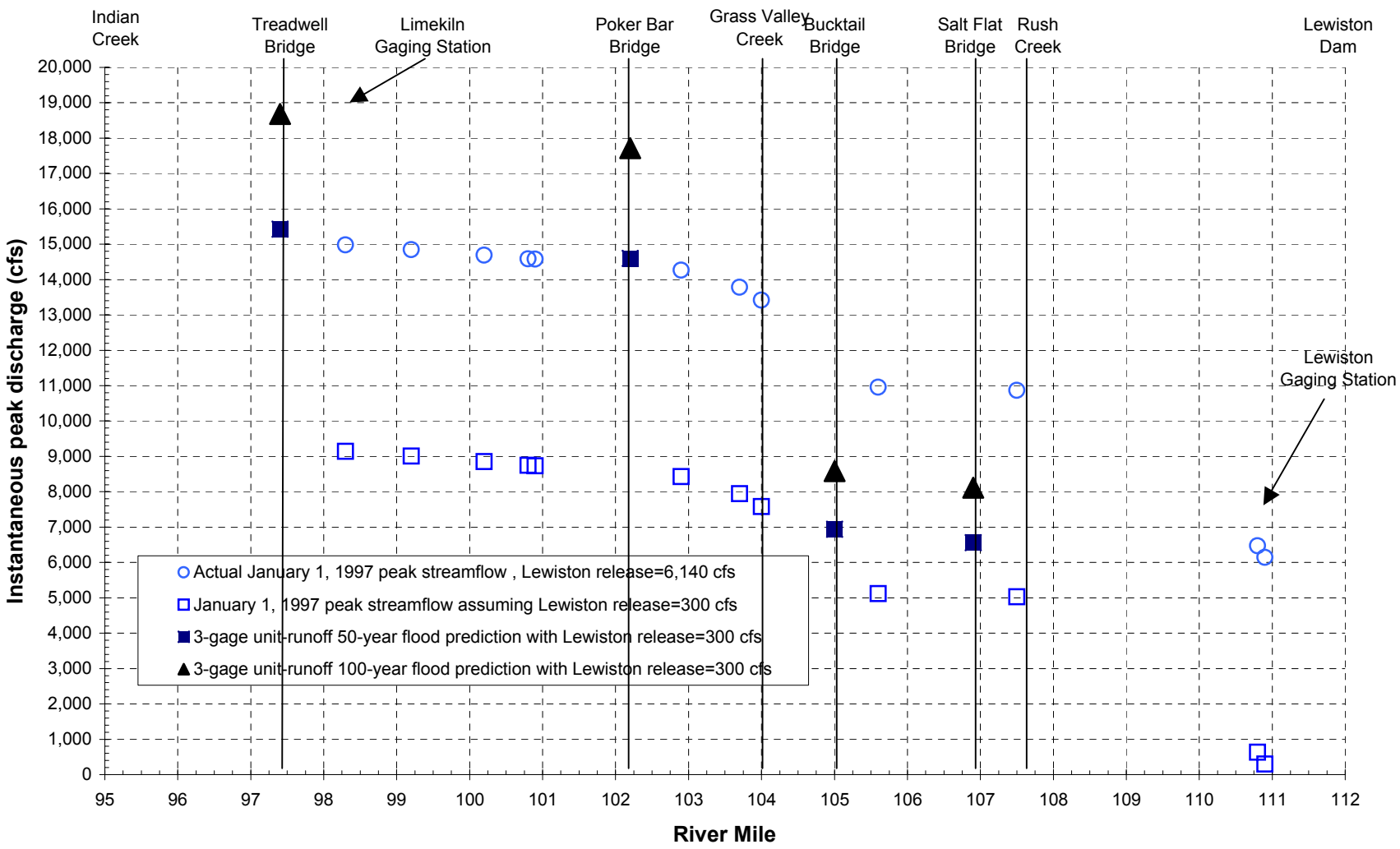
5.3. Comparison of 3-gage unit runoff prediction with the January 1997 flood

The January 1997 flood was a moderate intensity, warm, rain-on-snow flood that caused large flows on the higher elevation watersheds and moderate floods on the lower elevation rainfall dominated watersheds. The peak of the flood on Rush Creek occurred almost exactly on midnight of January 1, 1997, and the peak on Grass Valley Creek occurred at approximately the same time. The corresponding mainstem release at Lewiston Dam was approximately 6,140 cfs. We evaluated the longitudinal magnitude of the 1997 flood using a series of gaging stations and site-specific hydraulic estimates (Figure 9), resulting in estimated flood peak of approximately 11,000 cfs at the Salt Flat Bridge and Bucktail Bridge, and approximately 15,000 cfs at the Poker Bar Bridge and Treadwell Bridge.

In order to estimate the magnitude of the 1997 flow at the bridges if flow releaes were 300 cfs instead of the actual 6,140 cfs release from Lewiston Dam, we subtract 5,840 cfs from each longitudinal node (subtract 6,140 cfs Safety of Dam release and add 300 cfs typical baseflow release). Resulting flows due to tributary contributions only would be approximately 5,100 cfs at the Salt Flat Bridge and Bucktail Bridge and 9,000 cfs at the Poker Bar Bridge and Treadwell Bridge (Figure 9). Comparing these 1997 tributary derived flood magnitudes with the Unit Runoff method predictions suggests that the 1997 flood was approximately 65% of the 100-year flood prediction at the Salt Flat Bridge, 62% at the Bucktail Bridge, 52% at the Poker Bar Bridge, and 49% at the Treadwell Bridge. The percentages likely decrease in the downstream direction because the 1997 flood on Grass Valley Creek was only a 10-year recurrence event, causing the deviation between the 1997 flood and predicted 100-year event magnitude to increase.

To put the 1997 flood into perspective, we evaluated the magnitude of the flood at nearby regional gaging stations. Regional flood frequency estimates of the 1997 flood vary with

Figure 9. Predicted Trinity River 50-year and 100-year annual maximum flood magnitude assuming Lewiston Dam 300 cfs release and 3-Gage Unit-Runoff method.



the watershed. Using a re-constructed 145-year period of record of 1-day volume based on mean daily flows (pre-dam values from USGS gaging station, post-dam values from USBR inflow computations), the 1997 flood was greater than a 100-year flood (Reclamation, in press). However, using the shorter 26-year period of record at the rainfall runoff dominated Grass Valley Creek, the 1997 flood was only a 10-year flood using the annual instantaneous maximum values. The same flood frequency analysis of was performed on two snowmelt-dominated streams that drain the Trinity Alps. At the Trinity River above Coffee Creek (gage elev. = 2,537 ft, n = 44 years), the predicted frequency of the 1997 flood was approximately a 27-year flood (Figure 8), while at the Salmon River at Somes Bar (gage elev. = 483 ft, n = 76 years), the predicted frequency of the 1997 flood was approximately a 40-year flood (Figure 10). The predicted recurrence intervals of the 1997 flood (10 to 40-year recurrence) are all much less than that predicted by the flood frequency analysis of daily average inflows at Lewiston (> 100 years, Reclamation, in press), although the period of record at the Lewiston measurement point is longer (84 years) than any of the tributary stations (Table 16). Therefore, designing the bridges to accommodate cumulative predicted 100-year tributary flood magnitudes from Rush Creek and Grass Valley Creek should provide protection well above that observed during the 1997 flood.

Table 16. Comparison of 1997 flood on regional streams with 50 and 100-year flood magnitudes.

Tributary	1997 peak	Estimated 1997 flood recurrence	50-yr flood	100-yr flood
Grass Valley Creek	2,460 cfs	10 year[a]	4,800 cfs[a]	6,022 cfs[a]
Trinity River abv Coffee Creek	20,100 cfs	27 year	24,000 cfs[a]	28,800 cfs[a]
Salmon River at Somes Bar	70,800 cfs	40 year	73,200 cfs[b]	84,800 cfs[b]
Rush Creek	4,400 cfs	>100 year[c]	3,200 cfs[c]	3,800 cfs[c]
Trinity River at Lewiston	75,765 cfs	143 year	56,800 cfs[d]	68,000 cfs[d]

[a] from Log-Pearson III fit of USGS annual instantaneous peak discharge values
[b] from Log-Pearson III fit of USGS annual instantaneous peak discharge values, Dec 1964 flood adjusted
[c] from Unit-conversion of regional regression equations; a 100-yr event if using Unit-Runoff method
[d] from USBR (in press) Log-Pearson III fit of USGS and USBR annual maximum daily average discharge values

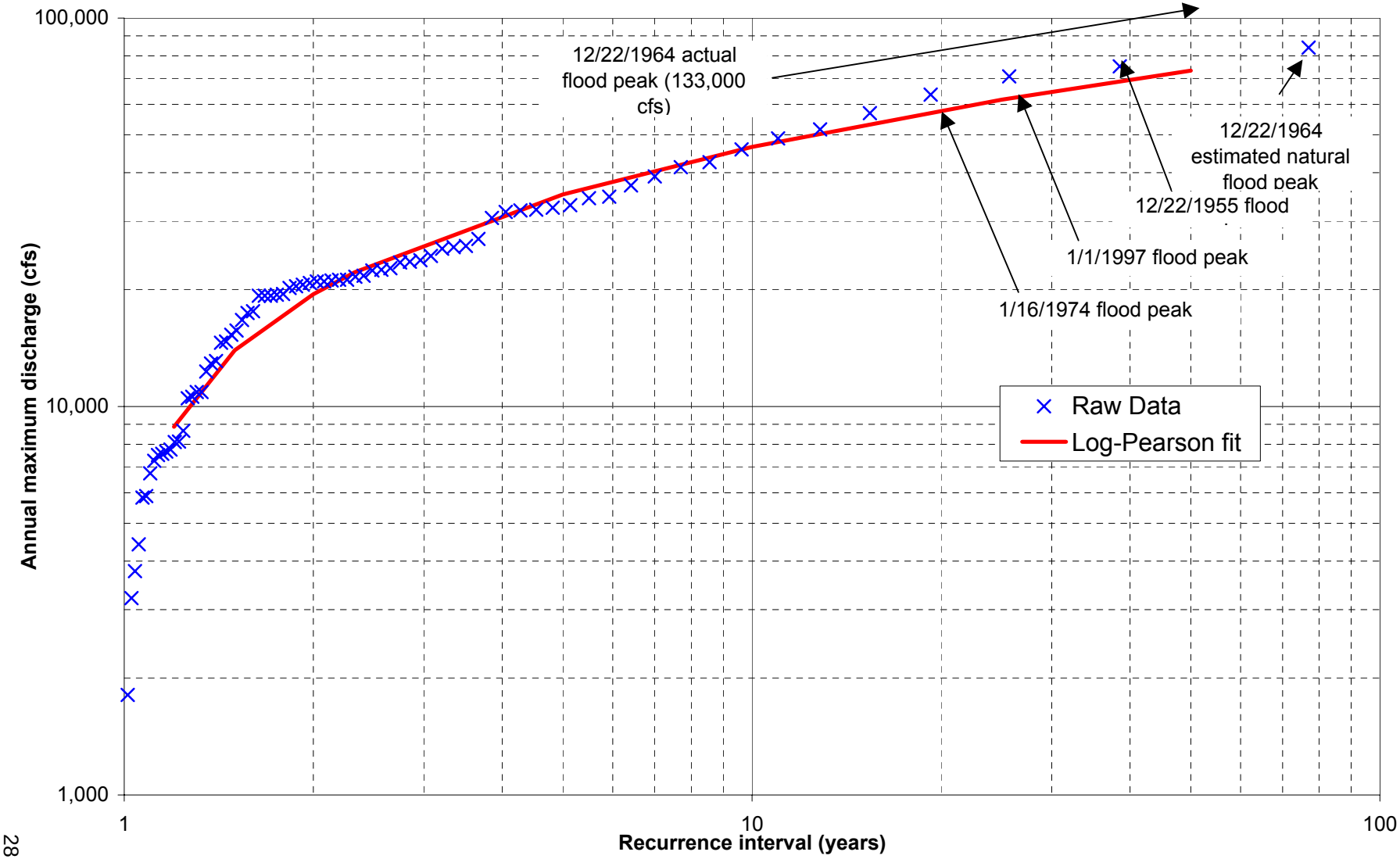
5.3.1. Summary

We recommend using the 50 and 100-year flood magnitude results predicted by the three-gage Unit-Area Method. These results are summarized in Table 17.

Table 17. Recommended 50 and 100-year flood magnitude estimates at the four bridges using the three-gage Unit Area Method (results have been rounded from Table 13 and Table 14).

Location	50-yr flood, Lewiston release=300 cfs	100-yr flood, Lewiston release=300 cfs	50-yr flood, Lewiston release=6,000 cfs	100-yr flood, Lewiston release=6,000 cfs
Salt Flat Bridge	6,550 cfs	8,120 cfs	12,250 cfs	13,820 cfs
Bucktail Bridge	6,950 cfs	8,590 cfs	12,650 cfs	14,290 cfs
Poker Bar Bridge	14,600 cfs	17,700 cfs	20,300 cfs	23,400 cfs
Treadwell Bridge	15,400 cfs	18,700 cfs	21,100 cfs	24,400 cfs

Figure 10. Salmon River at Somes Bar (USGS Gage #11-522500) flood frequency analysis



6. SNOWMELT RUNOFF SEASON

As done for the winter flood season, we applied the Unit Runoff of 50- and 100-year tributary accretion at each of the bridges, but only for the May-June snowmelt runoff season. USGS does not publish peak values during the snowmelt runoff season, so we initially used maximum daily average value for the May-June period for each year, then adjusted this daily value to represent a peak value for that day. Kamman (1999) evaluated differences between daily averages and daily peak values on Grass Valley Creek during the snowmelt season, and suggests using an average conversion value of 1.33. We computed the 50- and 100-year flood magnitude for Rush Creek, Grass Valley Creek, and the remaining drainage area between Lewiston Dam and the bridge of interest using the Unit Runoff method, and then add the three flow magnitudes together to get an estimate at each bridge. This assumes that peak snowmelt flows occur at the same time, are additive, and there is no flood peak attenuation. However, comparing recent annual hydrographs between Rush Creek and Grass Valley Creek shows that there are still significant deviations in the timing of the maximum daily flow during this period due to regional differences (Figure 11 and 12).

While Rush Creek has been gaged since 1996, the period of record is too short to extrapolate to the 50- and 100-year flood magnitude estimates. The period of record at Grass Valley Creek is longer (26 years), but still short enough to make it difficult to predict a 50 or 100-year flood with a high level of confidence. Regardless, Grass Valley Creek is our best data source, and was used. We first tabulated the maximum daily average flow for the May-June period, multiplied by 1.33 to convert to daily peak value, and fit the data to the Log Pearson III distribution to predict the 50- and 100-year flood magnitude. We were concerned about applying the generalized skew value used in the annual peak flow analysis to the distribution of snowmelt high flow events, so we investigated the May-June maximum daily average value skew of nearby gages. The skew at the pre-dam Trinity River at Lewiston station was –1.05, at Grass Valley Creek near Fawn Lodge was +0.99, and at the NF Trinity River near Helena was +0.13. This large range provided no trend in appropriate generalized skew to use in the Log Pearson III computations, so we chose to apply the same generalized skew as used in the annual maximum flood frequency computations (-0.30). Applying this method results in a 50-year May-June flow magnitude of 499 cfs, and a 100-year May-June flow magnitude of 637 cfs (Table 18).

To test the sensitivity of the generalized skew value to predictions, we computed the 50 and 100-year May-June flow predictions assuming the measured skew at the Grass Valley Creek gage (+0.99) is a more appropriate skew estimate for the population of data. This increased predicted 50 and 100-year May-June flow to 636 cfs and 902 cfs, respectively. Carrying this through to the downstream tributaries results in a 50- and 100-year flow prediction of 1,613 cfs and 2,219 cfs at the Treadwell Bridge, which can be compared to corresponding predictions of 1,370 cfs and 1,746 cfs using a generalized skew of -0.30 (Table 18). These flood magnitudes could be used as a conservative estimate; however, a substantial safety factor is already built into the computations of flow magnitude at the bridges because we assume that the maximum peak flow occurs at the same time for all tributaries, and occurs at the same time as a Record of Decision flow

Figure 11. Rush Creek Annual Hydrograph for Water Year 1998 (Extremely Wet).

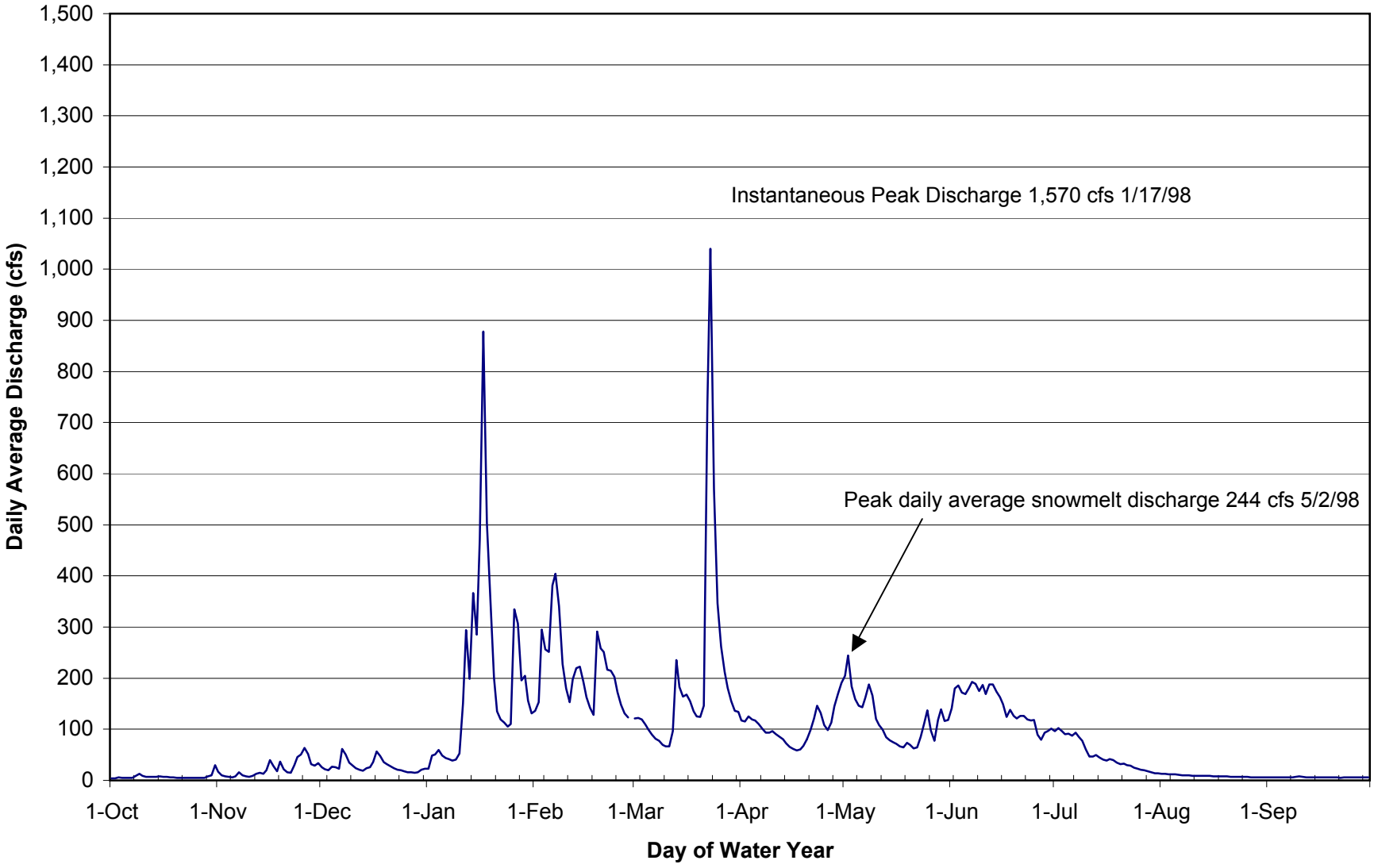
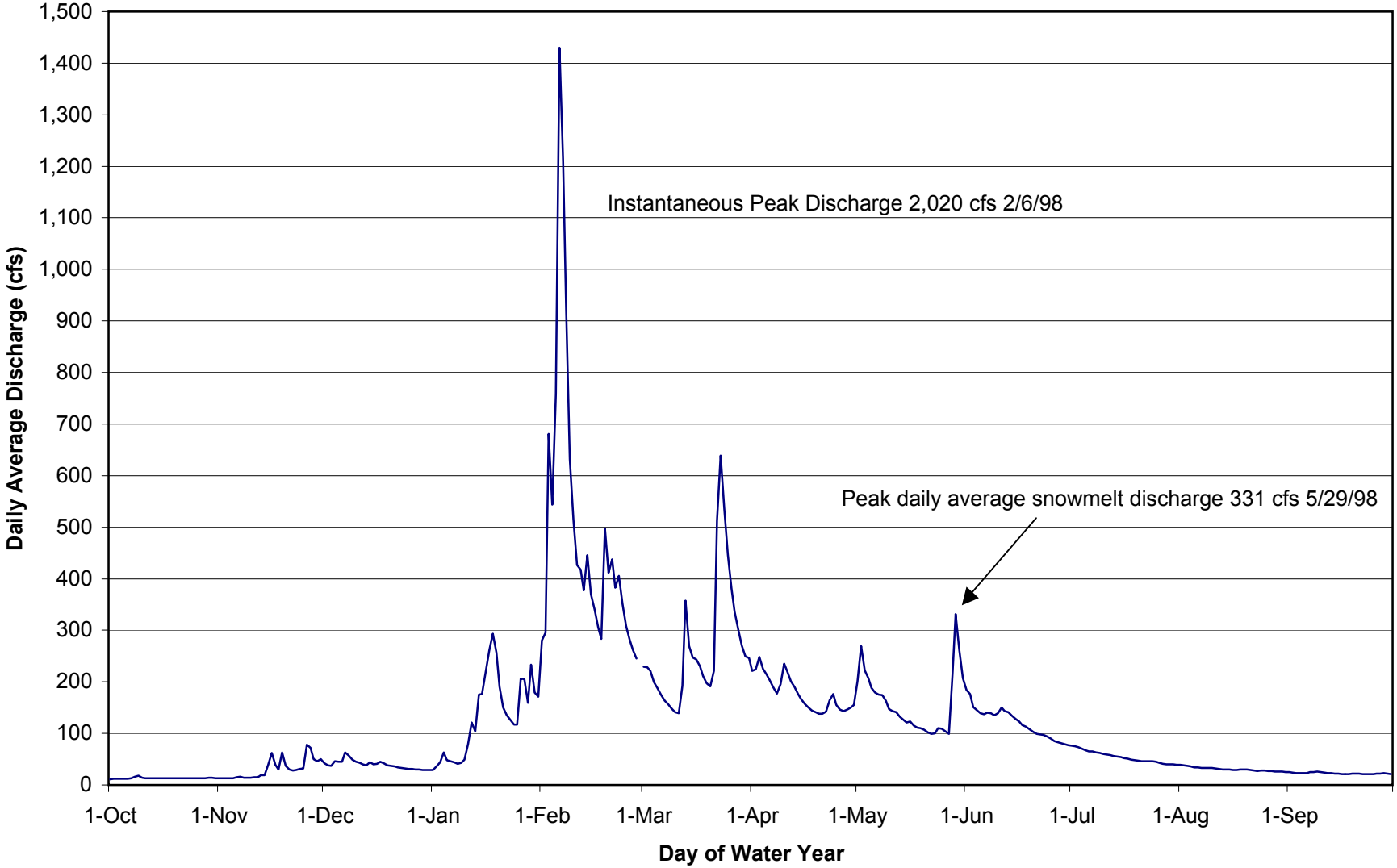


Figure 12. Grass Valley Creek at Fawn Lodge (USGS Station # 11525600)
Annual Hydrograph for Water Year 1998 (Extremely Wet)



release. As shown in the 1998 hydrographs in Figures 11 and 12 (Extremely Wet year, largest May-June peak flow over 27 years of record at the Grass Valley Creek gage), the peaks were approximately four weeks apart. Therefore, we used the predicted May-June flow values as shown in Table 18.

Table 18. Predicted maximum peak flow values for bridges during the May-June snowmelt runoff season using -0.30 generalized skew (assumes Lewiston Dam release = 0 cfs).

		50-year May-June peak flow magnitude	100-year May-June peak flow magnitude
SALT FLAT BRIDGE			
	Rush Creek	336 cfs	428 cfs
	Cumulative smaller tributaries	256 cfs	326 cfs
	TOTAL AT SALT FLAT BRIDGE:	**592 cfs**	**754 cfs**
BUCKTAIL BRIDGE			
	Rush Creek	336 cfs	428 cfs
	Cumulative smaller tributaries	291 cfs	464 cfs
	TOTAL AT BUCKTAIL BRIDGE:	**627 cfs**	**800 cfs**
POKER BAR BRIDGE			
	Rush Creek	336 cfs	428 cfs
	Grass Valley Creek	547 cfs	698 cfs
	Cumulative smaller tributaries	432 cfs	551 cfs
	TOTAL AT POKER BAR BRIDGE:	**1,315 cfs**	**1,676 cfs**
TREADWELL BRIDGE			
	Rush Creek	336 cfs	428 cfs
	Grass Valley Creek	547 cfs	698 cfs
	Cumulative smaller tributaries	504 cfs	643 cfs
	TOTAL AT TREADWELL BRIDGE:	**1,387 cfs**	**1,769 cfs**

Rather than using regional regression curves to Rush Creek (a mis-application since we are assessing May-June flows rather than annual instantaneous peak flows), we simply performed a unit area drainage area adjustment from the Grass Valley Creek 50 and 100-year flood magnitudes to estimate 50 and 100-year flood magnitudes on Rush Creek:

$$Q_{50rushmayjune} = Q_{50gvcmayjune} *(A_{rush}/A_{gvc})^{1.0}$$
$$Q_{100rushmayjune} = Q_{100gvcmayjune} *(A_{rush}/A_{gvc})^{1.0}$$

Where $A_{rush} = 22.7\ mi^2$ and $A_{gvc} = 30.8\ mi^2$. An exponent of 1.0 is used instead of 0.87 (used for annual peak analysis) because we do not know if the 0.87 value is applicable for the snowmelt runoff flows. The drainage area at each bridge not accounted for in the Grass Valley Creek and Rush Creek watersheds were also multiplied by the unit runoff values:

$$Q_{50tribsmayjune} = Q_{50gvcmayjune} *(A_{tribs}/A_{gvc})^{1.0}$$
$$Q_{100tribsmayjune} = Q_{100gvcmayjune} *(A_{tribs}/A_{gvc})^{1.0}$$

The resulting 50- and 100-year May-June peak flow estimates for Rush Creek and the additional smaller tributaries are shown in Table 18, as are the resulting flow estimates at each bridge location.

These flow magnitudes were added to the two May-June Lewiston Dam release scenarios, and results are shown in Table 19. If Lewiston Dam is releasing 11,000 cfs for an Extremely Wet year at a time when a 100-year snowmelt runoff is peaking (a conservative assumption), the corresponding mainstem flows would be 11,754 cfs at the Salt Flat Bridge, 11,800 cfs at the Bucktail Bridge, 12,676 cfs at the Poker Bar Bridge, and 12,769 cfs at the Treadwell Bridge. If Lewiston Dam is releasing 13,750 cfs for a Safety of Dams release at a time when a 100-year snowmelt runoff is peaking (again, a conservative assumption), the corresponding mainstem flows would be 14,504 cfs at the Salt Flat Bridge, 14,550 cfs at the Bucktail Bridge, 15,426 cfs at the Poker Bar Bridge, and 15,519 cfs at the Treadwell Bridge.

6.1. Comparing the 1998 snowmelt runoff with flood frequency analysis results

We again used a recent high flow year to ground truth our 50 and 100-year flood estimates. For the snowmelt runoff period, we used 1998 because it was the second largest water year in record for the Trinity River (n=88 years, 1912-1999), and we had daily average discharge records for both Grass Valley Creek and Rush Creek for 1998. The maximum daily average discharge in 1998 for Rush Creek was 244 cfs on May 2 (Figure 11), and was 331 cfs for Grass Valley Creek May 29 (Figure 12). Multiplying these daily average values by 1.33 results in estimated peak values of 325 cfs for Rush Creek, and 441 cfs for Grass Valley Creek. These estimates are much smaller than the 50-year flood prediction shown in Table 18.

To further evaluate the predicted 50 and 100 year flood magnitudes shown in Table 18, we evaluated additional 1998 indices of Trinity Reservoir inflows (period of record = 88 years): Maximum daily average, Maximum volume over the May-June period, and Maximum yearly inflow. Results of the 1998 inflows were as follows: 1) the maximum May-June daily average flow for WY 1998 was the fifth largest (15,400 cfs), with an approximate flood recurrence of 17 years, 2) the runoff volume over the May-June period for WY 1998 was the second largest (922,300 acre-ft), with an approximate 50 year recurrence interval, and 3) the total water yield for WY 1998 was also the second largest (2,701,000 acre ft), with an approximate 50 year recurrence interval. These results suggest that our estimates of the 50- and 100-year May-June snowmelt runoff magnitudes on Rush Creek and Grass Valley Creek are conservatively large; designing the bridges to convey the predicted 50- and 100-year May-June flow peaks will most likely provide a moderate safety factor.

Table 19. Summary of OPTION C and D: 50- and 100-year flood magnitudes at Trinity River bridges assuming an 11,000 cfs and 13,750 cfs ROD release from Lewiston Dam

MAY/JUNE SNOWMELT RUNOFF SEASON

Option C: Release 11,000 cfs ROD flow on top of 50- and 100-year flood magnitude during May-June snowmelt runoff season

Recurrence Interval	Flow at Salt Flat Bridge	Flow at Bucktail Bridge	Flow at Poker Bar Bridge	Flow at Treadwell Bridge	Flow at Douglas City
50 yr	11,592 cfs	11,627 cfs	12,315 cfs	12,387 cfs	Not Computed
100 yr	11,754 cfs	11,800 cfs	12,676 cfs	12,769 cfs	Not Computed

Option D: Release 13,750 cfs SOD or ROD flow on top of 50- and 100-year flood magnitude during May-June snowmelt runoff season

Recurrence Interval	Flow at Salt Flat Bridge	Flow at Bucktail Bridge	Flow at Poker Bar Bridge	Flow at Treadwell Bridge	Flow at Douglas City
50 yr	14,342 cfs	14,377 cfs	15,065 cfs	15,137 cfs	Not Computed
100 yr	14,504 cfs	14,550 cfs	15,426 cfs	15,519 cfs	Not Computed

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Appendix G

DRAFT DOCUMENT (August 23, 2004)

Revegetation Plan for Hocker Flat

Introduction

Current average annual flows (~ 1.5 yr recurrence) in the mainstem of the Trinity River are estimated at ≥ 6,000 cubic feet per second (cfs). These flows are generally enough to mobilize the river bed at most locations. Because the Trinity River Diversion (TRD) was completed in 1964, the post-dam flow regime is incapable of inhibiting riparian vegetation encroachment along the 40 miles of the mainstem below Lewiston Dam. The Trinity River Flow Evaluation Final Report (TRFEFR) and other studies have clearly quantified the simplification of channel geometry caused by riparian vegetation encroachment. Conditions along the mainstem will only improve by implementation of physical (hydrological and geomorphic) and biological restoration activities at proposed bank rehabilitation sites identified in the TRFEFR, the programmatic Trinity River Mainstem Fishery Restoration Environmental Impact Statement /Environmental Impact Report (FEIS/EIR) and the Record of Decision (ROD). The ROD's Implementation Plan indicates that there will be no net loss of riparian habitat as a result of restoration activities, but leaves the structure, location and species composition of "replaced" vegetation to be determined as site specific restoration questions are addressed during project implementation. Through these physical, hydrologic and biologic activities the desired complexity of riverine and riparian environment will be restored at Hocker Flat with the explicit goal of creating diverse habitats for salmonids at a wide range of streamflows for juvenile fish.

Environmental Compliance and Mitigation

Compliance with FEIS/EIR recommendations for riparian habitat mitigation

During public review of the Draft EIS/EIR, agencies reviewed the document and commented. Excerpts from the California Department of Fish and Game (CDFG's) comments included:

"the loss of riparian vegetation removed during the one time mechanical restoration of 47 sites identified in the Preferred Alternative should be quantified and mitigated. The State's Wetland Policy is to achieve "no net loss" in the quality of wetland/riparian habitats….."

"The existing vegetation is a resource that supports numerous wildlife species and requires quantification and mitigation" Although the preferred alternative is expected to eventually relocate riparian vegetation from the bank side areas to terraces higher on the floodplain, there will be a short-term loss. We would propose a mitigation effort that combines the spawning gravel placement element of the project with wetland creation"

The FEIS/EIR responded that the "EIS/EIR is intended to provide only the first tier review for the mechanical rehabilitation projects…….Thus, quantification of vegetation removed would occur on a site – specific basis prior to the mechanical rehabilitation projects"

For the specific needs at Hocker Flat, the TRRP has interpreted and met CDFG recommendations. For every 1 acre of riparian vegetation removed, 1 acre of comparable riparian vegetation will be replaced such that there will always be no net loss in quality (= structure + function + wildlife value) of riparian habitat.

Based on discussions at the 22 July 2004 meeting for the Hocker Flat EA (Environmental Assessment), CDFG determined that a 1:1 area replacement of vegetated riparian area (no-net loss of wetland/riparian habitat) can reasonably be accomplished by revegetation of appropriate areas of the constructed floodplain at a 50% density. This process would use a series of pod plantings (20 ft x 20 ft pods spaced every 4 ft) consisting of a diverse suite of native riparian plants (**Fig. 1**).

The actual surface area encompassed by the pods would be half (1/2) of the impacted riparian habitat. The pattern of spacing within and between pods is designed to: (1) increase the diversity of riparian plant species on constructed floodplains; (2) facilitate additional natural revegetation of constructed surfaces;

(3) minimize invasion of exotic/weedy plants onto the constructed surfaces; and (4) create a diversified and patchy riparian stand on constructed floodplain surfaces.

Compliance with Section 404, Clean Water Act

U.S. Army Corp of Engineer (ACE) nationwide permits for conserving jurisdictional wetland habitats commonly requires a 3:1 woody stem mitigation ratio of wetland vegetation (i.e., for every 1 tree/stem of wetland vegetation removed 3 trees/stems will be used to replace it). Also, CDFG usually recommends a 3:1 woody stem mitigation ratio of wetland vegetation to ensure adequate plant survival and no net loss in quality (= structure + function + wildlife value) of wetland habitats.

However, at the 22 July 2004 meeting for the Hocker Flat EA, it was the consensus of the agencies present that the Trinity River mainstem was largely (>100%) encroached by relatively homogeneous and monotypic stands of riparian vegetation relative to pre-dam conditions. Therefore, identifying riparian trees and shrubs according to the standard 3:1 ratio of woody stems replaced versus removed was deemed unnecessary. Instead, mitigation requirements were determined to be based on the acreage of jurisdictional wetlands as opposed to numbers of plants/stems impacted during project activities (i.e., a 1:1 area replacement of riparian vegetation to meet the *no net loss of riparian habitat* - as outlined above under the section "**Compliance With Current FEIS/EIR Recommendations for Riparian Habitat Mitigation**.") Similarly, it was agreed that minimum mitigation requirements for impacts to jurisdictional wetlands would also follow procedures outlined above under "**Compliance With Current FEIS/EIR Recommendations for Riparian Habitat Mitigation.**

Compliance with CDFG regulations for impacted upland habitats

During preparation of the mainstem EIR/FEIS there were no discussions of compliance requirements by CDFG for mitigation of upland vegetation or upland habitats. At the 22 July 2004 meeting for the Hocker Flat EA it was agreed that because there are no unique species or upland habitats that will be impacted at proposed rehabilitation sites (based on pre-construction habitat mapping and vegetation assessments) no requirements will apply to replacement of upland habitat impacted or converted to a constructed floodplain.

Minimize Disturbance to Existing Riparian Vegetation

All mature native trees will be preserved wherever possible because of the structural value to wildlife and the time required for plants to grow into trees. Wherever feasible riparian hardwoods that need to be removed during construction will be cut up, chipped, or used for cuttings and incorporated into existing or future revegetation designs. Older trees may be pruned a year before replanting so that these trees can supply one-year-old branches for cutting stock. Additionally, cut vegetation may be used to construct brush piles to create additional quality terrestrial wildlife habitat for small ground-dwelling animals (i.e., amphibians, reptiles, quail, songbirds, and small mammals).

Site Planting

Revegetation will establish patches of native riparian hardwoods at inundation frequencies appropriate for each species life history requirements. Constructed floodplains and wetlands will always be larger in area than the riparian habitats and jurisdictional wetlands that are impacted by rehabilitation activities; however construction of these surfaces alone typically does not qualify as a suitable replacement of the eliminated wetlands and riparian areas without revegetation.

Therefore, constructed floodplains and wetlands will be revegetated in a way that reflects the natural linkages and interactions between vegetation, hydrology, and channel morphology (i.e., planting species in their natural hydrologic niches to which they are optimally adapted).

For example, the first year's revegetation effort at each site will focus on increasing diversity of riparian hardwood species at the site. Primary species planted could include black cottonwood (Populus balsamifera spp. trichocarpa) and various species of native willows (Salix spp.). After 2 to 3 years of overstory/canopy development these revegetated areas will be planted with understory and secondary successional species where feasible.

Riparian plant recruitment is episodic and patchy. Certain geomorphic surfaces are successfully colonized in some years; however, as vegetation matures, high flows may scour away patches of riparian vegetation. Integrating established patches with scoured patches results in a diverse, and patchy mosaic pattern of vegetation that is both desirable and characteristic of healthy river systems, which includes both fish and wildlife habitat.

To recreate this healthy and diverse patchy distribution of riparian vegetation and to maximize benefits for fish and wildlife, additional revegetation of the constructed floodplain surface or upland area impacted beyond that required for mitigation may be considered. Areas and type of revegetation planned for Hocker Flat are indicated in **Table 1**. The area extent of actual surface area encompassed by revegetation pods would be ≤ 50% of the constructed floodplain surface or upland area impacted. This pattern of revegetating will ensure that existing monotypic riparian vegetation will be replaced with desirable species composition and structural diversity on some surfaces, while leaving other portions of the constructed surface exposed for natural plant regeneration and colonization.

Promote Natural Regeneration and Recruitment for Riparian Hardwood Regeneration

Natural regeneration will be incorporated into rehabilitation designs where feasible to:

- Encourage self-maintaining, multiage riparian stands.
- Increase quality of juvenile rearing habitat for fish in combination with physical alteration and increased flows at the ecotone between riparian and riverine systems.
- Increase quality and quantity of habitat for special-status wildlife species.

Remove Invasive Exotic Plant Species and Discourage Future Re-establishment

To the extent possible, bank rehabilitation sites will be maintained free of all sprouting exotic hardwoods for a period of 3 years following revegetation. After 3 to 5 years there will be enough vegetative cover shading revegetated portions of the floodplain to effectively inhibit regeneration of exotic hardwoods. Revegetation techniques can be used to reduce the cover of noxious weeds and other weedy grasses and to preclude new establishment or proliferation of weeds. Weed control will be used prior to other vegetation-related restoration activities to favor planted material and accelerate the restoration of native plant communities. All equipment used on rehabilitation sites shall be cleaned prior and after entry onto the sites to reduce the risk of unintended transport of exotic or noxious species.

Many exotic plant species within proposed project and borrow sites will be removed during material excavation and floodplain regrading. Three hardwood species and one shrub are of specific concern because of their aggressive colonization: (1) tree of heaven (Ailanthus altissima), (2) black locust (Robinia pseudoacacia), and Scotch broom (Cytisus scoparius).

Two herbaceous species are targeted for removal: (1) star thistle (Centaurea solstitialis) and (2) Himalayan blackberry (Rubus discolor). During construction above ground portion and the stump and root wads of exotic plants will be removed. After initial removal, scheduled mowing within the first 3 years after project construction where practicable may be used in unplanted areas. High planting densities will be used to achieve rapid canopy closure within patches to restrict exotic plant proliferation.

Promote Natural Diversity of Riparian Vegetation

Plant species used for site designs have been selected from a diverse list of common native plant species found along the mainstem of the Trinity River (Table 1). These native plant species will be used to diversify the overall plant species composition, increase structural and horizontal diversity in the riparian zone, and the ecotone between riparian and upland vegetation.

Incorporating Large Wood into the Final Site Design

Depending upon the site, construction would remove mature alder and willow trees from the river system. Therefore, large wood would not be available to the river from locally revegetated areas for many years. However, large trunks and stumps from these trees will be used whenever possible to create basking logs for turtles, microhabitat and perches for various amphibians and other native riparian vertebrates, scour points, and riparian plant nursery sites on floodplains. Opportunities will be pursued to anchor these structures in at key locations on the floodplain. Rather than haul away or burn slash/brush at the site, these materials could be stacked as brush piles to provide additional wildlife, or chipped to create mulch for use in revegetation activities, placed in side-channels, or high flow scour channels for fish habitat

Revegetation Design

Cover type, canopy coverage, and pod type

Areas where revegetation is proposed will be drawn over aerial maps and design contours. Each area slated to be revegetated will be planted using a combination of native plant species designed to achieve the desired specific cover type. Additionally, revegetated areas will be used to generate the desired canopy coverage for each bank rehabilitation site to determine if environmental permit compliance is met (no net riparian loss and jurisdictional wetland). However, although this coverage value indicates the final canopy cover over the site, it does not indicate how plants will be arranged before planting or in what densities. In naturally forested riparian areas, at least three and sometimes all of the following canopy layers are present:

- humus,
- grass and /or herbs,
- short to medium-height shrubs, and
- small to large trees.

Cover type associated with revegetation will be achieved by arranging various planting pod types (**Table 1**; *n* = 13 plants per pod) within each area to be revegetated (Fig. 1). Additionally, a cover type may consist of a mixture of different pod types each with a different species composition. Different pod types will be arranged within various cover types to maximize the structural and horizontal diversity of the desired cover type, as well as increase overall plant species diversity.

For example, if a black cottonwood patch type is delineated on the rehabilitation design, black cottonwood pod types will be arranged within the area to maximize the structural diversity and to reflect the natural species diversity of black cottonwood stands within the Trinity River mainstem. As such, the core of the cover type and most abundant pod type within this patch will be the black cottonwood pod type.

Site and plant material preparation, installation, and monitoring

The planting scheme was developed to be easily implemented but not so orderly that plantings are in rows. Each pod type installs plants in a 400 square foot area (20 ft x 20 ft). During field staking location of the center of each pod will be surveyed and its location flagged. At the location of each flag a hole will be dug (backhoe or by hand) to the ground water table, or up to 48 inches, whichever occurs first. After the hole is dug dormant plants will be installed using the predetermined planting option and the hole backfilled.

Eighteen plant species were selected for riparian and wetland revegetation, including 20 species for any required revegetation of upland habitat (Table 1). Four plant species are found in both riparian and upland pods, which sums to 34 plant species overall. Ideally, all plant material required for rehabilitation projects will be propagated from material found and collected within the mainstem of the Trinity River. Contractors to the TRRP will provide all plant material, and implement, maintain, and monitor survival of all plantings at each bank rehabilitation site. Willows and cottonwoods will be obtained from hardwood cuttings prepared from dormant trees. Oregon ash (Fraxinus latifolia), white alder (Alnus rhombifolia) and Mexican elderberry (Sambucus mexicana) will be grown in a nursery and planted as container stock or bareroot trees. Planting schedules will be followed closely and nursery stock will be planted as it is delivered. Rooted plants that come from nursery stock will be started 2 years before the site is revegetated. Material will be ready for installation in late winter (January - February). Fertilization and mulching of plants will be conducted as necessary.

Irrigation

Irrigation of cottonwood and willow will likely not be required because these species will be planted directly in close proximity to the soil capillary fringe above summer low water. In some situations, however, constructed floodplains and adjacent terraces may be more than 48 inches above the ground water table during planting and these areas will need to be irrigated. Plant species within pods whose roots are not in contact with ground water (i.e., blackberry, grape, rose, ash, walnut) will be irrigated as necessary for 2 to 3 years as necessary to insure ≥ 60% survival and to meet environmental compliance requirements (**Fig. 1**). Plants will be irrigated using a drip irrigation system because this is generally the most efficient method.

Monitoring Revegetation at Bank Rehabilitation Sites

Pre-construction habitat delineations at each rehabilitation site will be followed up by a post-project evaluation of the success of managed and natural revegetation on the constructed floodplain after a period of 3 years to ensure functional riparian habitat values are being restored. The site will be monitored by the implementing contractor, and weeding and irrigation will be conducted as necessary. Monitoring will begin (1st growing season after planting ends - month of October) by evaluating planting success and monitoring will occur again at the end of the second and third growing seasons. If ≥ 60% survival (=success criteria) of managed planting and associated habitat values are not achieved within 3 years post-planting, additional planting will occur and a follow-on reevaluation for the 1:1 area revegetation requirements will take place with the goal of full mitigation at the end of 5 years. If at any time during the monitoring period it is determined that success criteria will not be obtained in the planted and naturally restored areas, remediation measures will be developed and initiated.

Table 1 - Pod and species composition proposed for constructed floodplain re-vegetation at rehabilitation sites for the Trinity River Restoration Program. Plant species in blue will be planted in subsequent years after sufficient over-story development. This list also shows the preferred plant material (i.e., hardwood cutting, bareroot tree, seed), and source.

VEGETATION PATCH	ASSOCIATED SPECIES	COMMON NAME	PERCENT IN SERIES	PLANT MATERIAL TO INSTALL
Arroyo Willow Pod (AW)	*Salix lasiolepis*	arroyo willow	46%	Pole cutting
	Artemisia douglasiana	mugwort	31%	Bareroot
	Rosa californica	wild rose	23%	Nursery container
Black Cottonwood Pod (BC)	*Populus balsamifera spp. trichocarpa*	black cottonwood	46%	Pole cutting
	Rubus ursinus	California blackberry	38%	Bareroot
	Vitis californica	Grape	15%	Bareroot
Mixed Willow Pod (MW)	*Vitis californica*	Grape	23%	Bareroot
	Rosa californica	wild rose	31%	Nursery container
	Salix laevigata	red willow	15%	Pole cutting
	Salix lucida ssp. *lasiandra*	shiny willow	31%	Pole cutting
Wetland Pod (WL)	*Juncus effusus*	common rush		Bareroot
	Artemisia douglasiana	Mugwort		Bareroot
	Rubus ursinus	California blackberry		Bareroot
	Juncus patens	gray rush		Bareroot
	Alisma plantago-aquatica	American water plantain		Bareroot
	Scirpus microcarpus	small-fruited bulrush		Bareroot
Mixed Berry Pod (MB)	*Sambucus mexicana*	Mexican elderberry	38%	Bareroot
	Quercus chrysolepis	canyon live oak	8%	Pole cutting
	Rubus ursinus	California blackberry	38%	Bareroot
	Amelanchier alnifolia	Serviceberry	15%	Direct seed
Mixed Ash Pod (MA)	*Fraxinus latifolia*	Oregon ash	31%	Bareroot
	Alnus rhombifolia	white alder	15%	Direct seed
	Rubus ursinus	California blackberry	31%	Bareroot
	Artemisia douglasiana	Mugwort	23%	Bareroot
Canyon Live Oak Pod (CL)	*Quercus chrysolepis*	canyon live oak	46%	Direct seed
	Baccharis pilularis	coyote bush	38%	Pole cutting
	Quercus wislizeni var. frutescens	interior live oak	15%	Direct seed
Manzanita Pod (M)	*Arctostaphylos viscida*	Manzanita	77%	Bare root
	Cercis occidentalis	Redbud	15%	Bare root
	Rhamnus californica	California coffeeberry	8%	Bare root
White Oak Pod (WO)	*Quercus garryana*	Oregon white oak	60%	Direct seed
	Amelanchier alnifolia	service berry	20%	Bare root
	Arbutus menziesii	Pacific madrone	20%	Bare root

Table 1 - Pod and species composition proposed for constructed floodplain re-vegetation at rehabilitation sites for the Trinity River Restoration Program. Plant species in blue will be planted in subsequent years after sufficient over-story development. This list also shows the preferred plant material (i.e., hardwood cutting, bareroot tree, seed), and source.

VEGETATION PATCH	ASSOCIATED SPECIES	COMMON NAME	PERCENT IN SERIES	PLANT MATERIAL TO INSTALL
Wedgeleaf Ceanothus Pod (W)	*Ceanothus cuneatus*	wedgeleaf ceanothus	77%	Bare root
	Cercis occidentalis	Redbud	15%	Bare root
	Rhamnus californica	California coffeeberry	8%	Bare root
Mexican Elder Berry Pod (ME)	*Sambucus mexicana*	Mexican elderberry	46%	Bare root
	Baccharis pilularis	coyote bush	31%	Cutting
	Rhus trilobata	basket bush	23%	Bare root
Mixed Conifer Pod (MC)	*Pseudotsuga menziesii*	Douglas fir	23%	Bare root
	Pinus ponderosa	ponderosa pine	23%	Bare root
	Calocedrus decurrens	incense cedar	15%	Bare root
	Rosa californica	wild rose	38%	Bare root
Mixed Hardwood Pod (MH)	*Acer macrophyllum*	bigleaf maple	38%	Bare root
	Quercus kelloggii	California black oak	23%	Direct seed
	Quercus chrysolepis	canyon live oak	23%	Direct seed
	Arbutus menziesii	madrone	15%	Bare root
Mixed Grassland/Wildlife Mix Pod (GL)	*Stipa pulchra*	purple needle grass	22%	Broadcast seed
	Melica californica	onyon grass	19%	Broadcast seed
	Elymus glaucus	blue wildrye	6%	Broadcast seed
	Stipa pulchra	nodding needel grass	13%	Broadcast seed
	Leymus triticoides	creeping wildrye	2%	Broadcast seed
	Hordeum californicum	California barley	13%	Broadcast seed
	Poa secunda	pine bluegrass	13%	Broadcast seed
	Festuca idahoensis	Idhao fescue	13%	Broadcast seed

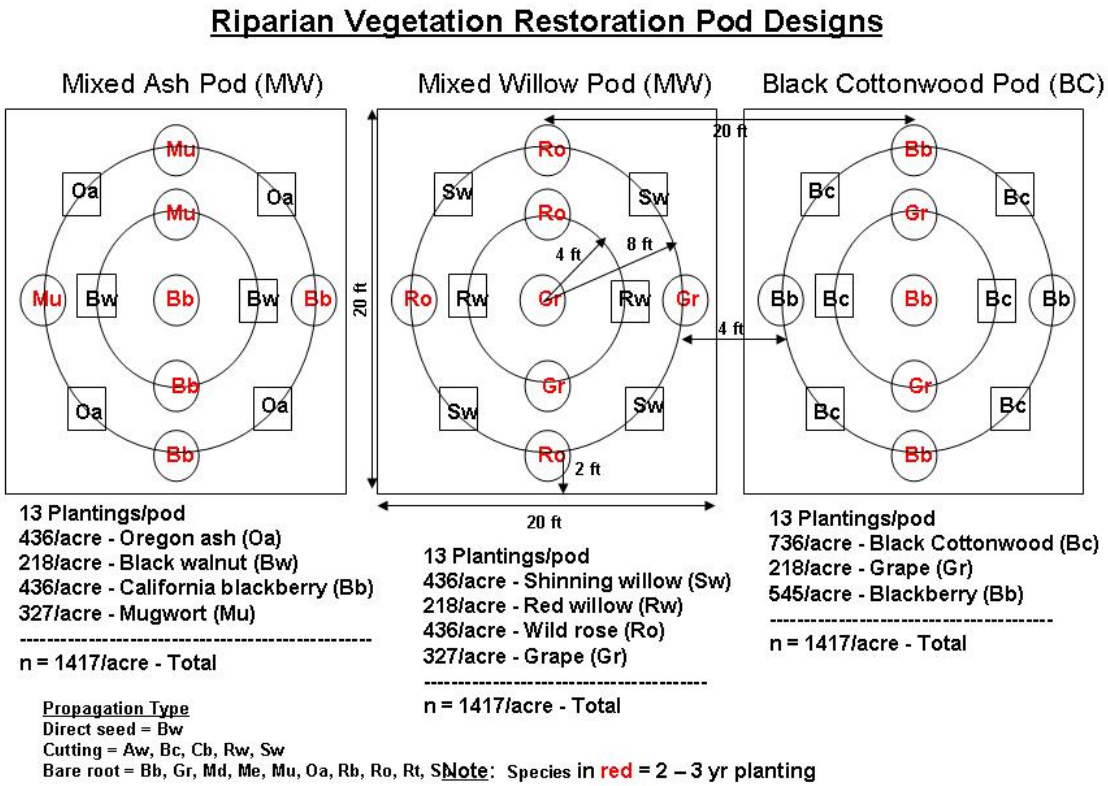

Figure 1. Examples of three typical pod designs/types with different combinations of plants that will be used to revegetate constructed floodplain surfaces at proposed rehabilitation sites. Constructed floodplain surfaces will be planted at a 1:1 replacement of removed riparian habitat area with no more than 50% of a constructed area planted. Impacted riparian/wetland habitats will be revegetated using a variety of planting pod types that consist of different combinations of plant species depending upon the desired outcome of the restoration design. Dimensions of pods are 20 x 20 feet (400 sq feet); placed side by side within revegetation patches. Within pods, plant species ideally will be planted into ground water within 48 inches below the ground surface (i.e., willow and cottonwood, etc.) and will not be irrigated. Plant species within pods whose roots are not in contact with ground water (i.e., blackberry, grape, rose, ash, walnut, etc.) will be irrigated as necessary up to 2 years to insure ≥60% survival to meet environmental compliance requirements.

Appendix H

Listed/Proposed Threatened and Endangered Species for the DEDRICK Quad (Candidates Included)

June 1, 2004

Document Number: *135226537-91435*

TYPE		SCIENTIFIC NAME	COMMON NAME	CATEGORY	CRITICAL HABITAT
Fish					
	*	*Oncorhynchus kisutch*	S. OR/N. CA coho salmon	T	Y
Birds					
		Coccyzus americanus	Western yellow-billed cuckoo	C	N
		Strix occidentalis caurina	northern spotted owl	T	Y
		Haliaeetus leucocephalus	bald eagle	T	N
Mammals					
		Martes pennanti pacifica	Pacific fisher	C	N

KEY:

(PE) Proposed Endangered	Proposed in the Federal Register as being in danger of extinction
(PT) Proposed Threatened	Proposed as likely to become endangered within the foreseeable future
(E) Endangered	Listed in the Federal Register as being in danger of extinction
(T) Threatened	Listed as likely to become endangered within the foreseeable future
(C) Candidate	Candidate which may become a proposed species
Critical Habitat	Y = Designated, P = Proposed, N = None Designated
*	Denotes a species Listed by the National Marine Fisheries Service

Listed/Proposed Threatened and Endangered Species for the HELENA Quad (Candidates Included)

June 1, 2004

Document Number: *135226537-9160*

TYPE		SCIENTIFIC NAME	COMMON NAME	CATEGORY	CRITICAL HABITAT
Fish					
	*	*Oncorhynchus kisutch*	S. OR/N. CA coho salmon	T	Y
Birds					
		Coccyzus americanus	Western yellow-billed cuckoo	C	N
		Strix occidentalis caurina	northern spotted owl	T	Y
		Haliaeetus leucocephalus	bald eagle	T	N
Mammals					
		Martes pennanti pacifica	Pacific fisher	C	N

KEY:

(PE) Proposed Endangered	Proposed in the Federal Register as being in danger of extinction
(PT) Proposed Threatened	Proposed as likely to become endangered within the foreseeable future
(E) Endangered	Listed in the Federal Register as being in danger of extinction
(T) Threatened	Listed as likely to become endangered within the foreseeable future
(C) Candidate	Candidate which may become a proposed species
Critical Habitat	Y = Designated, P = Proposed, N = None Designated
*	Denotes a species Listed by the National Marine Fisheries Service

Listed/Proposed Threatened and Endangered Species for the LEWISTON Quad (Candidates Included)

June 1, 2004

Document Number: *135226537-9178*

TYPE		SCIENTIFIC NAME	COMMON NAME	CATEGORY	CRITICAL HABITAT
Fish					
	*	*Oncorhynchus tshawytscha*	winter-run chinook salmon	E	Y
		Hypomesus transpacificus	delta smelt	T	Y
	*	*Oncorhynchus kisutch*	S. OR/N. CA coho salmon	T	Y
Birds					
		Coccyzus americanus	Western yellow-billed cuckoo	C	N
		Strix occidentalis caurina	northern spotted owl	T	Y
		Haliaeetus leucocephalus	bald eagle	T	N
Mammals					
		Martes pennanti pacifica	Pacific fisher	C	N

KEY:

(PE) Proposed Endangered	Proposed in the Federal Register as being in danger of extinction
(PT) Proposed Threatened	Proposed as likely to become endangered within the foreseeable future
(E) Endangered	Listed in the Federal Register as being in danger of extinction
(T) Threatened	Listed as likely to become endangered within the foreseeable future
(C) Candidate	Candidate which may become a proposed species
Critical Habitat	Y = Designated, P = Proposed, N = None Designated
*	Denotes a species Listed by the National Marine Fisheries Service

Listed/Proposed Threatened and Endangered Species for the WEAVERVILLE Quad (Candidates Included)

June 1, 2004

Document Number: *135226537-91629*

TYPE		SCIENTIFIC NAME	COMMON NAME	CATEGORY	CRITICAL HABITAT
Fish					
	*	*Oncorhynchus kisutch*	S. OR/N. CA coho salmon	T	Y
Birds					
		Coccyzus americanus	Western yellow-billed cuckoo	C	N
		Strix occidentalis caurina	northern spotted owl	T	Y
		Haliaeetus leucocephalus	bald eagle	T	N
Mammals					
		Martes pennanti pacifica	Pacific fisher	C	N

KEY:

(PE) Proposed Endangered	Proposed in the Federal Register as being in danger of extinction
(PT) Proposed Threatened	Proposed as likely to become endangered within the foreseeable future
(E) Endangered	Listed in the Federal Register as being in danger of extinction
(T) Threatened	Listed as likely to become endangered within the foreseeable future
(C) Candidate	Candidate which may become a proposed species
Critical Habitat	Y = Designated, P = Proposed, N = None Designated
*	Denotes a species Listed by the National Marine Fisheries Service

Listed/Proposed Threatened and Endangered Species for the HAYFORK BALLY Quad (Candidates Included)

June 1, 2004

Document Number: *135226537-91512*

TYPE		SCIENTIFIC NAME	COMMON NAME	CATEGORY	CRITICAL HABITAT
Fish					
	*	*Oncorhynchus kisutch*	S. OR/N. CA coho salmon	T	Y
Birds					
		Coccyzus americanus	Western yellow-billed cuckoo	C	N
		Strix occidentalis caurina	northern spotted owl	T	Y
		Haliaeetus leucocephalus	bald eagle	T	N
Mammals					
		Martes pennanti pacifica	Pacific fisher	C	N

KEY:

(PE) Proposed Endangered	Proposed in the Federal Register as being in danger of extinction
(PT) Proposed Threatened	Proposed as likely to become endangered within the foreseeable future
(E) Endangered	Listed in the Federal Register as being in danger of extinction
(T) Threatened	Listed as likely to become endangered within the foreseeable future
(C) Candidate	Candidate which may become a proposed species
Critical Habitat	Y = Designated, P = Proposed, N = None Designated
*	Denotes a species Listed by the National Marine Fisheries Service

Listed/Proposed Threatened and Endangered Species for the JUNCTION CITY Quad (Candidates Included)

June 1, 2004

Document Number: *135226537-983*

TYPE	SCIENTIFIC NAME	COMMON NAME	CATEGORY	CRITICAL HABITAT
Fish				
*	*Oncorhynchus kisutch*	S. OR/N. CA coho salmon	T	Y
Birds				
	Coccyzus americanus	Western yellow-billed cuckoo	C	N
	Strix occidentalis caurina	northern spotted owl	T	Y
	Haliaeetus leucocephalus	bald eagle	T	N
Mammals				
	Martes pennanti pacifica	Pacific fisher	C	N

KEY:

(PE) Proposed Endangered	Proposed in the Federal Register as being in danger of extinction
(PT) Proposed Threatened	Proposed as likely to become endangered within the foreseeable future
(E) Endangered	Listed in the Federal Register as being in danger of extinction
(T) Threatened	Listed as likely to become endangered within the foreseeable future
(C) Candidate	Candidate which may become a proposed species
Critical Habitat	Y = Designated, P = Proposed, N = None Designated
*	Denotes a species Listed by the National Marine Fisheries Service

Appendix I

California Department of Fish and Game
Natural Diversity Data Base
Full Expanded Report One Record Per Page
Trinity River Channel Rehabilitation Project - Hayfork
4/24/03 CMC

Rana boylii
foothill yellow-legged frog Element Code: AAABH01050

Status	NDDB Element Ranks	Other Lists	?
Federal:	Species of Concern	Global: G3	CDFG Status: SC
State:	None	State: S2S3	

Habitat Associations
General: PARTLY-SHADED, SHALLOW STREAMS & RIFFLES WITH A ROCKY SUBSTRATE IN A VARIETY OF HABITATS.
Micro: NEED AT LEAST SOME COBBLE-SIZED SUBSTRATE FOR EGG-LAYING. NEED AT LEAST 15 WEEKS TO ATTAIN METAMORPHOSIS.

Occurrence No. 30 Map Index: 25282 Dates Last Seen
Occ Rank: Unknown Element: 197X-XX-XX
Origin: Natural/Native occurrence Site: 197X-XX-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: CASE, S. 1978 (LIT)
Quad Summary: HAYFORK (4012352/650C)
County Summary: TRINITY
SNA Summary:

Location: HAYFORK CREEK, AT THE TOWN OF HAYFORK.

Lat/Long: 4032'55" / 123 10'14" Township: 31N
UTM: Zone-10 N4488460 E485560 Range: 12W
Mapping Precision: NON-SPECIFIC Section: XX Qtr XX
Symbol Type: POLYGON Meridian: M
Area: 186.9 ac Elevation: 700 ft

Comments
Distribution: PART OF CREEK WITHIN SECTIONS 11, 12 & 13 IN T31N, R12W; & NW 1/4 OF SECTION 18 IN T31N, R11W.
Ecological:
Threat:
General: SIX INDIVIDUALS COLLECTED SOMETIME IN THE 1970'S BY CASE. MUSEUM OF VERTEBRATE ZOOLOGY #S 136290-136295.
Owner/Manager: CITY OF HAYFORK
Source Codes
CAS78A01

Rana boylii (cont.)
foothill yellow-legged frog Element Code: AAABH01050

Status	NDDB Element Ranks	Other Lists	?
Federal:	Species of Concern	Global: G3	CDFG Status: SC
State:	None	State: S2S3	

Habitat Associations
General: PARTLY-SHADED, SHALLOW STREAMS & RIFFLES WITH A ROCKY SUBSTRATE IN A VARIETY OF HABITATS.
Micro: NEED AT LEAST SOME COBBLE-SIZED SUBSTRATE FOR EGG-LAYING. NEED AT LEAST 15 WEEKS TO ATTAIN METAMORPHOSIS.

Occurrence No. 130 Map Index: 32358 Dates Last Seen
Occ Rank: Good Element: 1994-10-29
Origin: Natural/Native occurrence Site: 1994-10-29
Presence: Presumed Extant
Trend: Unknown
Main Source: CHAMPE, C. 1994 (OBS)
Quad Summary: HAYFORK (4012352/650C)
County Summary: TRINITY
SNA Summary:
Location: ALONG BIG CREEK ROAD (324), EXACTLY 2.8 MILES N OF THE INTERSECTION WITH STATE ROUTE 3. NE OF TOWN OF HAYFORK.
Lat/Long: 4035'36" / 123 08'59" Township: 32N
UTM: Zone-10 N4493420 E487328 Range: 11W
Mapping Precision: SPECIFIC Section: 30 Qtr SE
Symbol Type: POINT Meridian: H
Radius: 80 meters Elevation: 2400 ft

Comments
Distribution: ABOUT 20 METERS FROM BIG CREEK ROAD (324); <0.25 MI FROM USFS LAND.
Ecological: CONCRETE DAM CREATED A POOL ~1M (?) DEEP; STREAM IS LOW GRADIENT, W/COBBLE SUBSTRATE. STEEP BANK W/ROOT MASSES ON E SIDE, SHALLOW AREA OF COBBLES ON W SIDE; MAPLES AND ALDERS BORDERED BY DOUGLAS-FIR/PONDEROSA PINE FOREST.
Threat:
General: 1 ADULT FROG WAS OBSERVED IN COBBLES ON EDGE OF CREEK, 5 METERS UPSTREAM FROM DAM, AND IT ESCAPED INTO CREEK TO THE OPPOSITE BANK. AREA IS UNDEVELOPED EXCEPT FOR THE DAM.
Owner/Manager: PVT
Source Codes
CHA94F03

Pandion haliaetus
osprey Element Code: ABNKC01010

Status	NDDB Element Ranks	Other Lists	?
Federal: None	Global: G5	CDFG Status: SC	
State: None	State: S3		

Habitat Associations
General: (NESTING) OCEAN SHORE, BAYS, FRESH-WATER LAKES, AND LARGER STREAMS.
Micro: LARGE NESTS BUILT IN TREE-TOPS WITHIN 15 MILES OF GOOD FISH-PRODUCING BODY OF WATER.

Occurrence No. 206 Map Index: 36529 Dates Last Seen
Occ Rank: Fair Element: 1997-04-30
Origin: Natural/Native occurrence Site: 1997-04-30
Presence: Presumed Extant
Trend: Unknown
Main Source: MILLER, J. 1997 (OBS)
Quad Summary: HAYFORK (4012352/650C)
County Summary: TRINITY
SNA Summary:
Location: EAST SIDE OF BIG CREEK, 3 MILES NNE OF HAYFORK
Lat/Long: 4035'57" / 123 08'44" Township: 32N
UTM: Zone-10 N4494059 E487683 Range: 11W
Mapping Precision: NON-SPECIFIC Section: 30 Qtr NE
Symbol Type: POINT Meridian: M
Radius: 1/5 mile Elevation: 900 ft

Comments
Distribution:
Ecological: NEST TREE IS A LARGE DIAMETER, BROKEN-TOP SNAG, LOCATED WITHIN A SMALL PATCH OF OLD GROWTH FOREST.
Threat: THREATENED BY LOGGING.
General: 2 ADULTS AND NEST OBSERVED ON 30 APRIL 1997.
Owner/Manager: USFS-TRINITY NF
Source Codes
MIL97F02

Aquila chrysaetos
golden eagle Element Code: ABNKC22010

Status	NDDB Element Ranks	Other Lists	?
Federal: None	Global: G5	CDFG Status: SC	
State: None	State: S3		

Habitat Associations
General: (NESTING & WINTERING) ROLLING FOOTHILLS MOUNTAIN AREAS, SAGE-JUNIPER FLATS, DESERT.
Micro: CLIFF-WALLED CANYONS PROVIDE NESTING HABITAT IN MOST PARTS OF RANGE; ALSO, LARGE TREES IN OPEN AREAS.

Occurrence No. 64 Map Index: 41065 Dates Last Seen
Occ Rank: Good Element: 1998-XX-XX
Origin: Natural/Native occurrence Site: 1999-05-06
Presence: Presumed Extant
Trend: Unknown
Main Source: PORTER, T. 1999 (OBS)
Quad Summary: HAYFORK (4012352/650C)
County Summary: TRINITY
SNA Summary:
Location: NORTH END OF RIDGE LYING BETWEEN SALT CREEK AND KINGSBURY GULCH, SOUTH OF HAYFORK VALLEY.
Lat/Long: 4031'26" / 123 10'29" Township: 31N
UTM: Zone-10 N4485738 E485199 Range: 12W
Mapping Precision: SPECIFIC Section: 24 Qtr SW
Symbol Type: POINT Meridian: M
Radius: 80 meters Elevation: 800 ft

Comments
Distribution: SITE IS LOCATED ON A LATE SERAL FOREST RESERVE, BUT JUST ADJACENT TO PRIVATE LAND WHICH IS SOON TO BE HARVESTED.
Ecological: HABITAT CONSISTS OF KLAMATH MIXED CONIFER FOREST (WHR TYPE = KMC 5D).
Threat: THREATENED BY TIMBER HARVEST ACTIVITIES ON AN ADJACENT PARCEL OF LAND.
General: NEST SITE WAS REPORTED AS ACTIVE IN 1998. SITE WAS CHECKED ON 6 MAY 1999, AND THE NEST WAS FOUND, BUT NO BIRDS WERE PRESENT.
Owner/Manager: USFS-TRINITY NF

Source Codes
POR99F01

Oncorhynchus tshawytscha spring-run
spring-run chinook salmon Element Code: AFCHA0205A

Status	NDDB Element Ranks	Other Lists	?
Federal: Threatened	Global: G5	CDFG Status:	
State: Threatened	State: S1		

Habitat Associations
General: ADULT NOS DEPEND ON POOL DEPTH & VOLUME, AMOUNT OF COVER, & PROXIMITY TO GRAVEL. WATER TEMPS >27 C LETHAL TO ADULTS
Micro: FEDERAL LISTING REFERS TO POPS SPAWNING IN SACRAMENTO RIVER & TRIBUTARIES.

Occurrence No. 14 Map Index: 34015 Dates Last Seen
Occ Rank: Unknown Element: 1994-07-01
Origin: Natural/Native occurrence Site: 1994-07-01
Presence: Presumed Extant
Trend: Fluctuating
Main Source: DEPT. OF FISH & GAME 1996 (LIT)
Quad Summary: SPORTSHAVEN (4012344/633B)*, BLACK ROCK MTN. 7.5x15 E (4012321/614A), BLACK ROCK MTN. 7.5X15 W (4012322/614B), PONY BUCK PEAK 7.5x15 W (4012332/632C), FOREST GLEN (4012333/633D), NAUFUS CREEK (4012343/633A), HAYFORK (4012352/650C), HALFWAY RIDGE (4012353/651D), HYAMPOM (4012354/651C), BIG BAR (4012363/651A), HYAMPOM MTN. (4012364/651B), SIMS MOUNTAIN (4012365/652A), HENNESSY PEAK (4012375/670D)
County Summary: HUMBOLDT, TRINITY
SNA Summary:
Location: SOUTH FORK TRINITY RIVER DRAINAGE FROM MOUTH UPSTREAM 124 KILOMETERS AND HAYFORK CREEK, HUMBOLDT AND TRINITY CO.
Lat/Long: 4029'55" / 123 25'37" Township: 01N
UTM: Zone-10 N4482962 E463830 Range: 07E
Mapping Precision: SPECIFIC Section: XX Qtr XX
Symbol Type: POLYGON Meridian: H
Area: 5,675.4 ac Elevation: 1000 ft

Comments
Distribution: SOUTH FORK TRINITY RIVER FROM RIVER KILOMETER (RKM) 22.5 UPSTREAM OF MOUTH TO RKM 117.8, PLUS LOWER 7 RKM'S OF EAST FORK OF THE SOUTH FORK TRINITY RIVER AND THE LOWER 16 (48 in 1995) RKM'S OF HAYFORK CREEK.
Ecological: EST RUN SIZE WAS 11,000 FISH IN 1963. LANDSLIDES TRIGGERED BY 1964 FLOODS DESTROYED MOST SPAWNING HAB. SINCE THEN EST RUN SIZE HAS VARIED FROM 10'S OF FISH TO SEVERAL HUNDRED FISH. 1993-1994 POP EST WAS 698 FISH. MAPPED SPAWING/HOLDING.
Threat: POACHING
General: HAYFORK CREEK AND THE E FK SOUTH FORK HAD FISH IN 1995, BELIEVED TO BE DUE TO A HIGH FLOW THAT WINTER, ALLOWING THE FISH TO MOVE FARTHER UPSTREAM THAN NORMAL. THE HIGHER FLOWS KEPT THE SUMMER WATER TEMPERATURES DOWN BY 6-8 DEGREES C.
Owner/Manager: USFS-TRINITY NF, 6 RIVERS NF
Source Codes

Oncorhynchus tshawytscha spring-run (cont.)
spring-run chinook salmon Element Code: AFCHA0205A

Status	NDDB Element Ranks	Other Lists	?
Federal: Threatened	Global: G5	CDFG Status:	
State: Threatened	State: S1		

Habitat Associations
General: ADULT NOS DEPEND ON POOL DEPTH & VOLUME, AMOUNT OF COVER, & PROXIMITY TO GRAVEL. WATER TEMPS >27 C LETHAL TO ADULTS
Micro: FEDERAL LISTING REFERS TO POPS SPAWNING IN SACRAMENTO RIVER & TRIBUTARIES.
DFG96R01, DFG90R02

Occurrence No. 6 Map Index: 34061 Dates Last Seen
Occ Rank: Unknown Element: 1993-XX-XX
Origin: Natural/Native occurrence Site: 1993-XX-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: GERSTUNG, E. 1994 (PERS)
Quad Summary: SPORTSHAVEN (4012344/633B)*, BLACK ROCK MTN. 7.5x15 E (4012321/614A), BLACK ROCK MTN. 7.5X15 W (4012322/614B), PONY BUCK PEAK 7.5x15 W (4012332/632C), FOREST GLEN (4012333/633D), NAUFUS CREEK (4012343/633A), HAYFORK (4012352/650C), HALFWAY RIDGE (4012353/651D), HYAMPOM (4012354/651C), BIG BAR (4012363/651A), HYAMPOM MTN. (4012364/651B)
County Summary: TRINITY
SNA Summary:
Location: SOUTH FORK TRINITY RIVER AND HAYFORK CREEK, TRINITY NATIONAL FOREST.
Lat/Long: 4025'56" / 123 24'35" Township: 01N
UTM: Zone-10 N4475603 E465257 Range: 07E
Mapping Precision: NON-SPECIFIC Section: XX Qtr XX
Symbol Type: POLYGON Meridian: H
Area: 4,257.7 ac Elevation: 2840 ft

Comments
Distribution: SOUTH FORK TRINITY RIVER FROM HYAMPOM UPSTREAM, TO 0.8 MILE SOUTHEAST OF THE CONFLUENCE WITH THE EAST FORK OF SOUTH FORK TRINITY; HAYFORK FROM CONFLUENCE WITH SOUTH FORK TRINITY TO APPROXIMATLY 0.25 MILE DOWNSTREAM FROM TULE CREEK.
Ecological: STREAM SECTION MAPPED CONTAINS THE SUMMER STEELHEAD HOLDING AREAS.
Threat:
General: COUNTS MADE ON TRINITY RIVER 1979 - 1993 (NOT SAMPLED IN 1980, '81, '83 & '87). AVEERAG COUNT 43 FISH/YEAR (HIGH IN 1986 OF 100 & LOW IN 1979 OF 5). HAYFORK CREEK SAMPLED IN 1979, '80, '82, '83 & '91. 1983 WAS ONLY YEAR FISH (5) WERE FOUND.
Owner/Manager: USFS-TRINITY NF, PVT

Source Codes
DFG90R04, GER94U27

Oncorhynchus mykiss irideus (cont.)
summer-run steelhead trout Element Code: AFCHA02092

Status	NDDB Element Ranks	Other Lists	?
Federal: Candidate	Global: G5T2	CDFG Status: SC	
State: None	State: S2		

Habitat Associations
General: NO. CALIF COASTAL STREAMS SOUTH TO MIDDLE FORK EEL RIVER. WITHIN RANGE OF KLAMATH MTNS PROVINCE ESU & NO. CALIF ESU.
Micro: COOL, SWIFT, SHALLOW WATER & CLEAN LOOSE GRAVEL FOR SPAWNING, & SUITABLY LARGE POOLS IN WHICH TO SPEND THE SUMMER.

Occurrence No. 304 Map Index: 07773 Dates Last Seen
Occ Rank: Unknown Element: 1982-09-17
Origin: Natural/Native occurrence Site: 1982-09-17
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1987 (OBS)
Quad Summary: HAYFORK (4012352/650C)*, HAYFORK SUMMIT (4012351/650D)
County Summary: TRINITY
SNA Summary:
Location: 3 MI SE OF HAYFORK, TRINITY NATL FOREST.
Lat/Long: 4030'53" / 123 07'30" Township: 31N
UTM: Zone-10 N4484685 E489410 Range: 12W
Mapping Precision: NON-SPECIFIC Section: 29 Qtr XX
Symbol Type: POINT Meridian: H
Radius: 1 mile Elevation: 2750 ft

Comments
Distribution:
Ecological: MIXED CONIFEROUS FOREST HABITAT.
Threat:
General: OBSERVATION.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
DFG87U15, SCH77R02

Martes pennanti pacifica (cont.)

Pacific fisher — Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4Q	CDFG Status: SC	
State: None	State: S2S3		

Habitat Associations

General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.

Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 308 — Map Index: 07774 — Dates Last Seen

Occ Rank: Unknown — Element: 1983-08-31

Origin: Natural/Native occurrence — Site: 1983-08-31

Presence: Presumed Extant

Trend: Unknown

Main Source: DEPT. OF FISH & GAME 1987 (OBS)

Quad Summary: HAYFORK (4012352/650C)*, HAYFORK SUMMIT (4012351/650D), JUNCTION CITY (4012361/650A), HAYFORK BALLY (4012362/650B)

County Summary: TRINITY

SNA Summary:

Location: 3.5 MI NE OF HAYFORK, TRINITY NATL FOREST.

Lat/Long: 4036'53" / 123 07'45" — Township: 32N

UTM: Zone-10 N4495786 E489073 — Range: 11W

Mapping Precision: NON-SPECIFIC — Section: 20 Qtr NE

Symbol Type: POINT — Meridian: H

Radius: 1 mile — Elevation: 4000 ft

Comments

Distribution:

Ecological: MIXED CONIFEROUS FOREST HABITAT.

Threat:

General: OBSERVATION.

Owner/Manager: USFS-SHASTA/TRINITY NF

Source Codes

SCH77R02, DFG87U15

Martes pennanti pacifica (cont.)
Pacific fisher Element Code: AMAJF01021
Status NDDB Element Ranks Other Lists ?
Federal: Species of Concern Global: G5T3T4 CDFG Status: SC
Q
State: None State: S2S3
Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 311 Map Index: 07663

Dates Last Seen
Occ Rank: Unknown Element: 1969-XX-XX
Origin: Natural/Native occurrence Site: 1969-XX-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1987 (OBS)
Quad Summary: HAYFORK (4012352/650C)
County Summary: TRINITY
SNA Summary:
Location: 3.5 MI NW OF HAYFORK, TRINITY NATL FOREST.

Lat/Long: 4035'03" / 123 13'38" Township: 32N
UTM: Zone-10 N4492410 E480769 Range: 12W
Mapping Precision: NON-SPECIFIC Section: 33 Qtr XX
Symbol Type: POINT Meridian: H
Radius: 1 mile Elevation: 3300 ft

Comments
Distribution:
Ecological: MIXED CONIFEROUS FOREST HABITAT.
Threat:
General: OBSERVATION.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
SCH77R02, DFG87U15

Martes pennanti pacifica (cont.)

Pacific fisher — Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4Q	CDFG Status: SC	
State: None	State: S2S3		

Habitat Associations

General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.

Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 313 — Map Index: 07798 — Dates Last Seen

Occ Rank: Unknown — Element: 1985-05-26

Origin: Natural/Native occurrence — Site: 1985-05-26

Presence: Presumed Extant

Trend: Unknown

Main Source: DEPT. OF FISH & GAME 1987 (OBS)

Quad Summary: JUNCTION CITY (4012361/650A)*, HAYFORK SUMMIT (4012351/650D), HAYFORK (4012352/650C), HAYFORK BALLY (4012362/650B)

County Summary: TRINITY

SNA Summary:

Location: 7 MI NE OF HAYFORK, TRINITY NATL FOREST.

Lat/Long: 4038'10" / 123 06'51" — Township: 32N

UTM: Zone-10 N4498157 E490345 — Range: 11W

Mapping Precision: NON-SPECIFIC — Section: 09 Qtr XX

Symbol Type: POINT — Meridian: H

Radius: 1 mile — Elevation: 4000 ft

Comments

Distribution:

Ecological: MIXED CONIFEROUS FOREST HABITAT.

Threat:

General: OBSERVATION.

Owner/Manager: USFS-SHASTA/TRINITY NF

Source Codes

DFG87U15, SCH77R02

Martes pennanti pacifica (cont.)
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4Q	CDFG Status: SC	
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 314 Map Index: 07759

Dates Last Seen
Occ Rank: Unknown Element: 1985-06-19
Origin: Natural/Native occurrence Site: 1985-06-19
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1987 (OBS)
Quad Summary: HAYFORK BALLY (4012362/650B)*, HAYFORK SUMMIT (4012351/650D), HAYFORK (4012352/650C), JUNCTION CITY (4012361/650A)
County Summary: TRINITY
SNA Summary:
Location: 5 MI NE OF HAYFORK, TRINITY NATL FOREST.
Lat/Long: 4037'33" / 123 08'24" Township: 32N
UTM: Zone-10 N4497020 E488158 Range: 11W
Mapping Precision: NON-SPECIFIC Section: 17 Qtr XX
Symbol Type: POINT Meridian: H
Radius: 1 mile Elevation: 4500 ft

Comments
Distribution:
Ecological: MIXED CONIFEROUS FOREST HABITAT.
Threat:
General: OBSERVATION.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
SCH77R02, DFG87U15

Martes pennanti pacifica (cont.)
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4Q		CDFG Status: SC
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 315 Map Index: 07765 Dates Last Seen
Occ Rank: Unknown Element: 1986-07-28
Origin: Natural/Native occurrence Site: 1986-07-28
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1987 (OBS)
Quad Summary: HAYFORK (4012352/650C)*, HAYFORK SUMMIT (4012351/650D)
County Summary: TRINITY
SNA Summary:
Location: 2.5 MI E OF HAYFORK.
Lat/Long: 4033'03" / 123 07'51" Township: 31N
UTM: Zone-10 N4488694 E488922 Range: 11W
Mapping Precision: NON-SPECIFIC Section: 08 Qtr XX
Symbol Type: POINT Meridian: H
Radius: 1 mile Elevation: 2500 ft

Comments
Distribution:
Ecological: MIXED CONIFEROUS FOREST HABITAT.
Threat:
General: OBSERVATION.
Owner/Manager: USFS-SHASTA/TRINITY NF, PVT
Source Codes
SCH77R02, DFG87U15

Martes pennanti pacifica (cont.)

Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal:	Species of Concern	Global: G5T3T4Q	CDFG Status: SC
State:	None	State: S2S3	

Habitat Associations

General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.

Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 316 Map Index: 07659 Dates Last Seen

Occ Rank: Unknown Element: XXXX-XX-XX

Origin: Natural/Native occurrence Site: XXXX-XX-XX

Presence: Presumed Extant

Trend: Unknown

Quad Summary: HAYFORK (4012352/650C)*, DUBAKELLA MTN. 7.5x15 W (4012342/632B), HALFWAY RIDGE (4012353/651D)

County Summary: TRINITY

SNA Summary:

Location: TULE CREEK, 4 MI SW OF HAYFORK, TRINITY NATL FOREST.

Lat/Long: 4030'49" / 123 14'04" Township: 31N

UTM: Zone-10 N4484580 E480138 Range: 12W

Mapping Precision: NON-SPECIFIC Section: 28 Qtr XX

Symbol Type: POINT Meridian: H

Radius: 1 mile Elevation: 3900 ft

Comments

Distribution:

Ecological: DOUGLAS FIR FOREST HABITAT.

Threat:

General: OBSERVATION; DATE UNKNOWN.

Owner/Manager: USFS-SHASTA/TRINITY NF

Source Codes

DFG87U15, SCH77R02

Martes pennanti pacifica (cont.)
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4Q		CDFG Status: SC
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 320 Map Index: 07679 Dates Last Seen
Occ Rank: Unknown Element: 1968-03-23
Origin: Natural/Native occurrence Site: 1968-03-23
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1987 (OBS)
Quad Summary: HAYFORK (4012352/650C)
County Summary: TRINITY
SNA Summary:
Location: CEDAR GULCH, 2 MI WNW OF HAYFORK, TRINITY NATL FOREST.
Lat/Long: 4033'57" / 123 12'04" Township: 31N
UTM: Zone-10 N4490370 E482975 Range: 12W
Mapping Precision: NON-SPECIFIC Section: 03 Qtr XX
Symbol Type: POINT Meridian: H
Radius: 1 mile Elevation: 2600 ft

Comments
Distribution:
Ecological: MIXED CONIFEROUS FOREST HABITAT.
Threat:
General: OBSERVATION.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
SCH77R02, DFG87U15

Martes pennanti pacifica (cont.)
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4 Q		CDFG Status: SC
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 321 Map Index: 07681 Dates Last Seen
Occ Rank: Unknown Element: 1968-04-18
Origin: Natural/Native occurrence Site: 1968-04-18
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1987 (OBS)

Quad Summary: HAYFORK (4012352/650C)
County Summary: TRINITY
SNA Summary:
Location: THOMPSON PEAK AREA, 2.5 MI NW OF HAYFORK, TRINITY NATIONAL FOREST.
Lat/Long: 4035'15" / 123 12'02" Township: 32N
UTM: Zone-10 N4492775 E483027 Range: 12W
Mapping Precision: NON-SPECIFIC Section: 34 Qtr XX
Symbol Type: POINT Meridian: H
Radius: 1 mile Elevation: 3500 ft

Comments
Distribution:
Ecological: MIXED CONIFEROUS FOREST HABITAT.
Threat:
General: OBSERVATION.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
DFG87U15, SCH77R02

Harmonia doris-nilesiae
Niles's harmonia Element Code: PDAST650L0

Status	NDDB Element Ranks	Other Lists	?
Federal: None	Global: G1	CNPS List: 1B	
State: None	State: S1.1	R-E-D Code: 3-3-3	

Habitat Associations
General: LOWER MONTANE CONIFEROUS FOREST, CHAPARRAL, CISMONTANE WOODLAND. ENDEMIC TO TRINITY COUNTY.
Micro: SERPENTINE BARRENS. 650-1660M.

Occurrence No. 15 Map Index: 44363 Dates Last Seen
Occ Rank: Unknown Element: 1994-06-27
Origin: Natural/Native occurrence Site: 1994-06-27
Presence: Presumed Extant
Trend: Unknown
Main Source: PAPPALARDO, S. 1994 (OBS)
Quad Summary: HAYFORK (4012352/650C)
County Summary: TRINITY
SNA Summary:
Location: SOUTHWEST OF HAYFORK, ALONG RIDGE ABOUT 1.2 MILE WSW OF CONFLUENCE OF TULE CREEK AND WEST TULE CREEK, SHASTA-TRINITY NF.

Lat/Long: 4030'57" / 123 14'45" Township: 31N
UTM: Zone-10 N4484850 E479172 Range: 12W
Mapping Precision: SPECIFIC Section: 29 Qtr NE
Symbol Type: POLYGON Meridian: M
Area: 2.6 ac Elevation: 3280 ft

Comments
Distribution: MAPPED ALONG USFS ROAD 2N10G WITHIN THE NW 1/4 NE 1/4 SECTION 29.
Ecological: CHAPARRAL/SERPENTINE SEMI-BARRENS WITHIN MIXED CONIFER FOREST. ASSOCIATED WITH CEANOTHUS CUNEATUS, RHAMNUS TOMENTELLA, ARCTOSTAPHYLOS CANESCENS, A. MANZANITA, RHUS TRILOBATA, MONARDELLA, GILIA CAPITATA, ASPIDOTIS DENSA, BROMUS TECTORUM ETC.
Threat: TIMBER HARVEST.
General: FEWER THAN 1000 PLANTS OBSERVED IN 1994.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
PAP94F04

Eriastrum tracyi
Tracy's eriastrum Element Code: PDPLM030C0

Status	NDDB Element Ranks	Other Lists	?
Federal: None	Global: G1Q	CNPS List: 1B	
State: Rare	State: S1.1	R-E-D Code: 3-2-3	

Habitat Associations
General: CHAPARRAL, CISMONTANE WOODLAND.
Micro: GRAVELLY SHALE OR CLAY; OFTEN IN OPEN AREAS. 315-760M.

Occurrence No. 4 Map Index: 37088 Dates Last Seen
Occ Rank: Fair Element: 1983-07-28
Origin: Natural/Native occurrence Site: 1983-07-28
Presence: Presumed Extant
Trend: Decreasing
Main Source: HORNER, S. 1978 (OBS)
Quad Summary: HAYFORK (4012352/650C)
County Summary: TRINITY
SNA Summary:
Location: HAYFORK VALLEY, SOUTH SIDE OF HIGHWAY 3 ABOUT 300 YDS EAST OF JUNCTION WITH BIG CREEK ROAD.

Lat/Long: 4033'16" / 123 08'16" Township: 31N
UTM: Zone-10 N4489097 E488332 Range: 11W
Mapping Precision: NON-SPECIFIC Section: 08 Qtr NW
Symbol Type: POINT Meridian: M
Radius: 1/5 mile Elevation: 2387 ft

Comments
Distribution:
Ecological: HETEROGENOUS GRAVELLY LOAM, ALLUVIAL SOIL ON FLAT OR BENCH. ASSOCIATED WITH CEANOTHUS CUNEATUS, NAVARRETIA ATRACTYLOIDES, CENTAUREA SOLSTITIALIS.
Threat: BIOMASS POWER PLANT PLANNED; OWNERS AND PLANNERS ARE TRYING TO AVOID IMPACTING THE OCCURRENCE.
General: LESS THAN 2000 PLANTS IN 1978; LESS THAN 500 IN 1983. HABITAT DECLINING. THIS POPULATION WAS PREVIOUSLY RECOGNIZED AS E. BRANDEGEAE EO# 17.
Owner/Manager: PVT-ALLIED POWER TECHNOLOGIES
Source Codes
HOR78U01, GOR78U01, HAY79U01, WIL83F01, GOR78S01, DIB78U01, TRA23S03, NEL98U01

Eriastrum tracyi (cont.)
Tracy's eriastrum Element Code: PDPLM030C0

Status	NDDB Element Ranks	Other Lists	?
Federal: None	Global: G1Q	CNPS List: 1B	
State: Rare	State: S1.1	R-E-D Code: 3-2-3	

Habitat Associations
General: CHAPARRAL, CISMONTANE WOODLAND.
Micro: GRAVELLY SHALE OR CLAY; OFTEN IN OPEN AREAS. 315-760M.

Occurrence No. 6 Map Index: 37096 Dates Last Seen
Occ Rank: Unknown Element: 1994-06-09
Origin: Natural/Native occurrence Site: 1994-06-09
Presence: Presumed Extant
Trend: Unknown
Main Source: SPIRA, T. #322 CSUS (HERB)

Quad Summary: HAYFORK (4012352/650C)
County Summary: TRINITY
SNA Summary:

Location: SOUTH OF HAYFORK BETWEEN SMALL LANDING STRIP AND COUNTY FAIRGROUND.

Lat/Long: 4032'49" / 123 11'07" Township: 31N
UTM: Zone-10 N4488281 E484302 Range: 12W
Mapping Precision: NON-SPECIFIC Section: 11 Qtr SE
Symbol Type: POINT Meridian: M
Radius: 1/5 mile Elevation: 2300 ft

Comments
Distribution: IN OLD STREAM CHANNEL BETWEEN RUNWAY AND MORGAN HILL ROAD. WILLIAMS SAYS 1983 SITING COULD HAVE BEEN EAST OR WEST OF THE SITE OF SPIRA'S 1979 COLLECTION.
Ecological: IN OPEN AREA WITH CEANOTHUS CHAPARRAL IN GRAVELLY LOAM SOIL.
Threat: PORTION OF POPULATION (OR NEARBY POPULATION) TRANSPLANTED AS MITIGATION FOR DEVELOPMENT THAT NEVER TOOK PLACE.
General: 1000-10,000 PLANTS SEEN IN 1979; ABOUT 50 SEEN IN 1983, 200-250 SEEN IN 1994. THIS POPULATION WAS PREVIOUSLY RECOGNIZED AS E. BRANDEGEAE EO# 19.
Owner/Manager: PVT
Source Codes
SPI79S01, WIL83F02, NEL98U01, SPI79F02

Eriastrum tracyi (cont.)
Tracy's eriastrum Element Code: PDPLM030C0

Status	NDDB Element Ranks	Other Lists	?
Federal: None	Global: G1Q	CNPS List: 1B	
State: Rare	State: S1.1	R-E-D Code: 3-2-3	

Habitat Associations
General: CHAPARRAL, CISMONTANE WOODLAND.
Micro: GRAVELLY SHALE OR CLAY; OFTEN IN OPEN AREAS. 315-760M.

Occurrence No. 8 Map Index: 40807 Dates Last Seen
Occ Rank: None Element: 1988-XX-XX
Origin: Natural/Native occurrence Site: 1990-XX-XX
Presence: Possibly Extirpated
Trend: Unknown
Main Source: WILLIAMS, B. 1984 (OBS)

Quad Summary: HAYFORK (4012352/650C)
County Summary: TRINITY
SNA Summary:

Location: EAST OF BRIDGE ROAD AND WITHIN HAYFORK RANGER DISTRICT COMPOUND, HAYFORK VALLEY, SHASTA-TRINITY NATIONAL FOREST.

Lat/Long: 4033'02" / 123 10'07" Township: 31N
UTM: Zone-10 N4488680 E485707 Range: 12W
Mapping Precision: NON-SPECIFIC Section: 12 Qtr SE
Symbol Type: POINT Meridian: M
Radius: 1/5 mile Elevation: 2400 ft

Comments
Distribution: THREE SMALL OCCURRENCES.
Ecological: ON OLD STREAM DEPOSITS. ASSOCIATED WITH PINUS SABINIANA AND CEANOTHUS CUNEATUS.
Threat: TRACTOR GRADING BY FOREST SERVICE AND ENCROACHING DEVELOPMENT.
General: FEWER THAN 10 PLANTS OBSERVED IN 1984. SEARCH FOR BUT NOT SEEN IN THE EARLY 1990'S. ROADS AND PATHS THROUGH HABITAT HAVE DECREASED SUITABILITY ACCORDING TO B. WILLIAMS. THIS POPULATION WAS PREVIOUSLY RECOGNIZED AS E. BRANDEGEAE EO#22.
Owner/Manager: USFS, PVT
Source Codes

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Rana boylii
foothill yellow-legged frog Element Code: AAABH01050

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G3		CDFG Status: SC
State: None	State: S2S3		

Habitat Associations
General: PARTLY-SHADED, SHALLOW STREAMS & RIFFLES WITH A ROCKY SUBSTRATE IN A VARIETY OF HABITATS.
Micro: NEED AT LEAST SOME COBBLE-SIZED SUBSTRATE FOR EGG-LAYING. NEED AT LEAST 15 WEEKS TO ATTAIN METAMORPHOSIS.

Occurrence No. 69 Map Index: 24194 Dates Last Seen
Occ Rank: Unknown Element: 1993-XX-XX
Origin: Natural/Native occurrence Site: 1993-XX-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: WELSH, H. & A. LIND 1993 (PERS)

Quad Summary: LEWISTON (4012267/649A)*, WEAVERVILLE (4012268/649B), JUNCTION CITY (4012361/650A), DEDRICK (4012371/668D), HELENA (4012372/668C)
County Summary: TRINITY
SNA Summary:

Location: TRINITY RIVER, BETWEEN THE LEWISTON DAM AND THE NORTH FORK OF THE TRINITY.

Lat/Long: 4042'41" / 122 50'02" Township: 99X
UTM: Zone-10 N4506527 E514032 Range: 99X
Mapping Precision: SPECIFIC Section: XX Qtr XX
Symbol Type: POLYGON Meridian: H
Area: 1,945.6 ac Elevation: 500 ft

Comments
Distribution: ACCORDING TO WELSH AND LIND, FROGS ARE FOUND THROUGHOUT THIS AREA.
Ecological:
Threat:
General: NINE TADPOLES FOUND MAY-JUNE 1991; 51 TADS, 5 MALES, 3 FEMALES, AND 36 FROGS OF UNKNOWN SEX FOUND AUG 1991;15 TADS FOUND MAY-JUNE 1992; UNK NUMBER OF FROGS FOUND IN SURVEYS DONE IN 1993 BY WELSH AND LIND. SURVEYS WILL CONTINUE THROUGH 1994.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
LIN93U01, WEL93U01

Oncorhynchus tshawytscha spring-run
spring-run chinook salmon Element Code: AFCHA0205A

Status	NDDB Element Ranks	Other Lists	?
Federal: Threatened	Global: G5	CDFG Status:	
State: Threatened	State: S1		

Habitat Associations
General: ADULT NOS DEPEND ON POOL DEPTH & VOLUME, AMOUNT OF COVER, & PROXIMITY TO GRAVEL. WATER TEMPS >27 C LETHAL TO ADULTS
Micro: FEDERAL LISTING REFERS TO POPS SPAWNING IN SACRAMENTO RIVER & TRIBUTARIES.

Occurrence No. 16 Map Index: 24194 Dates Last Seen
Occ Rank: Unknown Element: 1993-11-XX
Origin: Natural/Native occurrence Site: 1993-11-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1996 (LIT)

Quad Summary: LEWISTON (4012267/649A)*, WEAVERVILLE (4012268/649B), JUNCTION CITY (4012361/650A), DEDRICK (4012371/668D), HELENA (4012372/668C)
County Summary: TRINITY
SNA Summary:

Location: TRINITY RIVER, LEWISTON DAM TO CONFLUENCE WITH NORTH FORK TRINITY.

Lat/Long: 4042'41" / 122 50'02" Township: 99X
UTM: Zone-10 N4506527 E514032 Range: 99X
Mapping Precision: SPECIFIC Section: XX Qtr XX
Symbol Type: POLYGON Meridian: H
Area: 1,945.6 ac Elevation: 500 ft

Comments
Distribution: BELOW LEWISTON DAM DOWNSTREAM TO THE MOUTH OF THE NORTH FORK TRINITY.
Ecological: NORTH COAST RIVER. SPAWING HABITAT MAPPED.
Threat:
General: 1993, MEASURED 268 CARCASSES, ADULTS COMPOSED 98.1%, GRILSE 1.9%. LENGTH RANGE 41 TO 97 CM FORK LENGTH.
Owner/Manager: PVT, BLM, USFS-TRINITY NF
Source Codes
DFG96R01

Oncorhynchus mykiss irideus
summer-run steelhead trout Element Code: AFCHA02092

Status	NDDB Element Ranks	Other Lists	?
Federal: Candidate	Global: G5T2	CDFG Status: SC	
State: None	State: S2		

Habitat Associations
General: NO. CALIF COASTAL STREAMS SOUTH TO MIDDLE FORK EEL RIVER. WITHIN RANGE OF KLAMATH MTNS PROVINCE ESU & NO. CALIF ESU.
Micro: COOL, SWIFT, SHALLOW WATER & CLEAN LOOSE GRAVEL FOR SPAWNING, & SUITABLY LARGE POOLS IN WHICH TO SPEND THE SUMMER.

Occurrence No. 8 Map Index: 34057 Dates Last Seen
Occ Rank: Unknown Element: 1993-XX-XX
Origin: Natural/Native occurrence Site: 1993-XX-XX
Presence: Presumed Extant
Trend: Fluctuating
Main Source: GERSTUNG, E. 1994 (PERS)

Quad Summary: THURSTON PEAKS (4012382/668B)*, DEDRICK (4012371/668D), HELENA (4012372/668C), CECIL LAKE (4112312/685C)
County Summary: TRINITY
SNA Summary:

Location: NORTH FORK TRINITY RIVER AT HELENA AND UPSTREAM, IN THE TRINITY NATIONAL FOREST.

Lat/Long: 4053'56" / 123 09'52" Township: 35N
UTM: Zone-10 N4527326 E486155 Range: 11W
Mapping Precision: SPECIFIC Section: XX Qtr XX
Symbol Type: POLYGON Meridian: M
Area: 1,522.3 ac Elevation: 2559 ft

Comments
Distribution: FROM THE MOUTH AT HELENA, UPSTREAM TO GRIZZLY CREEK.
Ecological: MAPPED AS SUMMER STEELHEAD HOLDING AREAS.
Threat:
General: POPULATION SURVEYS CONDUCTED FROM 1976 TO 1993 (NO SAMPLES 1977 & 86) WITH AN AVERAGE OF 380/YEAR, HIGH IN 1991 OF 1,037, LOW OF 42 IN 1976.
Owner/Manager: USFS-TRINITY NF, PVT
Source Codes
DFG90R04, GER94U27

Oncorhynchus mykiss irideus (cont.)
summer-run steelhead trout Element Code: AFCHA02092

Status	NDDB Element Ranks	Other Lists	?
Federal: Candidate	Global: G5T2	CDFG Status: SC	
State: None	State: S2		

Habitat Associations
General: NO. CALIF COASTAL STREAMS SOUTH TO MIDDLE FORK EEL RIVER. WITHIN RANGE OF KLAMATH MTNS PROVINCE ESU & NO. CALIF ESU.
Micro: COOL, SWIFT, SHALLOW WATER & CLEAN LOOSE GRAVEL FOR SPAWNING, & SUITABLY LARGE POOLS IN WHICH TO SPEND THE SUMMER.

Occurrence No. 9 Map Index: 34058 Dates Last Seen
Occ Rank: Unknown Element: 1993-XX-XX
Origin: Natural/Native occurrence Site: 1993-XX-XX
Presence: Presumed Extant
Trend: Fluctuating
Main Source: GERSTUNG, E. 1994 (PERS)

Quad Summary: DEDRICK (4012371/668D)*, MT. HILTON (4012381/668A)
County Summary: TRINITY
SNA Summary:

Location: CANYON CREEK, SEVERAL RIVER MILES UP AND DOWNSTREAM FROM DEDRICK, IN THE TRINITY NATIONAL FOREST.

Lat/Long: 4051'19" / 123 02'31" Township: 35N
UTM: Zone-10 N4522467 E496473 Range: 10W
Mapping Precision: SPECIFIC Section: XX Qtr XX
Symbol Type: POLYGON Meridian: M
Area: 739.9 ac Elevation: 2400 ft

Comments
Distribution: FROM APPROXIMATELY 0.5 AIR MILE SOUTH SOUTHEAST OF CONRAD GULCH TO THE SINKS 0.5 MILE DOWNSTREAM FROM CANYON CREEK FALLS.
Ecological: AREA MAPPED CONTAINS SUMMER STEELHEAD HOLDING AREAS.
Threat:
General: SAMPLING DONE FROM 1980 TO 1993 (NOT SAMPLED IN '86,'87, OR '89), A HIGH OF 32 FISH OBSERVED IN 1988 AND A LOW OF 3 FISH OBSERVED IN 1981, '83 & '91, POPULATION AVERAGE IS 13 FISH/YEAR.
Owner/Manager: USFS-TRINITY NF, PVT
Source Codes
DFG90R04, GER94U27

Martes pennanti pacifica
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4 Q		CDFG Status: SC
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 323 Map Index: 07861 Dates Last Seen
Occ Rank: Unknown Element: 1969-03-10
Origin: Natural/Native occurrence Site: 1969-03-10
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1987 (OBS)

Quad Summary: DEDRICK (4012371/668D)*, JUNCTION CITY (4012361/650A)
County Summary: TRINITY
SNA Summary:

Location: 2 MI ESE OF HELENA, IN VICINITY OF COOPERS BAR.

Lat/Long: 4045'34" / 123 05'31" Township: 34N
UTM: Zone-10 N4511845 E492239 Range: 11W
Mapping Precision: NON-SPECIFIC Section: 34 Qtr XX
Symbol Type: POINT Meridian: H
Radius: 1 mile Elevation: 1400 ft

Comments
Distribution:
Ecological: MIXED CONIFEROUS FOREST HABITAT.
Threat:
General: OBSERVATION.
Owner/Manager: USFS-SHASTA/TRINITY NF, PVT
Source Codes
SCH77R02, DFG87U15

Martes pennanti pacifica (cont.)
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4 Q		CDFG Status: SC
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 327 Map Index: 07824 Dates Last Seen
Occ Rank: Unknown Element: 1970-XX-XX
Origin: Natural/Native occurrence Site: 1970-XX-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1987 (OBS)

Quad Summary: DEDRICK (4012371/668D)*, HELENA (4012372/668C)
County Summary: TRINITY
SNA Summary:

Location: BARNEY GULCH, 4 MI N OF HELENA, TRINITY NATL FOREST.

Lat/Long: 4049'50" / 123 06'44" Township: 34N
UTM: Zone-10 N4519741 E490537 Range: 11W
Mapping Precision: NON-SPECIFIC Section: 04 Qtr XX
Symbol Type: POINT Meridian: M
Radius: 1 mile Elevation: 2800 ft

Comments
Distribution:
Ecological: MIXED CONIFEROUS FOREST HABITAT.
Threat:
General: OBSERVATION IN FALL OF 1970.
Owner/Manager: USFS-SHASTA/TRINITY NF, PVT
Source Codes
DFG87U15, SCH77R02

Martes pennanti pacifica (cont.)
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4 Q		CDFG Status: SC
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 329 Map Index: 07924 Dates Last Seen
Occ Rank: Unknown Element: 1968-12-05
Origin: Natural/Native occurrence Site: 1968-12-05
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1987 (OBS)

Quad Summary: DEDRICK (4012371/668D)*, JUNCTION CITY (4012361/650A)
County Summary: TRINITY
SNA Summary:

Location: CANYON CREEK, 2 MI N OF JUNCTION CITY.

Lat/Long: 4045'32" / 123 03'38" Township: 34N
UTM: Zone-10 N4511782 E494888 Range: 11W
Mapping Precision: NON-SPECIFIC Section: 36 Qtr XX
Symbol Type: POINT Meridian: M
Radius: 1 mile Elevation: 2000 ft

Comments
Distribution:
Ecological:
Threat:
General: OBSERVATION.
Owner/Manager: BLM, PVT
Source Codes
DFG87U15, SCH77R02

Martes pennanti pacifica (cont.)
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4 Q	CDFG Status: SC	
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 330 Map Index: 07982 Dates Last Seen
Occ Rank: Unknown Element: 1968-05-12
Origin: Natural/Native occurrence Site: 1968-05-12
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1987 (OBS)

Quad Summary: DEDRICK (4012371/668D)*, MT. HILTON (4012381/668A)
County Summary: TRINITY
SNA Summary:

Location: 9 MI N OF JUNCTION CITY, IN VICINITY OF DEDRICK.

Lat/Long: 4051'42" / 123 02'25" Township: 35N
UTM: Zone-10 N4523201 E496606 Range: 10W
Mapping Precision: NON-SPECIFIC Section: XX Qtr XX
Symbol Type: POINT Meridian: M
Radius: 1 mile Elevation:

Comments
Distribution:
Ecological: MIXED CONIFEROUS FOREST HABITAT.
Threat:
General: OBSERVATION.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
DFG87U15, SCH77R02

Martes pennanti pacifica (cont.)
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4 Q		CDFG Status: SC
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 345 Map Index: 08053 Dates Last Seen
Occ Rank: Unknown Element: XXXX-XX-XX
Origin: Natural/Native occurrence Site: XXXX-XX-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1987 (OBS)

Quad Summary: RUSH CREEK LAKES (4012278/667C)*, DEDRICK (4012371/668D)
County Summary: TRINITY
SNA Summary:

Location: 4 MI NW OF WEAVERVILLE, TRINITY NATL FOREST.

Lat/Long: 4046'16" / 122 59'02" Township: 34N
UTM: Zone-10 N4513136 E501360 Range: 10W
Mapping Precision: NON-SPECIFIC Section: 27 Qtr XX
Symbol Type: POINT Meridian: M
Radius: 1 mile Elevation: 3200 ft

Comments
Distribution:
Ecological: WOODLAND/GRASSLAND HABITAT.
Threat:
General: OBSERVATION; DATE UNKNOWN.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
DFG87U15, SCH77R02

Martes pennanti pacifica (cont.)
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4 Q		CDFG Status: SC
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 374 Map Index: 24922 Dates Last Seen
Occ Rank: Excellent Element: 1994-01-22
Origin: Natural/Native occurrence Site: 1994-01-22
Presence: Presumed Extant
Trend: Unknown
Main Source: HUGHES, K. 1994 (OBS)

Quad Summary: DEDRICK (4012371/668D)
County Summary: TRINITY
SNA Summary:

Location: RICH GULCH, TRIBUTARY TO NORTH FORK TRINITY RIVER, 0.8 MILE ESE OF OZARK MINE.

Lat/Long: 4049'10" / 123 05'56" Township: 34N
UTM: Zone-10 N4518518 E491669 Range: 11W
Mapping Precision: NON-SPECIFIC Section: 10 Qtr NW
Symbol Type: POINT Meridian: M
Radius: 1/5 mile Elevation: 1800 ft

Comments
Distribution:
Ecological: HABITAT CONSISTS OF OAK/ALDER RIPARIAN BORDERED BY AN OLD GROWTH MIXED CONIFER STAND DOMINATED BY DOUGLAS FIR, PONDEROSA PINE, AND SUGAR PINE.
Threat: POSSIBLE THREATS INCLUDE POTENTIAL FOR TIMBER HARVEST AND LONG-TERM HUMAN RECREATIONAL USE OF THE SITE.
General: 1 ADULT OBSERVED FORAGING ON 13 JANUARY AND ON 22 JANUARY 1994. HABITAT NEEDS OF THE PACIFIC FISHER SHOULD BE CONSIDERED IN PLANNING FOR TIMBER HARVEST.
Owner/Manager: BLM
Source Codes
HUG94F04, HUG94F01

Clemmys marmorata marmorata
northwestern pond turtle Element Code: ARAAD02031

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G3G4T3 T4Q	CDFG Status: SC	
State: None	State: S3		

Habitat Associations
General: ASSOCIATED WITH PERMANENT OR NEARLY PERMANENT WATER IN A WIDE VARIETY OF HABITATS.
Micro: REQUIRES BASKING SITES. NESTS SITES MAY BE FOUND UP TO 0.5 KM FROM WATER.

Occurrence No. 11 Map Index: 24194 Dates Last Seen
Occ Rank: Unknown Element: 1993-XX-XX
Origin: Natural/Native occurrence Site: 1993-XX-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: WELSH, H. & A. LIND 1993 (PERS)

Quad Summary: LEWISTON (4012267/649A)*, WEAVERVILLE (4012268/649B), JUNCTION CITY (4012361/650A), DEDRICK (4012371/668D), HELENA (4012372/668C)
County Summary: TRINITY
SNA Summary:

Location: TRINITY RIVER, BETWEEN THE LEWISTON DAM AND THE NORTH FORK OF THE TRINITY.

Lat/Long: 4042'41" / 122 50'02" Township: 99X
UTM: Zone-10 N4506527 E514032 Range: 99X
Mapping Precision: SPECIFIC Section: XX Qtr XX
Symbol Type: POLYGON Meridian: H
Area: 1,945.6 ac Elevation: 500 ft

Comments
Distribution:
Ecological:
Threat:
General: FOUND, MARKED, AND RELEASED: 52 MALES, 66 FEMALES, & 20 UNKNOWN SEX JUNE-JULY 1991; 43 M, 42 F, 10 UNK SEX APR-SEP 1992; 6 M, 15 F FITTED WITH TRANSMITTERS MAY-AUG 1992; UNK NUMBER FOUND IN 1993 BY WELSH AND LIND.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
WEL93U02, WEL93U01

Mielichhoferia elongata
elongate copper-moss Element Code: NBMUS4Q022

Status	NDDB Element Ranks	Other Lists	?
Federal: None	Global: G4?	CNPS List: 2	
State: None	State: S2.2	R-E-D Code: 2-2-1	

Habitat Associations
General: CISMONTANE WOODLAND. COMMONLY CALLED "COPPER MOSSES".
Micro: MOSS GROWING ON METAMORPHIC ROCK; USUALLY VERNALLY MESIC. 500-1300M.

Occurrence No. 6 Map Index: 45606 Dates Last Seen
Occ Rank: Unknown Element: XXXX-XX-XX
Origin: Natural/Native occurrence Site: XXXX-XX-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: SHEVOCK ET AL #17740 UNK HERB (HERB)

Quad Summary: HELENA (4012372/668C)*, DEDRICK (4012371/668D)
County Summary: TRINITY
SNA Summary:

Location: SHASTA-TRINITY NF, HWY 299 NEAR JCT TO OLD HELENA.

Lat/Long: 4046'11" / 123 07'37" Township: 34N
UTM: Zone-10 N4512993 E489280 Range: 11W
Mapping Precision: NON-SPECIFIC Section: 28 Qtr XX
Symbol Type: POINT Meridian: M
Radius: 1 mile Elevation: 1380 ft

Comments
Distribution: MAPPED AS BEST GUESS AT JCT OF ROAD TO OLD HELENA AND HWY 299 BY CNDDB.
Ecological:
Threat:
General: NEEDS FIELDWORK.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
NOR00U01, SHENDS11

Atractylocarpus flagellaceus
flagella-like atractylocarpus Element Code: NBMUS84010

Status	NDDB Element Ranks	Other Lists	?
Federal: None	Global: G5?	CNPS List: 2	
State: None	State: S1.3	R-E-D Code: 3-2-1	

Habitat Associations
General: CISMONTANE WOODLAND.
Micro: UNKNOWN. 100-500M.

Occurrence No. 1 Map Index: 45377 Dates Last Seen
Occ Rank: Unknown Element: 1998-10-20
Origin: Natural/Native occurrence Site: 1998-10-20
Presence: Presumed Extant
Trend: Unknown
Main Source: SHEVOCK ET AL #17441 BONN, ETC. (HERB)

Quad Summary: HELENA (4012372/668C)*, DEDRICK (4012371/668D)
County Summary: TRINITY
SNA Summary:

Location: 0.25 MI W OF ROAD JUNCTION TO OLD HELENA, ALONG HWY 299.

Lat/Long: 4046'00" / 123 07'39" Township: 34N
UTM: Zone-10 N4512651 E489216 Range: 11W
Mapping Precision: NON-SPECIFIC Section: 29 Qtr SE
Symbol Type: POINT Meridian: M
Radius: 1/5 mile Elevation: 1300 ft

Comments
Distribution: ON SEEP OF ROADBANK.
Ecological: WITH THE RARE MOSS MIELICHHOFERIA ELONGATA.
Threat:
General: NEEDS FIELDWORK.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
SHE00U02, CNP00U01, SHE98S01

Lewisia cotyledon var. heckneri
Heckner's lewisia Element Code: PDPOR04052

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G4T2		CNPS List: 1B
State: None	State: S2.2		R-E-D Code: 2-2-3

Habitat Associations
General: LOWER MONTANE CONIFEROUS FOREST.
Micro: ROCKY PLACES. 225-1970M.

Occurrence No. 1 Map Index: 07947 Dates Last Seen
Occ Rank: Good Element: 1994-06-19
Origin: Natural/Native occurrence Site: 1994-06-19
Presence: Presumed Extant
Trend: Unknown
Main Source: STRANE, G. 1976 (OBS)

Quad Summary: DEDRICK (4012371/668D)
County Summary: TRINITY
SNA Summary:

Location: EAST SIDE CANYON CREEK ROAD, ABOUT 0.8 MILES WEST OF LITTLE BALLY, ABOUT 3.3 MILES NORTH OF JUNCTION CITY.

Lat/Long: 4046'03" / 123 02'56" Township: 34N
UTM: Zone-10 N4512750 E495855 Range: 10W
Mapping Precision: SPECIFIC Section: 30 Qtr SW
Symbol Type: POLYGON Meridian: M
Area: 1.8 ac Elevation: 1800 ft

Comments
Distribution: ON SOUTHEAST SIDE OF BEND IN CANYON CREEK. MAPPED WITHIN THE SW 1/4 OF THE SW 1/4 OF SECTION 30. USFS POP. #14-7.
Ecological: FOUND ON OPEN NORTH-FACING CLIFFS AND BANKS.
Threat:
General: UNKNOWN NUMBER OF PLANTS OBSERVED IN 1976 AT ABOUT 3.5 MILES NORTH OF JUNCTION CITY. UNABLE TO COUNT PLANTS IN 1994 DUE TO INACCESSIBLE LOCATION.
Owner/Manager: UNKNOWN
Source Codes
STR76F01, STE94F23

Lewisia cotyledon var. heckneri (cont.)
Heckner's lewisia Element Code: PDPOR04052

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G4T2	CNPS List: 1B	
State: None	State: S2.2	R-E-D Code: 2-2-3	

Habitat Associations
General: LOWER MONTANE CONIFEROUS FOREST.
Micro: ROCKY PLACES. 225-1970M.

Occurrence No. 4 Map Index: 07940 Dates Last Seen
Occ Rank: Unknown Element: 1952-05-13
Origin: Natural/Native occurrence Site: 1952-05-13
Presence: Presumed Extant
Trend: Unknown
Main Source: SLID 1981 (LIT)

Quad Summary: DEDRICK (4012371/668D)
County Summary: TRINITY
SNA Summary:

Location: CANYON CR, (ABOUT 1.2 MI ENE OF RED HILL MINE, NEAR TRINITY RIV).

Lat/Long: 4045'39" / 123 03'15" Township: 33N
UTM: Zone-10 N4511997 E495428 Range: 10W
Mapping Precision: NON-SPECIFIC Section: 36 Qtr W
Symbol Type: POINT Meridian: M
Radius: 1/5 mile Elevation: 1578 ft

Comments
Distribution:
Ecological:
Threat:
General: NONE.
Owner/Manager: UNKNOWN
Source Codes
SLI81U12, SLI81U13

Lewisia cotyledon var. heckneri (cont.)
Heckner's lewisia Element Code: PDPOR04052

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G4T2	CNPS List: 1B	
State: None	State: S2.2	R-E-D Code: 2-2-3	

Habitat Associations
General: LOWER MONTANE CONIFEROUS FOREST.
Micro: ROCKY PLACES. 225-1970M.

Occurrence No. 14 Map Index: 07945 Dates Last Seen
Occ Rank: Unknown Element: XXXX-XX-XX
Origin: Natural/Native occurrence Site: XXXX-XX-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: U.S. FOREST SERVICE ND (LIT)

Quad Summary: JUNCTION CITY (4012361/650A)*, DEDRICK (4012371/668D)
County Summary: TRINITY
SNA Summary:

Location: ONE MI NORTH OF JUNCTION CITY, NE OF HAYFORK DIVIDE.

Lat/Long: 4044'45" / 123 02'58" Township: 33N
UTM: Zone-10 N4510332 E495825 Range: 11W
Mapping Precision: NON-SPECIFIC Section: XX Qtr XX
Symbol Type: POINT Meridian: M
Radius: 1 mile Elevation:

Comments
Distribution:
Ecological:
Threat:
General: UNKNOWN WHEN SEEN.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
USFNDU03

Lewisia cotyledon var. heckneri (cont.)
Heckner's lewisia Element Code: PDPOR04052

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G4T2	CNPS List: 1B	
State: None	State: S2.2	R-E-D Code: 2-2-3	

Habitat Associations
General: LOWER MONTANE CONIFEROUS FOREST.
Micro: ROCKY PLACES. 225-1970M.

Occurrence No. 15 Map Index: 07982 Dates Last Seen
Occ Rank: Unknown Element: XXXX-XX-XX
Origin: Natural/Native occurrence Site: XXXX-XX-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: U.S. FOREST SERVICE ND (PERS)

Quad Summary: DEDRICK (4012371/668D)*, MT. HILTON (4012381/668A)
County Summary: TRINITY
SNA Summary:

Location: CANYON CREEK TRAIL NEAR DEDRICK, SOUTH OF TRINITY ALPS.

Lat/Long: 4051'42" / 123 02'25" Township: 35N
UTM: Zone-10 N4523201 E496606 Range: 10W
Mapping Precision: NON-SPECIFIC Section: XX Qtr XX
Symbol Type: POINT Meridian: M
Radius: 1 mile Elevation:

Comments
Distribution:
Ecological:
Threat:
General: UNKNOWN WHEN SEEN.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
USFNDU03

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Trinity River Channel Rehabilitation Project - Helena
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Rana boylii
foothill yellow-legged frog Element Code: AAABH01050

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G3	CDFG Status: SC	
State: None	State: S2S3		

Habitat Associations
General: PARTLY-SHADED, SHALLOW STREAMS & RIFFLES WITH A ROCKY SUBSTRATE IN A VARIETY OF HABITATS.
Micro: NEED AT LEAST SOME COBBLE-SIZED SUBSTRATE FOR EGG-LAYING. NEED AT LEAST 15 WEEKS TO ATTAIN METAMORPHOSIS.

Occurrence No. 69 Map Index: 24194 Dates Last Seen
Occ Rank: Unknown Element: 1993-XX-XX
Origin: Natural/Native occurrence Site: 1993-XX-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: WELSH, H. & A. LIND 1993 (PERS)

Quad Summary: LEWISTON (4012267/649A)*, WEAVERVILLE (4012268/649B), JUNCTION CITY (4012361/650A), DEDRICK (4012371/668D), HELENA (4012372/668C)
County Summary: TRINITY
SNA Summary:

Location: TRINITY RIVER, BETWEEN THE LEWISTON DAM AND THE NORTH FORK OF THE TRINITY.

Lat/Long: 4042'41" / 122 50'02" Township: 99X
UTM: Zone-10 N4506527 E514032 Range: 99X
Mapping Precision: SPECIFIC Section: XX Qtr XX
Symbol Type: POLYGON Meridian: H
Area: 1,945.6 ac Elevation: 500 ft

Comments
Distribution: ACCORDING TO WELSH AND LIND, FROGS ARE FOUND THROUGHOUT THIS AREA.
Ecological:
Threat:
General: NINE TADPOLES FOUND MAY-JUNE 1991; 51 TADS, 5 MALES, 3 FEMALES, AND 36 FROGS OF UNKNOWN SEX FOUND AUG 1991;15 TADS FOUND MAY-JUNE 1992; UNK NUMBER OF FROGS FOUND IN SURVEYS DONE IN 1993 BY WELSH AND LIND. SURVEYS WILL CONTINUE THROUGH 1994.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
LIN93U01, WEL93U01

Oncorhynchus tshawytscha spring-run
spring-run chinook salmon Element Code: AFCHA0205A

Status	NDDB Element Ranks	Other Lists	?
Federal: Threatened	Global: G5	CDFG Status:	
State: Threatened	State: S1		

Habitat Associations
General: ADULT NOS DEPEND ON POOL DEPTH & VOLUME, AMOUNT OF COVER, & PROXIMITY TO GRAVEL. WATER TEMPS >27 C LETHAL TO ADULTS
Micro: FEDERAL LISTING REFERS TO POPS SPAWNING IN SACRAMENTO RIVER & TRIBUTARIES.

Occurrence No. 16 Map Index: 24194 Dates Last Seen
Occ Rank: Unknown Element: 1993-11-XX
Origin: Natural/Native occurrence Site: 1993-11-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1996 (LIT)

Quad Summary: LEWISTON (4012267/649A)*, WEAVERVILLE (4012268/649B), JUNCTION CITY (4012361/650A), DEDRICK (4012371/668D), HELENA (4012372/668C)
County Summary: TRINITY
SNA Summary:

Location: TRINITY RIVER, LEWISTON DAM TO CONFLUENCE WITH NORTH FORK TRINITY.

Lat/Long: 4042'41" / 122 50'02" Township: 99X
UTM: Zone-10 N4506527 E514032 Range: 99X
Mapping Precision: SPECIFIC Section: XX Qtr XX
Symbol Type: POLYGON Meridian: H
Area: 1,945.6 ac Elevation: 500 ft

Comments
Distribution: BELOW LEWISTON DAM DOWNSTREAM TO THE MOUTH OF THE NORTH FORK TRINITY.
Ecological: NORTH COAST RIVER. SPAWING HABITAT MAPPED.
Threat:
General: 1993, MEASURED 268 CARCASSES, ADULTS COMPOSED 98.1%, GRILSE 1.9%. LENGTH RANGE 41 TO 97 CM FORK LENGTH.
Owner/Manager: PVT, BLM, USFS-TRINITY NF
Source Codes
DFG96R01

Oncorhynchus mykiss irideus
summer-run steelhead trout Element Code: AFCHA02092

Status	NDDB Element Ranks	Other Lists	?
Federal: Candidate	Global: G5T2		CDFG Status: SC
State: None	State: S2		

Habitat Associations
General: NO. CALIF COASTAL STREAMS SOUTH TO MIDDLE FORK EEL RIVER. WITHIN RANGE OF KLAMATH MTNS PROVINCE ESU & NO. CALIF ESU.
Micro: COOL, SWIFT, SHALLOW WATER & CLEAN LOOSE GRAVEL FOR SPAWNING, & SUITABLY LARGE POOLS IN WHICH TO SPEND THE SUMMER.

Occurrence No. 8 Map Index: 34057 Dates Last Seen
Occ Rank: Unknown Element: 1993-XX-XX
Origin: Natural/Native occurrence Site: 1993-XX-XX
Presence: Presumed Extant
Trend: Fluctuating
Main Source: GERSTUNG, E. 1994 (PERS)

Quad Summary: THURSTON PEAKS (4012382/668B)*, DEDRICK (4012371/668D), HELENA (4012372/668C), CECIL LAKE (4112312/685C)
County Summary: TRINITY
SNA Summary:

Location: NORTH FORK TRINITY RIVER AT HELENA AND UPSTREAM, IN THE TRINITY NATIONAL FOREST.

Lat/Long: 4053'56" / 123 09'52" Township: 35N
UTM: Zone-10 N4527326 E486155 Range: 11W
Mapping Precision: SPECIFIC Section: XX Qtr XX
Symbol Type: POLYGON Meridian: M
Area: 1,522.3 ac Elevation: 2559 ft

Comments
Distribution: FROM THE MOUTH AT HELENA, UPSTREAM TO GRIZZLY CREEK.
Ecological: MAPPED AS SUMMER STEELHEAD HOLDING AREAS.
Threat:
General: POPULATION SURVEYS CONDUCTED FROM 1976 TO 1993 (NO SAMPLES 1977 & 86) WITH AN AVERAGE OF 380/YEAR, HIGH IN 1991 OF 1,037, LOW OF 42 IN 1976.
Owner/Manager: USFS-TRINITY NF, PVT
Source Codes
DFG90R04, GER94U27

Martes pennanti pacifica
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4 Q		CDFG Status: SC
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 322 Map Index: 07675 Dates Last Seen
Occ Rank: Unknown Element: 1969-02-10
Origin: Natural/Native occurrence Site: 1969-02-10
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1987 (OBS)

Quad Summary: HAYFORK BALLY (4012362/650B)*, HELENA (4012372/668C)
County Summary: TRINITY
SNA Summary:

Location: ONE MI E OF BIG BAR, TRINITY NATL FOREST.

Lat/Long: 4044'16" / 123 13'21" Township: 33N
UTM: Zone-10 N4509460 E481212 Range: 12W
Mapping Precision: NON-SPECIFIC Section: 04 Qtr XX
Symbol Type: POINT Meridian: H
Radius: 1 mile Elevation: 1300 ft

Comments
Distribution:
Ecological: MIXED CONIFEROUS FOREST HABITAT.
Threat:
General: OBSERVATION.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
DFG87U15, SCH77R02

Martes pennanti pacifica (cont.)
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4 Q		CDFG Status: SC
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 324 Map Index: 07668 Dates Last Seen
Occ Rank: Unknown Element: 1969-03-22
Origin: Natural/Native occurrence Site: 1969-03-22
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1987 (OBS)

Quad Summary: HELENA (4012372/668C)*, DEL LOMA (4012373/669D)
County Summary: TRINITY
SNA Summary:

Location: MANZANITA CREEK, 2 MI NNE BIG BAR, TRINITY NATL FOREST.

Lat/Long: 4046'03" / 123 13'54" Township: 34N
UTM: Zone-10 N4512762 E480447 Range: 12W
Mapping Precision: NON-SPECIFIC Section: 28 Qtr XX
Symbol Type: POINT Meridian: H
Radius: 1 mile Elevation: 2000 ft

Comments
Distribution:
Ecological: HARDWOOD FOREST HABITAT.
Threat:
General: OBSERVATION.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
DFG87U15, SCH77R02

Martes pennanti pacifica (cont.)
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4 Q	CDFG Status: SC	
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 325 Map Index: 07706 Dates Last Seen
Occ Rank: Unknown Element: 1967-10-07
Origin: Natural/Native occurrence Site: 1967-10-07
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1987 (OBS)

Quad Summary: HELENA (4012372/668C)
County Summary: TRINITY
SNA Summary:

Location: 3.5 MI ENE OF BIG BAR, ON MANZANITA RIDGE, TRINITY NATL FOREST.

Lat/Long: 4046'06" / 123 11'32" Township: 34N
UTM: Zone-10 N4512846 E483776 Range: 12W
Mapping Precision: NON-SPECIFIC Section: 26 Qtr XX
Symbol Type: POINT Meridian: M
Radius: 1 mile Elevation: 3200 ft

Comments
Distribution:
Ecological: MIXED CONIFEROUS FOREST HABITAT.
Threat:
General: OBSERVATION.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
SCH77R02, DFG87U15

Martes pennanti pacifica (cont.)
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4 Q	CDFG Status: SC	
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 326 Map Index: 07680 Dates Last Seen
Occ Rank: Unknown Element: 1967-10-08
Origin: Natural/Native occurrence Site: 1967-10-08
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1987 (OBS)

Quad Summary: HELENA (4012372/668C)*, HAYFORK BALLY (4012362/650B)
County Summary: TRINITY
SNA Summary:

Location: 2 MI ENE OF BIG BAR, TRINITY NF.

Lat/Long: 4045'21" / 123 12'47" Township: 34N
UTM: Zone-10 N4511463 E482015 Range: 12W
Mapping Precision: NON-SPECIFIC Section: 34 Qtr XX
Symbol Type: POINT Meridian: M
Radius: 1 mile Elevation: 3000 ft

Comments
Distribution:
Ecological: MIXED CONIFEROUS FOREST HABITAT.
Threat:
General: OBSERVATION.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
DFG87U15, SCH77R02

Martes pennanti pacifica (cont.)
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4 Q		CDFG Status: SC
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 327 Map Index: 07824 Dates Last Seen
Occ Rank: Unknown Element: 1970-XX-XX
Origin: Natural/Native occurrence Site: 1970-XX-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1987 (OBS)

Quad Summary: DEDRICK (4012371/668D)*, HELENA (4012372/668C)
County Summary: TRINITY
SNA Summary:

Location: BARNEY GULCH, 4 MI N OF HELENA, TRINITY NATL FOREST.

Lat/Long: 4049'50" / 123 06'44" Township: 34N
UTM: Zone-10 N4519741 E490537 Range: 11W
Mapping Precision: NON-SPECIFIC Section: 04 Qtr XX
Symbol Type: POINT Meridian: M
Radius: 1 mile Elevation: 2800 ft

Comments
Distribution:
Ecological: MIXED CONIFEROUS FOREST HABITAT.
Threat:
General: OBSERVATION IN FALL OF 1970.
Owner/Manager: USFS-SHASTA/TRINITY NF, PVT
Source Codes
DFG87U15, SCH77R02

Martes pennanti pacifica (cont.)
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4 Q		CDFG Status: SC
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 328 Map Index: 07708 Dates Last Seen
Occ Rank: Unknown Element: 1968-09-07
Origin: Natural/Native occurrence Site: 1968-09-07
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1987 (OBS)

Quad Summary: HELENA (4012372/668C)*, HAYFORK BALLY (4012362/650B)
County Summary: TRINITY
SNA Summary:

Location: 3.5 MI WSW OF HELENA, IN VICINITY OF TRINITY RIVER.

Lat/Long: 4045'07" / 123 11'22" Township: 34N
UTM: Zone-10 N4511027 E484007 Range: 12W
Mapping Precision: NON-SPECIFIC Section: 35 Qtr XX
Symbol Type: POINT Meridian: M
Radius: 1 mile Elevation: 3000 ft

Comments
Distribution:
Ecological: MIXED CONIFEROUS FOREST HABITAT.
Threat:
General: OBSERVATION.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
DFG87U15, SCH77R02

Clemmys marmorata marmorata
northwestern pond turtle Element Code: ARAAD02031

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G3G4T3 T4Q		CDFG Status: SC
State: None	State: S3		

Habitat Associations
General: ASSOCIATED WITH PERMANENT OR NEARLY PERMANENT WATER IN A WIDE VARIETY OF HABITATS.
Micro: REQUIRES BASKING SITES. NESTS SITES MAY BE FOUND UP TO 0.5 KM FROM WATER.

Occurrence No. 11 Map Index: 24194 Dates Last Seen
Occ Rank: Unknown Element: 1993-XX-XX
Origin: Natural/Native occurrence Site: 1993-XX-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: WELSH, H. & A. LIND 1993 (PERS)

Quad Summary: LEWISTON (4012267/649A)*, WEAVERVILLE (4012268/649B), JUNCTION CITY (4012361/650A), DEDRICK (4012371/668D), HELENA (4012372/668C)
County Summary: TRINITY
SNA Summary:

Location: TRINITY RIVER, BETWEEN THE LEWISTON DAM AND THE NORTH FORK OF THE TRINITY.

Lat/Long: 4042'41" / 122 50'02" Township: 99X
UTM: Zone-10 N4506527 E514032 Range: 99X
Mapping Precision: SPECIFIC Section: XX Qtr XX
Symbol Type: POLYGON Meridian: H
Area: 1,945.6 ac Elevation: 500 ft

Comments
Distribution:
Ecological:
Threat:
General: FOUND, MARKED, AND RELEASED: 52 MALES, 66 FEMALES, & 20 UNKNOWN SEX JUNE-JULY 1991; 43 M, 42 F, 10 UNK SEX APR-SEP 1992; 6 M, 15 F FITTED WITH TRANSMITTERS MAY-AUG 1992; UNK NUMBER FOUND IN 1993 BY WELSH AND LIND.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
WEL93U02, WEL93U01

Monadenia setosa
Trinity bristle snail Element Code: IMGASC7080

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G2	CDFG Status:	
State: Threatened	State: S2		

Habitat Associations
General: KNOWN ONLY FROM ALONG A FEW STREAMS IN THE TRINITY RIVER DRAINAGE.
Micro: INHABITS MOIST, WELL-DRAINED TALUS SLOPES IN MIXED DECIDUOUS-CONIFEROUS FORESTS AND ON FORESTED RIPARIAN BENCHES.

Occurrence No. 4 Map Index: 07675 Dates Last Seen
Occ Rank: Unknown Element: 1980-XX-XX
Origin: Natural/Native occurrence Site: 1980-XX-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: ENG, L. 1980 (PERS)

Quad Summary: HAYFORK BALLY (4012362/650B)*, HELENA (4012372/668C)
County Summary: TRINITY
SNA Summary:

Location: S SIDE TRINITY RIVER, 1.5 MI E OF BIG BAR RANGER STN.

Lat/Long: 4044'16" / 123 13'21" Township: 33N
UTM: Zone-10 N4509460 E481212 Range: 12W
Mapping Precision: NON-SPECIFIC Section: 04 Qtr XX
Symbol Type: POINT Meridian: H
Radius: 1 mile Elevation: 1300 ft

Comments
Distribution:
Ecological:
Threat:
General: POPULATION OBSERVED IN GOOD HABITAT IN A SEEP SPRING AREA.
Owner/Manager: UNKNOWN
Source Codes
ENG80U01

Mielichhoferia elongata
elongate copper-moss Element Code: NBMUS4Q022

Status	NDDB Element Ranks	Other Lists	?
Federal: None	Global: G4?	CNPS List: 2	
State: None	State: S2.2	R-E-D Code: 2-2-1	

Habitat Associations
General: CISMONTANE WOODLAND. COMMONLY CALLED "COPPER MOSSES".
Micro: MOSS GROWING ON METAMORPHIC ROCK; USUALLY VERNALLY MESIC. 500-1300M.

Occurrence No. 6 Map Index: 45606 Dates Last Seen
Occ Rank: Unknown Element: XXXX-XX-XX
Origin: Natural/Native occurrence Site: XXXX-XX-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: SHEVOCK ET AL #17740 UNK HERB (HERB)

Quad Summary: HELENA (4012372/668C)*, DEDRICK (4012371/668D)
County Summary: TRINITY
SNA Summary:

Location: SHASTA-TRINITY NF, HWY 299 NEAR JCT TO OLD HELENA.

Lat/Long: 4046'11" / 123 07'37" Township: 34N
UTM: Zone-10 N4512993 E489280 Range: 11W
Mapping Precision: NON-SPECIFIC Section: 28 Qtr XX
Symbol Type: POINT Meridian: M
Radius: 1 mile Elevation: 1380 ft

Comments
Distribution: MAPPED AS BEST GUESS AT JCT OF ROAD TO OLD HELENA AND HWY 299 BY CNDDB.
Ecological:
Threat:
General: NEEDS FIELDWORK.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
NOR00U01, SHENDS11

Atractylocarpus flagellaceus
flagella-like atractylocarpus Element Code: NBMUS84010

Status	NDDB Element Ranks	Other Lists	?
Federal: None	Global: G5?	CNPS List: 2	
State: None	State: S1.3	R-E-D Code: 3-2-1	

Habitat Associations
General: CISMONTANE WOODLAND.
Micro: UNKNOWN. 100-500M.

Occurrence No. 1 Map Index: 45377 Dates Last Seen
Occ Rank: Unknown Element: 1998-10-20
Origin: Natural/Native occurrence Site: 1998-10-20
Presence: Presumed Extant
Trend: Unknown
Main Source: SHEVOCK ET AL #17441 BONN, ETC. (HERB)

Quad Summary: HELENA (4012372/668C)*, DEDRICK (4012371/668D)
County Summary: TRINITY
SNA Summary:

Location: 0.25 MI W OF ROAD JUNCTION TO OLD HELENA, ALONG HWY 299.

Lat/Long: 4046'00" / 123 07'39" Township: 34N
UTM: Zone-10 N4512651 E489216 Range: 11W
Mapping Precision: NON-SPECIFIC Section: 29 Qtr SE
Symbol Type: POINT Meridian: M
Radius: 1/5 mile Elevation: 1300 ft

Comments
Distribution: ON SEEP OF ROADBANK.
Ecological: WITH THE RARE MOSS MIELICHHOFERIA ELONGATA.
Threat:
General: NEEDS FIELDWORK.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
SHE00U02, CNP00U01, SHE98S01

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Rana boylii
foothill yellow-legged frog Element Code: AAABH01050

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G3		CDFG Status: SC
State: None	State: S2S3		

Habitat Associations
General: PARTLY-SHADED, SHALLOW STREAMS & RIFFLES WITH A ROCKY SUBSTRATE IN A VARIETY OF HABITATS.
Micro: NEED AT LEAST SOME COBBLE-SIZED SUBSTRATE FOR EGG-LAYING. NEED AT LEAST 15 WEEKS TO ATTAIN METAMORPHOSIS.

Occurrence No. 69 Map Index: 24194 Dates Last Seen
Occ Rank: Unknown Element: 1993-XX-XX
Origin: Natural/Native occurrence Site: 1993-XX-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: WELSH, H. & A. LIND 1993 (PERS)

Quad Summary: LEWISTON (4012267/649A)*, WEAVERVILLE (4012268/649B), JUNCTION CITY (4012361/650A), DEDRICK (4012371/668D), HELENA (4012372/668C)
County Summary: TRINITY
SNA Summary:

Location: TRINITY RIVER, BETWEEN THE LEWISTON DAM AND THE NORTH FORK OF THE TRINITY.

Lat/Long: 4042'41" / 122 50'02" Township: 99X
UTM: Zone-10 N4506527 E514032 Range: 99X
Mapping Precision: SPECIFIC Section: XX Qtr XX
Symbol Type: POLYGON Meridian: H
Area: 1,945.6 ac Elevation: 500 ft

Comments
Distribution: ACCORDING TO WELSH AND LIND, FROGS ARE FOUND THROUGHOUT THIS AREA.
Ecological:
Threat:
General: NINE TADPOLES FOUND MAY-JUNE 1991; 51 TADS, 5 MALES, 3 FEMALES, AND 36 FROGS OF UNKNOWN SEX FOUND AUG 1991;15 TADS FOUND MAY-JUNE 1992; UNK NUMBER OF FROGS FOUND IN SURVEYS DONE IN 1993 BY WELSH AND LIND. SURVEYS WILL CONTINUE THROUGH 1994.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
LIN93U01, WEL93U01

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Oncorhynchus tshawytscha spring-run
spring-run chinook salmon Element Code: AFCHA0205A

Status	NDDB Element Ranks	Other Lists	?
Federal: Threatened	Global: G5	CDFG Status:	
State: Threatened	State: S1		

Habitat Associations
General: ADULT NOS DEPEND ON POOL DEPTH & VOLUME, AMOUNT OF COVER, & PROXIMITY TO GRAVEL. WATER TEMPS >27 C LETHAL TO ADULTS
Micro: FEDERAL LISTING REFERS TO POPS SPAWNING IN SACRAMENTO RIVER & TRIBUTARIES.

Occurrence No. 16 Map Index: 24194 Dates Last Seen
Occ Rank: Unknown Element: 1993-11-XX
Origin: Natural/Native occurrence Site: 1993-11-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1996 (LIT)

Quad Summary: LEWISTON (4012267/649A)*, WEAVERVILLE (4012268/649B), JUNCTION CITY (4012361/650A), DEDRICK (4012371/668D), HELENA (4012372/668C)
County Summary: TRINITY
SNA Summary:

Location: TRINITY RIVER, LEWISTON DAM TO CONFLUENCE WITH NORTH FORK TRINITY.

Lat/Long: 4042'41" / 122 50'02" Township: 99X
UTM: Zone-10 N4506527 E514032 Range: 99X
Mapping Precision: SPECIFIC Section: XX Qtr XX
Symbol Type: POLYGON Meridian: H
Area: 1,945.6 ac Elevation: 500 ft

Comments
Distribution: BELOW LEWISTON DAM DOWNSTREAM TO THE MOUTH OF THE NORTH FORK TRINITY.
Ecological: NORTH COAST RIVER. SPAWING HABITAT MAPPED.
Threat:
General: 1993, MEASURED 268 CARCASSES, ADULTS COMPOSED 98.1%, GRILSE 1.9%. LENGTH RANGE 41 TO 97 CM FORK LENGTH.
Owner/Manager: PVT, BLM, USFS-TRINITY NF
Source Codes
DFG96R01

Martes pennanti pacifica
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4 Q		CDFG Status: SC
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 301 Map Index: 07948 Dates Last Seen
Occ Rank: Unknown Element: 1972-04-02
Origin: Natural/Native occurrence Site: 1972-04-02
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1987 (OBS)

Quad Summary: JUNCTION CITY (4012361/650A)
County Summary: TRINITY
SNA Summary:

Location: 2 MI S OF JUNCTION CITY.

Lat/Long: 4042'13" / 123 02'46" Township: 33N
UTM: Zone-10 N4505645 E496104 Range: 10W
Mapping Precision: NON-SPECIFIC Section: 19 Qtr XX
Symbol Type: POINT Meridian: H
Radius: 1 mile Elevation: 1700 ft

Comments
Distribution:
Ecological: MIXED CONIFEROUS FOREST HABITAT.
Threat:
General: TWO INDIVIDUALS OBSERVED.
Owner/Manager: PVT
Source Codes
DFG87U15, SCH77R02

Martes pennanti pacifica (cont.)
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4 Q	CDFG Status: SC	
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 302 Map Index: 07786 Dates Last Seen
Occ Rank: Unknown Element: 1985-06-03
Origin: Natural/Native occurrence Site: 1985-06-03
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1987 (OBS)

Quad Summary: JUNCTION CITY (4012361/650A)*, HAYFORK BALLY (4012362/650B)
County Summary: TRINITY
SNA Summary:

Location: 7 MI NE OF HAYFORK, NEAR DOG RUN SPRING, TRINITY NATL FOREST

Lat/Long: 4039'11" / 123 07'13" Township: 32N
UTM: Zone-10 N4500040 E489831 Range: 11W
Mapping Precision: NON-SPECIFIC Section: 05 Qtr XX
Symbol Type: POINT Meridian: H
Radius: 1 mile Elevation: 5700 ft

Comments
Distribution:
Ecological: MIXED CONIFEROUS FOREST HABITAT.
Threat:
General: ONE OBSERVATION IN 1970 AND 3 IN 1985.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
SCH77R02, DFG87U15

Martes pennanti pacifica (cont.)
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4 Q		CDFG Status: SC
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 303 Map Index: 07928 Dates Last Seen
Occ Rank: Unknown Element: 1984-XX-XX
Origin: Natural/Native occurrence Site: 1984-XX-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1987 (OBS)

Quad Summary: JUNCTION CITY (4012361/650A)
County Summary: TRINITY
SNA Summary:

Location: 3 MI S OF JUNCTION CITY, TRINITY NATL FOREST.

Lat/Long: 4041'20" / 123 03'17" Township: 33N
UTM: Zone-10 N4504011 E495376 Range: 11W
Mapping Precision: NON-SPECIFIC Section: 25 Qtr XX
Symbol Type: POINT Meridian: H
Radius: 1 mile Elevation: 2500 ft

Comments
Distribution:
Ecological:
Threat:
General: 13 INDIVIDUALS OBSERVED IN TIMBER IN 1984. OBSERVATION IN 1967 IN THE VICINITY OF SOLDIER CREEK.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
DFG87U15, SCH77R02

Martes pennanti pacifica (cont.)
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4 Q		CDFG Status: SC
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 307 Map Index: 07829 Dates Last Seen
Occ Rank: Unknown Element: 1984-03-27
Origin: Natural/Native occurrence Site: 1984-03-27
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1987 (OBS)

Quad Summary: JUNCTION CITY (4012361/650A)
County Summary: TRINITY
SNA Summary:

Location: 8 MI NNE OF HAYFORK, TRINITY NATL FOREST.

Lat/Long: 4039'02" / 123 05'57" Township: 32N
UTM: Zone-10 N4499760 E491616 Range: 11W
Mapping Precision: NON-SPECIFIC Section: 03 Qtr SW
Symbol Type: POINT Meridian: H
Radius: 1 mile Elevation: 5750 ft

Comments
Distribution:
Ecological: MIXED CONIFEROUS FOREST HABITAT.
Threat:
General: OBSERVATION.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
DFG87U15, SCH77R02

Martes pennanti pacifica (cont.)
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4 Q		CDFG Status: SC
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 308 Map Index: 07774 Dates Last Seen
Occ Rank: Unknown Element: 1983-08-31
Origin: Natural/Native occurrence Site: 1983-08-31
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1987 (OBS)

Quad Summary: HAYFORK (4012352/650C)*, HAYFORK SUMMIT (4012351/650D), JUNCTION CITY (4012361/650A), HAYFORK BALLY (4012362/650B)
County Summary: TRINITY
SNA Summary:

Location: 3.5 MI NE OF HAYFORK, TRINITY NATL FOREST.

Lat/Long: 4036'53" / 123 07'45" Township: 32N
UTM: Zone-10 N4495786 E489073 Range: 11W
Mapping Precision: NON-SPECIFIC Section: 20 Qtr NE
Symbol Type: POINT Meridian: H
Radius: 1 mile Elevation: 4000 ft

Comments
Distribution:
Ecological: MIXED CONIFEROUS FOREST HABITAT.
Threat:
General: OBSERVATION.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
SCH77R02, DFG87U15

Martes pennanti pacifica (cont.)
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4 Q		CDFG Status: SC
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 312 Map Index: 07762 Dates Last Seen
Occ Rank: Unknown Element: 1985-05-16
Origin: Natural/Native occurrence Site: 1985-05-16
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1987 (OBS)

Quad Summary: HAYFORK BALLY (4012362/650B)*, JUNCTION CITY (4012361/650A)
County Summary: TRINITY
SNA Summary:

Location: 6 MI NE OF HAYFORK, TRINITY NATL FOREST.

Lat/Long: 4038'31" / 123 08'20" Township: 32N
UTM: Zone-10 N4498809 E488256 Range: 11W
Mapping Precision: NON-SPECIFIC Section: 08 Qtr NW
Symbol Type: POINT Meridian: H
Radius: 1 mile Elevation: 4500 ft

Comments
Distribution:
Ecological: MIXED CONIFEROUS FOREST HABITAT.
Threat:
General: OBSERVATION.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
DFG87U15, SCH77R02

Martes pennanti pacifica (cont.)
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4 Q		CDFG Status: SC
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 313 Map Index: 07798 Dates Last Seen
Occ Rank: Unknown Element: 1985-05-26
Origin: Natural/Native occurrence Site: 1985-05-26
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1987 (OBS)

Quad Summary: JUNCTION CITY (4012361/650A)*, HAYFORK SUMMIT (4012351/650D), HAYFORK (4012352/650C), HAYFORK BALLY (4012362/650B)
County Summary: TRINITY
SNA Summary:

Location: 7 MI NE OF HAYFORK, TRINITY NATL FOREST.

Lat/Long: 4038'10" / 123 06'51" Township: 32N
UTM: Zone-10 N4498157 E490345 Range: 11W
Mapping Precision: NON-SPECIFIC Section: 09 Qtr XX
Symbol Type: POINT Meridian: H
Radius: 1 mile Elevation: 4000 ft

Comments
Distribution:
Ecological: MIXED CONIFEROUS FOREST HABITAT.
Threat:
General: OBSERVATION.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
DFG87U15, SCH77R02

Martes pennanti pacifica (cont.)
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4 Q		CDFG Status: SC
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 314 Map Index: 07759 Dates Last Seen
Occ Rank: Unknown Element: 1985-06-19
Origin: Natural/Native occurrence Site: 1985-06-19
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1987 (OBS)

Quad Summary: HAYFORK BALLY (4012362/650B)*, HAYFORK SUMMIT (4012351/650D), HAYFORK (4012352/650C), JUNCTION CITY (4012361/650A)
County Summary: TRINITY
SNA Summary:

Location: 5 MI NE OF HAYFORK, TRINITY NATL FOREST.

Lat/Long: 4037'33" / 123 08'24" Township: 32N
UTM: Zone-10 N4497020 E488158 Range: 11W
Mapping Precision: NON-SPECIFIC Section: 17 Qtr XX
Symbol Type: POINT Meridian: H
Radius: 1 mile Elevation: 4500 ft

Comments
Distribution:
Ecological: MIXED CONIFEROUS FOREST HABITAT.
Threat:
General: OBSERVATION.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
SCH77R02, DFG87U15

Martes pennanti pacifica (cont.)
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4 Q		CDFG Status: SC
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 323 Map Index: 07861 Dates Last Seen
Occ Rank: Unknown Element: 1969-03-10
Origin: Natural/Native occurrence Site: 1969-03-10
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1987 (OBS)

Quad Summary: DEDRICK (4012371/668D)*, JUNCTION CITY (4012361/650A)
County Summary: TRINITY
SNA Summary:

Location: 2 MI ESE OF HELENA, IN VICINITY OF COOPERS BAR.

Lat/Long: 4045'34" / 123 05'31" Township: 34N
UTM: Zone-10 N4511845 E492239 Range: 11W
Mapping Precision: NON-SPECIFIC Section: 34 Qtr XX
Symbol Type: POINT Meridian: H
Radius: 1 mile Elevation: 1400 ft

Comments
Distribution:
Ecological: MIXED CONIFEROUS FOREST HABITAT.
Threat:
General: OBSERVATION.
Owner/Manager: USFS-SHASTA/TRINITY NF, PVT
Source Codes
SCH77R02, DFG87U15

Martes pennanti pacifica (cont.)
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4 Q		CDFG Status: SC
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 329 Map Index: 07924 Dates Last Seen
Occ Rank: Unknown Element: 1968-12-05
Origin: Natural/Native occurrence Site: 1968-12-05
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1987 (OBS)

Quad Summary: DEDRICK (4012371/668D)*, JUNCTION CITY (4012361/650A)
County Summary: TRINITY
SNA Summary:

Location: CANYON CREEK, 2 MI N OF JUNCTION CITY.

Lat/Long: 4045'32" / 123 03'38" Township: 34N
UTM: Zone-10 N4511782 E494888 Range: 11W
Mapping Precision: NON-SPECIFIC Section: 36 Qtr XX
Symbol Type: POINT Meridian: M
Radius: 1 mile Elevation: 2000 ft

Comments
Distribution:
Ecological:
Threat:
General: OBSERVATION.
Owner/Manager: BLM, PVT
Source Codes
DFG87U15, SCH77R02

Martes pennanti pacifica (cont.)
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4 Q		CDFG Status: SC
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 403 Map Index: 38045 Dates Last Seen
Occ Rank: Excellent Element: 1994-12-07
Origin: Natural/Native occurrence Site: 1994-12-07
Presence: Presumed Extant
Trend: Unknown
Main Source: HUGHES, K. 1994 (OBS)

Quad Summary: JUNCTION CITY (4012361/650A)
County Summary: TRINITY
SNA Summary:

Location: ~ 3 MILES SW OF WEAVERVILLE, 3.5 MILES SE OF JUNCTION CITY AND 0.6 MILE E OF TRINITY RIVER AT BELL GULCH.

Lat/Long: 4041'15" / 123 00'58" Township: 33N
UTM: Zone-10 N4503866 E498641 Range: 10W
Mapping Precision: SPECIFIC Section: 29 Qtr NE
Symbol Type: POINT Meridian: M
Radius: 80 meters Elevation: 2750 ft

Comments
Distribution:
Ecological: OLD GROWTH MIXED CONIFER WITH DOUGLAS, PONDEROSA PINE, INCENSE CEDAR.
Threat: TIMBER HARVEST.
General: 1 ADULT OBSERVED.
Owner/Manager: BLM
Source Codes
HUG94F06

Clemmys marmorata marmorata
northwestern pond turtle Element Code: ARAAD02031

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G3G4T3 T4Q	CDFG Status: SC	
State: None	State: S3		

Habitat Associations
General: ASSOCIATED WITH PERMANENT OR NEARLY PERMANENT WATER IN A WIDE VARIETY OF HABITATS.
Micro: REQUIRES BASKING SITES. NESTS SITES MAY BE FOUND UP TO 0.5 KM FROM WATER.

Occurrence No. 11 Map Index: 24194 Dates Last Seen
Occ Rank: Unknown Element: 1993-XX-XX
Origin: Natural/Native occurrence Site: 1993-XX-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: WELSH, H. & A. LIND 1993 (PERS)

Quad Summary: LEWISTON (4012267/649A)*, WEAVERVILLE (4012268/649B), JUNCTION CITY (4012361/650A), DEDRICK (4012371/668D), HELENA (4012372/668C)
County Summary: TRINITY
SNA Summary:

Location: TRINITY RIVER, BETWEEN THE LEWISTON DAM AND THE NORTH FORK OF THE TRINITY.

Lat/Long: 4042'41" / 122 50'02" Township: 99X
UTM: Zone-10 N4506527 E514032 Range: 99X
Mapping Precision: SPECIFIC Section: XX Qtr XX
Symbol Type: POLYGON Meridian: H
Area: 1,945.6 ac Elevation: 500 ft

Comments
Distribution:
Ecological:
Threat:
General: FOUND, MARKED, AND RELEASED: 52 MALES, 66 FEMALES, & 20 UNKNOWN SEX JUNE-JULY 1991; 43 M, 42 F, 10 UNK SEX APR-SEP 1992; 6 M, 15 F FITTED WITH TRANSMITTERS MAY-AUG 1992; UNK NUMBER FOUND IN 1993 BY WELSH AND LIND.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
WEL93U02, WEL93U01

Lewisia cotyledon var. heckneri
Heckner's lewisia Element Code: PDPOR04052

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G4T2	CNPS List: 1B	
State: None	State: S2.2	R-E-D Code: 2-2-3	

Habitat Associations
General: LOWER MONTANE CONIFEROUS FOREST.
Micro: ROCKY PLACES. 225-1970M.

Occurrence No. 8 Map Index: 07914 Dates Last Seen
Occ Rank: Unknown Element: 1883-05-XX
Origin: Natural/Native occurrence Site: 1883-05-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: SLID 1981 (LIT)

Quad Summary: JUNCTION CITY (4012361/650A)
County Summary: TRINITY
SNA Summary:

Location: JUNCTION CITY, (ABOUT 0.5 MI S OF BENJAMIN FLAT, ON TRINITY RIV).

Lat/Long: 4043'43" / 123 03'42" Township: 33N
UTM: Zone-10 N4508421 E494792 Range: 11W
Mapping Precision: NON-SPECIFIC Section: XX Qtr XX
Symbol Type: POINT Meridian: M
Radius: 1 mile Elevation: 1392 ft

Comments
Distribution:
Ecological:
Threat:
General: NONE.
Owner/Manager: UNKNOWN
Source Codes
SLI81U08

Lewisia cotyledon var. heckneri (cont.)
Heckner's lewisia Element Code: PDPOR04052

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G4T2	CNPS List: 1B	
State: None	State: S2.2	R-E-D Code: 2-2-3	

Habitat Associations
General: LOWER MONTANE CONIFEROUS FOREST.
Micro: ROCKY PLACES. 225-1970M.

Occurrence No. 14 Map Index: 07945 Dates Last Seen
Occ Rank: Unknown Element: XXXX-XX-XX
Origin: Natural/Native occurrence Site: XXXX-XX-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: U.S. FOREST SERVICE ND (LIT)

Quad Summary: JUNCTION CITY (4012361/650A)*, DEDRICK (4012371/668D)
County Summary: TRINITY
SNA Summary:

Location: ONE MI NORTH OF JUNCTION CITY, NE OF HAYFORK DIVIDE.

Lat/Long: 4044'45" / 123 02'58" Township: 33N
UTM: Zone-10 N4510332 E495825 Range: 11W
Mapping Precision: NON-SPECIFIC Section: XX Qtr XX
Symbol Type: POINT Meridian: M
Radius: 1 mile Elevation:

Comments
Distribution:
Ecological:
Threat:
General: UNKNOWN WHEN SEEN.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
USFNDU03

California Department of Fish and Game
Natural Diversity Data Base

Full Report for Selected Occurrence
Trinity River Mechanical Rehabilitation Project
Lewiston Quad 4/24/03 CMC

Rana boylii
foothill yellow-legged frog Element Code: AAABH01050

Status NDDB Element Ranks Other Lists ?
Federal: Species of Concern Global: G3 CDFG Status: SC
State: None State: S2S3

Habitat Associations
General: PARTLY-SHADED, SHALLOW STREAMS & RIFFLES WITH A ROCKY SUBSTRATE IN A VARIETY OF HABITATS.
Micro: NEED AT LEAST SOME COBBLE-SIZED SUBSTRATE FOR EGG-LAYING. NEED AT LEAST 15 WEEKS TO ATTAIN METAMORPHOSIS.

Occurrence No. 69 Map Index: 24194 Dates Last Seen
Occ Rank: Unknown Element: 1993-XX-XX
Origin: Natural/Native occurrence Site: 1993-XX-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: WELSH, H. & A. LIND 1993 (PERS)

Quad Summary: LEWISTON (4012267/649A)*, WEAVERVILLE (4012268/649B), JUNCTION CITY (4012361/650A), DEDRICK (4012371/668D), HELENA (4012372/668C)
County Summary: TRINITY
SNA Summary:

Location: TRINITY RIVER, BETWEEN THE LEWISTON DAM AND THE NORTH FORK OF THE TRINITY.

Lat/Long: 4042'41" / 122 50'02" Township: 99X
UTM: Zone-10 N4506527 E514032 Range: 99X
Mapping Precision: SPECIFIC Section: XX Qtr XX
Symbol Type: POLYGON Meridian: H
Area: 1,945.6 ac Elevation: 500 ft

Comments
Distribution: ACCORDING TO WELSH AND LIND, FROGS ARE FOUND THROUGHOUT THIS AREA.
Ecological:
Threat:
General: NINE TADPOLES FOUND MAY-JUNE 1991; 51 TADS, 5 MALES, 3 FEMALES, AND 36 FROGS OF UNKNOWN SEX FOUND AUG 1991;15 TADS FOUND MAY-JUNE 1992; UNK NUMBER OF FROGS FOUND IN SURVEYS DONE IN 1993 BY WELSH AND LIND. SURVEYS WILL CONTINUE THROUGH 1994.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
LIN93U01, WEL93U01

California Department of Fish and Game
Natural Diversity Data Base

Full Report for Selected Occurrence
Trinity River Mechanical Rehabilitation Project
Lewiston Quad 4/24/03 CMC
?

Haliaeetus leucocephalus
bald eagle Element Code: ABNKC10010

Status	NDDB Element Ranks	Other Lists	?
Federal: Threatened	Global: G4	CDFG Status:	
State: Endangered	State: S2		

Habitat Associations
General: (NESTING & WINTERING) OCEAN SHORE, LAKE MARGINS, & RIVERS FOR BOTH NESTING & WINTERING. MOST NESTS WITHIN 1 MI OF WATER.
Micro: NESTS IN LG, OLD-GROWTH, OR DOMINANT LIVE TREE W/OPEN BRANCHES, ESPECIALLY PONDEROSA PINE. ROOSTS COMMUNALLY IN WINTER.

Occurrence No. 70 Map Index: 08342 Dates Last Seen
Occ Rank: Good Element: 1997-XX-XX
Origin: Natural/Native occurrence Site: 1997-XX-XX
Presence: Presumed Extant
Trend: Stable
Main Source: DEPT. OF FISH & GAME 1986 (PERS)

Quad Summary: LEWISTON (4012267/649A)
County Summary: TRINITY
SNA Summary:

Location: HATCHERY TERRITORY; LEWISTON RESERVOIR, IN THE VICINITY OF TRINITY RIVER FISH HATCHERY, NORTH OF LEWISTON.

Lat/Long: 4043'46" / 122 47'35" Township: 33N
UTM: Zone-10 N4508535 E517462 Range: 08W
Mapping Precision: NON-SPECIFIC Section: 08 Qtr NE
Symbol Type: POINT Meridian: M
Radius: 1/10 mile Elevation: 2000 ft

Comments
Distribution: FORMERLY KNOWN AS JENNING'S GULCH/LEWISTON TERRITORY.
Ecological: NESTING TERRITORY.
Threat: PRIVATE LANDS ADJACENT TO THE NEST HAVE BEEN LOGGED AND MAY BE SUBDIVIDED.
General: DISCOVERED IN 1971. 1 FLEDGED, 1977. OCCUPIED/UNSUCCESSFUL, 1981. 1-2 FLEDGED YEARLY, 1982-89. STATUS UNKNOWN, 1990. UNOCCUPIED, 1991. OCCUPIED/UNSUCCESSFUL, 1992. 1 FLEDGED, 1993, 1994, 1995, & 1996. OCCUPIED/SUCCESS UNKNOWN, 1997.
Owner/Manager: PVT, USFS-SHASTA/TRINITY NF
Source Codes
DFG86U03, THE73R04, MCI76R05, DFG87U06, JUR94U02, JUR94U03, DFG97U02, DFG97U01

California Department of Fish and Game
Natural Diversity Data Base

Full Report for Selected Occurrence
Trinity River Mechanical Rehabilitation Project
Lewiston Quad 4/24/03 CMC
?

Oncorhynchus tshawytscha spring-run
spring-run chinook salmon Element Code: AFCHA0205A

Status	NDDB Element Ranks	Other Lists	?
Federal: Threatened	Global: G5	CDFG Status:	
State: Threatened	State: S1		

Habitat Associations
General: ADULT NOS DEPEND ON POOL DEPTH & VOLUME, AMOUNT OF COVER, & PROXIMITY TO GRAVEL. WATER TEMPS >27 C LETHAL TO ADULTS
Micro: FEDERAL LISTING REFERS TO POPS SPAWNING IN SACRAMENTO RIVER & TRIBUTARIES.

Occurrence No. 16 Map Index: 24194 Dates Last Seen
Occ Rank: Unknown Element: 1993-11-XX
Origin: Natural/Native occurrence Site: 1993-11-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1996 (LIT)

Quad Summary: LEWISTON (4012267/649A)*, WEAVERVILLE (4012268/649B), JUNCTION CITY (4012361/650A), DEDRICK (4012371/668D), HELENA (4012372/668C)
County Summary: TRINITY
SNA Summary:

Location: TRINITY RIVER, LEWISTON DAM TO CONFLUENCE WITH NORTH FORK TRINITY.

Lat/Long: 4042'41" / 122 50'02" Township: 99X
UTM: Zone-10 N4506527 E514032 Range: 99X
Mapping Precision: SPECIFIC Section: XX Qtr XX
Symbol Type: POLYGON Meridian: H
Area: 1,945.6 ac Elevation: 500 ft

Comments
Distribution: BELOW LEWISTON DAM DOWNSTREAM TO THE MOUTH OF THE NORTH FORK TRINITY.
Ecological: NORTH COAST RIVER. SPAWING HABITAT MAPPED.
Threat:
General: 1993, MEASURED 268 CARCASSES, ADULTS COMPOSED 98.1%, GRILSE 1.9%. LENGTH RANGE 41 TO 97 CM FORK LENGTH.
Owner/Manager: PVT, BLM, USFS-TRINITY NF
Source Codes
DFG96R01

California Department of Fish and Game
Natural Diversity Data Base

Full Report for Selected Occurrence
Trinity River Mechanical Rehabilitation Project
Lewiston Quad 4/24/03 CMC
?

Martes pennanti pacifica
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4 Q	CDFG Status: SC	
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 375 Map Index: 26066 Dates Last Seen
Occ Rank: Excellent Element: 2002-02-06
Origin: Natural/Native occurrence Site: 2002-02-06
Presence: Presumed Extant
Trend: Unknown
Main Source: HUGHES, K. 1994 (OBS)

Quad Summary: FRENCH GULCH (4012266/648B)*, LEWISTON (4012267/649A)
County Summary: SHASTA, TRINITY
SNA Summary:

Location: SE OF HOADLEY PEAKS, IN THE TRINITY MOUNTAINS.

Lat/Long: 4040'56" / 122 44'45" Township: 33N
UTM: Zone-10 N4503329 E521462 Range: 08W
Mapping Precision: NON-SPECIFIC Section: 27 Qtr SW
Symbol Type: POLYGON Meridian: M
Area: 134.8 ac Elevation: 3840 ft

Comments
Distribution: 1/8/2002-2/620/02 BAITED CAMERA STATION -- HOADLEY PEAKS ROAD NEAR RADIO TOWERS, AT THE INTERSECTION OF TWO WELL USED ROADS.
Ecological: HABITAT CONSISTS OF OLD GROWTH DOUGLAS FIR FOREST, WITH ABUNDANT GROUND COVER. 2002 - MONTANE HARDWOOD-CONIFER HABITAT; DOUGLAS FIR, PONDEROSA PINE, CANYON LIVE OAK, CALIF. BLACK OAK, BIG-LEAF MAPLE, SMALL DOUGLAS FIR UNDERSTORY.
Threat:
General: 1 ADULT OBSERVED ON 3 FEBRUARY 1994-- BAITED CAMERA STATION SURVEY 1/8/2002-2/6/2002. SURROUNDING USE IS RECREATION AND VARIOUS LAND MANAGEMENT ACTIVITIES.
Owner/Manager: BLM
Source Codes
HUG94F02, LIN02F12

Martes pennanti pacifica (cont.)
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4		CDFG Status: SC
	Q		
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 376 Map Index: 30310 Dates Last Seen
Occ Rank: Good Element: 1994-02-12
Origin: Natural/Native occurrence Site: 1994-02-12
Presence: Presumed Extant
Trend: Unknown
Main Source: HUGHES, K. 1994 (OBS)

Quad Summary: FRENCH GULCH (4012266/648B)*, LEWISTON (4012267/649A)
County Summary: TRINITY
SNA Summary:

Location: VICINITY OF LITTLE GRASS VALLEY CREEK, 1 MILE WNW OF BUCKHORN SUMMIT, IN THE TRINITY MOUNTAINS.

Lat/Long: 4038'28" / 122 44'54" Township: 32N
UTM: Zone-10 N4498725 E521279 Range: 08W
Mapping Precision: NON-SPECIFIC Section: 10 Qtr SE
Symbol Type: POINT Meridian: M
Radius: 1/5 mile Elevation: 2960 ft

Comments
Distribution:
Ecological: HABITAT CONSISTS OF DOUGLAS FIR FOREST THAT WAS LOGGED >30 YEARS AGO; AVERAGE DBH ON-SITE >20 INCHES, WITH AN AVERAGE CANOPY COVER >60%.
Threat:
General: 1 ADULT OBSERVED ON 12 FEBRUARY 1994.
Owner/Manager: BLM
Source Codes
HUG94F03

California Department of Fish and Game
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Full Report for Selected Occurrence
Trinity River Mechanical Rehabilitation Project
Lewiston Quad 4/24/03 CMC
?

Clemmys marmorata marmorata
northwestern pond turtle Element Code: ARAAD02031

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G3G4T3 T4Q	CDFG Status: SC	
State: None	State: S3		

Habitat Associations
General: ASSOCIATED WITH PERMANENT OR NEARLY PERMANENT WATER IN A WIDE VARIETY OF HABITATS.
Micro: REQUIRES BASKING SITES. NESTS SITES MAY BE FOUND UP TO 0.5 KM FROM WATER.

Occurrence No. 11 Map Index: 24194 Dates Last Seen
Occ Rank: Unknown Element: 1993-XX-XX
Origin: Natural/Native occurrence Site: 1993-XX-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: WELSH, H. & A. LIND 1993 (PERS)

Quad Summary: LEWISTON (4012267/649A)*, WEAVERVILLE (4012268/649B), JUNCTION CITY (4012361/650A), DEDRICK (4012371/668D), HELENA (4012372/668C)
County Summary: TRINITY
SNA Summary:

Location: TRINITY RIVER, BETWEEN THE LEWISTON DAM AND THE NORTH FORK OF THE TRINITY.

Lat/Long: 4042'41" / 122 50'02" Township: 99X
UTM: Zone-10 N4506527 E514032 Range: 99X
Mapping Precision: SPECIFIC Section: XX Qtr XX
Symbol Type: POLYGON Meridian: H
Area: 1,945.6 ac Elevation: 500 ft

Comments
Distribution:
Ecological:
Threat:
General: FOUND, MARKED, AND RELEASED: 52 MALES, 66 FEMALES, & 20 UNKNOWN SEX JUNE-JULY 1991; 43 M, 42 F, 10 UNK SEX APR-SEP 1992; 6 M, 15 F FITTED WITH TRANSMITTERS MAY-AUG 1992; UNK NUMBER FOUND IN 1993 BY WELSH AND LIND.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
WEL93U02, WEL93U01

California Department of Fish and Game
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Full Report for Selected Occurrence
Trinity River Mechanical Rehabilitation Project
Lewiston Quad 4/24/03 CMC
?

Carex hystericina
bottlebrush sedge Element Code: PMCYP036D0

Status	NDDB Element Ranks	Other Lists	?
Federal: None	Global: G5	CNPS List: 2	
State: None	State: S1.1	R-E-D Code: 3-3-1	

Habitat Associations
General: MARSHES AND SWAMPS. IN CALIFORNIA, ONLY REPORTED FROM TRINITY COUNTY, NEAR RUSH CREEK.
Micro: WET PLACES, SUCH AS STREAM EDGES. 610M.

Occurrence No. 1 Map Index: 35194 Dates Last Seen
Occ Rank: Unknown Element: 1914-06-14
Origin: Natural/Native occurrence Site: 1914-06-14
Presence: Presumed Extant
Trend: Unknown
Main Source: YATES #7-146 CAS #710189 (HERB)

Quad Summary: TRINITY DAM (4012277/667D)*, LEWISTON (4012267/649A)
County Summary: TRINITY
SNA Summary:

Location: RUSH CREEK, TRINITY FOREST.

Lat/Long: 4045'08" / 122 50'23" Township: 33N
UTM: Zone-10 N4511062 E513518 Range: 09W
Mapping Precision: NON-SPECIFIC Section: 01 Qtr W
Symbol Type: POLYGON Meridian: H
Area: 174.3 ac Elevation: 2000 ft

Comments
Distribution: COLLECTED AT 2000' ELEVATION. MAPPED BY CNDDB ALONG STRETCH OF CREEK SSW OF TYLERS PEAK.
Ecological: WET MEADOW ASSOCIATED WITH SEDGES AND MIMULUS.
Threat:
General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1914 COLLECTION BY YATES.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
YAT14S01

California Department of Fish and Game
Natural Diversity Data Base

Full Report for Selected Occurrence
Trinity River Channel Rehabilitation Project Weaverville
4/24/03 CMC

Rana boylii
foothill yellow-legged frog Element Code: AAABH01050

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G3		CDFG Status: SC
State: None	State: S2S3		

Habitat Associations
General: PARTLY-SHADED, SHALLOW STREAMS & RIFFLES WITH A ROCKY SUBSTRATE IN A VARIETY OF HABITATS.
Micro: NEED AT LEAST SOME COBBLE-SIZED SUBSTRATE FOR EGG-LAYING. NEED AT LEAST 15 WEEKS TO ATTAIN METAMORPHOSIS.

Occurrence No. 69 Map Index: 24194 Dates Last Seen
Occ Rank: Unknown Element: 1993-XX-XX
Origin: Natural/Native occurrence Site: 1993-XX-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: WELSH, H. & A. LIND 1993 (PERS)

Quad Summary: LEWISTON (4012267/649A)*, WEAVERVILLE (4012268/649B), JUNCTION CITY (4012361/650A), DEDRICK (4012371/668D), HELENA (4012372/668C)
County Summary: TRINITY
SNA Summary:

Location: TRINITY RIVER, BETWEEN THE LEWISTON DAM AND THE NORTH FORK OF THE TRINITY.

Lat/Long: 4042'41" / 122 50'02" Township: 99X
UTM: Zone-10 N4506527 E514032 Range: 99X
Mapping Precision: SPECIFIC Section: XX Qtr XX
Symbol Type: POLYGON Meridian: H
Area: 1,945.6 ac Elevation: 500 ft

Comments
Distribution: ACCORDING TO WELSH AND LIND, FROGS ARE FOUND THROUGHOUT THIS AREA.
Ecological:
Threat:
General: NINE TADPOLES FOUND MAY-JUNE 1991; 51 TADS, 5 MALES, 3 FEMALES, AND 36 FROGS OF UNKNOWN SEX FOUND AUG 1991;15 TADS FOUND MAY-JUNE 1992; UNK NUMBER OF FROGS FOUND IN SURVEYS DONE IN 1993 BY WELSH AND LIND. SURVEYS WILL CONTINUE THROUGH 1994.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
LIN93U01, WEL93U01

California Department of Fish and Game
Natural Diversity Data Base

Full Report for Selected Occurrence
Trinity River Channel Rehabilitation Project Weaverville
4/24/03 CMC

Oncorhynchus tshawytscha spring-run
spring-run chinook salmon Element Code: AFCHA0205A

Status	NDDB Element Ranks	Other Lists	?
Federal: Threatened	Global: G5	CDFG Status:	
State: Threatened	State: S1		

Habitat Associations
General: ADULT NOS DEPEND ON POOL DEPTH & VOLUME, AMOUNT OF COVER, & PROXIMITY TO GRAVEL. WATER TEMPS >27 C LETHAL TO ADULTS
Micro: FEDERAL LISTING REFERS TO POPS SPAWNING IN SACRAMENTO RIVER & TRIBUTARIES.

Occurrence No. 16 Map Index: 24194 Dates Last Seen
Occ Rank: Unknown Element: 1993-11-XX
Origin: Natural/Native occurrence Site: 1993-11-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1996 (LIT)

Quad Summary: LEWISTON (4012267/649A)*, WEAVERVILLE (4012268/649B), JUNCTION CITY (4012361/650A), DEDRICK (4012371/668D), HELENA (4012372/668C)
County Summary: TRINITY
SNA Summary:

Location: TRINITY RIVER, LEWISTON DAM TO CONFLUENCE WITH NORTH FORK TRINITY.

Lat/Long: 4042'41" / 122 50'02" Township: 99X
UTM: Zone-10 N4506527 E514032 Range: 99X
Mapping Precision: SPECIFIC Section: XX Qtr XX
Symbol Type: POLYGON Meridian: H
Area: 1,945.6 ac Elevation: 500 ft

Comments
Distribution: BELOW LEWISTON DAM DOWNSTREAM TO THE MOUTH OF THE NORTH FORK TRINITY.
Ecological: NORTH COAST RIVER. SPAWING HABITAT MAPPED.
Threat:
General: 1993, MEASURED 268 CARCASSES, ADULTS COMPOSED 98.1%, GRILSE 1.9%. LENGTH RANGE 41 TO 97 CM FORK LENGTH.
Owner/Manager: PVT, BLM, USFS-TRINITY NF
Source Codes
DFG96R01

California Department of Fish and Game
Natural Diversity Data Base

Full Report for Selected Occurrence
Trinity River Channel Rehabilitation Project Weaverville
4/24/03 CMC

Martes pennanti pacifica
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4 Q	CDFG Status: SC	
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 347 Map Index: 08102 Dates Last Seen
Occ Rank: Unknown Element: XXXX-XX-XX
Origin: Natural/Native occurrence Site: XXXX-XX-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1987 (OBS)

Quad Summary: WEAVERVILLE (4012268/649B)*, RUSH CREEK LAKES (4012278/667C)
County Summary: TRINITY
SNA Summary:

Location: GARDEN GULCH, ONE MI N OF WEAVERVILLE, TRINITY NATL FOREST.

Lat/Long: 4044'37" / 122 56'30" Township: 33N
UTM: Zone-10 N4510086 E504924 Range: 10W
Mapping Precision: NON-SPECIFIC Section: 01 Qtr XX
Symbol Type: POINT Meridian: M
Radius: 1 mile Elevation: 2300 ft

Comments
Distribution:
Ecological: MIXED CONIFEROUS FOREST HABITAT.
Threat:
General: OBSERVATION; DATE UNKNOWN.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
DFG87U15, SCH77R02

Martes pennanti pacifica (cont.)
Pacific fisher Element Code: AMAJF01021

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G5T3T4 Q	CDFG Status: SC	
State: None	State: S2S3		

Habitat Associations
General: INTERMEDIATE TO LARGE-TREE STAGES OF CONIFEROUS FORESTS & DECIDUOUS-RIPARIAN AREAS W/ HIGH PERCENT CANOPY CLOSURE.
Micro: USE CAVITIES, SNAGS, LOGS & ROCKY AREAS FOR COVER & DENNING. NEED LARGE AREAS OF MATURE, DENSE FOREST.

Occurrence No. 394 Map Index: 33658 Dates Last Seen
Occ Rank: Excellent Element: 1997-01-21
Origin: Natural/Native occurrence Site: 1997-01-21
Presence: Presumed Extant
Trend: Unknown
Main Source: HUGHES, K. 1997 (OBS)

Quad Summary: WEAVERVILLE (4012268/649B)
County Summary: TRINITY
SNA Summary:

Location: JUST WEST OF TRINITY RIVER, 1.5 MILES NW OF DOUGLAS CITY CAMPGROUND, 4 MILES SSW OF WEAVERVILLE.

Lat/Long: 4039'50" / 122 58'09" Township: 32N
UTM: Zone-10 N4501228 E502599 Range: 10W
Mapping Precision: NON-SPECIFIC Section: 02 Qtr NW
Symbol Type: POINT Meridian: M
Radius: 1/5 mile Elevation: 1950 ft

Comments
Distribution:
Ecological: HABITAT CONSISTS OF MIXED CONIFER FOREST THAT HAS NEVER BEEN HARVESTED.
Threat: THREATENED BY TIMBER HARVEST.
General: 1 ADULT DETECTED VIA REMOTE CAMERA ON 21 JANUARY 1997.
Owner/Manager: BLM
Source Codes
HUG97F02

California Department of Fish and Game
Natural Diversity Data Base

Full Report for Selected Occurrence
Trinity River Channel Rehabilitation Project Weaverville
4/24/03 CMC

Clemmys marmorata marmorata
northwestern pond turtle Element Code: ARAAD02031

Status	NDDB Element Ranks	Other Lists	?
Federal: Species of Concern	Global: G3G4T3 T4Q	CDFG Status: SC	
State: None	State: S3		

Habitat Associations
General: ASSOCIATED WITH PERMANENT OR NEARLY PERMANENT WATER IN A WIDE VARIETY OF HABITATS.
Micro: REQUIRES BASKING SITES. NESTS SITES MAY BE FOUND UP TO 0.5 KM FROM WATER.

Occurrence No. 11 Map Index: 24194 Dates Last Seen
Occ Rank: Unknown Element: 1993-XX-XX
Origin: Natural/Native occurrence Site: 1993-XX-XX
Presence: Presumed Extant
Trend: Unknown
Main Source: WELSH, H. & A. LIND 1993 (PERS)

Quad Summary: LEWISTON (4012267/649A)*, WEAVERVILLE (4012268/649B), JUNCTION CITY (4012361/650A), DEDRICK (4012371/668D), HELENA (4012372/668C)
County Summary: TRINITY
SNA Summary:

Location: TRINITY RIVER, BETWEEN THE LEWISTON DAM AND THE NORTH FORK OF THE TRINITY.

Lat/Long: 4042'41" / 122 50'02" Township: 99X
UTM: Zone-10 N4506527 E514032 Range: 99X
Mapping Precision: SPECIFIC Section: XX Qtr XX
Symbol Type: POLYGON Meridian: H
Area: 1,945.6 ac Elevation: 500 ft

Comments
Distribution:
Ecological:
Threat:
General: FOUND, MARKED, AND RELEASED: 52 MALES, 66 FEMALES, & 20 UNKNOWN SEX JUNE-JULY 1991; 43 M, 42 F, 10 UNK SEX APR-SEP 1992; 6 M, 15 F FITTED WITH TRANSMITTERS MAY-AUG 1992; UNK NUMBER FOUND IN 1993 BY WELSH AND LIND.
Owner/Manager: USFS-SHASTA/TRINITY NF
Source Codes
WEL93U02, WEL93U01

Juncus dudleyi
Dudley's rush Element Code: PMJUN01390

Status	NDDB Element Ranks	Other Lists	?
Federal: None	Global: G5	CNPS List: 2	
State: None	State: S2.3?	R-E-D Code: 3-1-1	

Habitat Associations
General: LOWER MONTANE CONIFEROUS FOREST (MESIC).
Micro: WET AREAS IN FOREST. 455-2000M.

Occurrence No. 1 Map Index: 37368 Dates Last Seen
Occ Rank: Unknown Element: 1879-09-20
Origin: Natural/Native occurrence Site: 1879-09-20
Presence: Presumed Extant
Trend: Unknown
Main Source: KLUBERGER SN CAS #166633 (HERB)

Quad Summary: WEAVERVILLE (4012268/649B)
County Summary: TRINITY
SNA Summary:

Location: WEAVERVILLE, ALONG WATERCOURSE.

Lat/Long: 4043'59" / 122 56'21" Township: 33N
UTM: Zone-10 N4508915 E505146 Range: 09W
Mapping Precision: NON-SPECIFIC Section: 07 Qtr XX
Symbol Type: POINT Meridian: M
Radius: 1 mile Elevation: 2000 ft

Comments
Distribution:
Ecological:
Threat:
General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1879 COLLECTION BY KLUBERGER. ORIGINAL DETERMINATION WAS JUNCUS COULTERI; ANNOTATED TO JUNCUS TENUIS VAR. DUDLEYI.
Owner/Manager: UNKNOWN
Source Codes
KLU79S01

Appendix J

FIELD VISIT DATES: JUNE 5 and 20, 2002.

TABLE 2. PLANT SPECIES OBSERVED AT THE HOCKER FLAT MECHANICAL CHANNEL REHABILITATION SITE		
SCIENTIFIC NAME	**COMMON NAME**	**FAMILY NAME**
MONTANE RIPARIAN		
Acer macrophyllum	Bigleaf maple	Aceraceae
Agrostis exarata	Spiked bent grass	Poaceae
Ailanthus altissima	Tree of heaven	Simaroubaceae
Aira carophyllea	Silver European hairgrass	Poaceae
Alnus rhombifolia	White alder	Betulaceae
Anthriscus caucalis	Bur-chervil	Apiaceae
Arabis drummondii	Drummond's rock cress	Brassicaceae
Artemisia douglasiana	Mugwort	Asteraceae
Asclepias fascicularis	Narrow-leaved milkweed	Asclepiadaceae
Asparagus officinalis ssp. *officinalis*	Asparagus	Liliaceae
Brassica nigra	Black mustard	Brassicaceae
Brickellia californica	California brickellbush	Asteraceae
Briza minor	Lesser quaking grass	Poaceae
Bromus carinatus	California brome	Poaceae
Bromus hordeaceus	Softchess	Poaceae
Bromus tectorum	Cheatgrass	Poaceae
Carex athrostachya	Slender-beak sedge	Cyperaceae
Carex barbarae	Santa Barbara sedge	Cyperaceae
Carex deweyana ssp. *leptopoda*	Short-scaled sedge	Cyperaceae
Carex nudata	Torrent sedge	Cyperaceae
Carex stipata var. *stipata*	Awl-fruited sedge	Cyperaceae
Carex utriculata	Beaked sedge	Cyperaceae
Caulanthus sp.	Jewelflower	Brassicaceae
Centaurea solstitialis	Yellow star thistle	Asteraceae
Claytonia perfoliata	Miner's lettuce	Portulacaceae
Clematis ligusticifolia	Virgin's bower	Ranunculaceae
Collomia heterophylla	Variable-leaved collomia	Polemoniaceae
Conium maculatum	Poison hemlock	Apiaceae
Cryptantha milobakeri	Milo Baker's cryptantha	Boraginaceae
Cyperus eragrostis	Tall nutsedge	Cyperaceae
Daucus carota	Queen Anne's lace	Apiaceae
Deschampsia cespitosa	Tufted hairgrass	Poaceae
Dianthus armeria ssp. *armeria*	Grass pink	Caryophyllaceae
Elymus glaucus	Blue wild rye	Poaceae
Epilobium ciliatum	Willow herb	Onagraceae
Equisetum laevigatum	Smooth scouring rush	Equisetaceae
Eschscholzia caespitosa	Foothill poppy	Papaveraceae
Fraxinus latifolia	Oregon ash	Oleaceae
Galium trifidum var. *pacificum*	Pacific bedstraw	Rubiaceae
Gilia capitata	Globe gilia	Polemoniaceae
Heterotheca oregona	Oregon golden-aster	Asteraceae
Holcus lanatus	Velvet grass	Poaceae
Hypericum perforatum	Klamathweed	Hypericaceae
Juglans californica var. *hindsii*	Northern California black walnut	Juglandaceae
Juncus effusus	Common rush	Juncaceae

TABLE 2. PLANT SPECIES OBSERVED AT THE HOCKER FLAT MECHANICAL CHANNEL REHABILITATION SITE		
SCIENTIFIC NAME	**COMMON NAME**	**FAMILY NAME**
Juncus ensifolius	Sword-leaved rush	Juncaceae
Juncus mexicanus	Mexican rush	Juncaceae
Lathyrus latifolius	Perennial sweet pea	Fabaceae
Linaria genistifolia ssp. *dalmatica*	Dalmatian toadflax	Scrophulariaceae
Lupinus bicolor	Bi-colored lupine	Fabaceae
Melica californica	California melic	Poaceae
Melilotus alba	White sweetclover	Fabaceae
Mentha arvensis	Mint	Lamiaceae
Polygonum lapathifolium	Willow weed	Polygonaceae
Polystichum imbricans	Narrow-leaved sword fern	Polypodiaceae
Populus balsamifera ssp. *trichocarpa*	Black cottonwood	Salicaceae
Populus fremontii	Fremont cottonwood	Salicaceae
Rhus trilobata	Skunkbrush	Anacardiaceae
Ribes divaricatum	Gooseberry	Grossulariaceae
Robinia pseudoacacia	Black locust	Fabaceae
Rosa californica	California rose	Rosaceae
Rubus discolor	Himalayan blackberry	Rosaceae
Rubus ursinus	California blackberry	Rosaceae
Rumex crispus	Curly dock	Polygonaceae
Salix exigua	Narrow-leaved willow	Salicaceae
Salix gooddingii	Goodding's black willow	Salicaceae
Salix lasiolepis	Arroyo willow	Salicaceae
Salix lucida	Shining willow	Salicaceae
Sambucus mexicana	Blue elderberry	Caprifoliaceae
Scirpus microcarpus	Small-fruited bulrush	Cyperaceae
Thysanoacarpus curvipes	Fringepod	Brassicaceae
Torilis arvensis	Hedge-parsley	Apiaceae
Trifolium arvense	Rabbitfoot clover	Fabaceae
Typha angustifolia	Narrow-leaved cattail	Typhaceae
Verbascum blattaria	Moth mullein	Scrophulariaceae
Verbena lasiostachys	Common verbena	Verbenaceae
Vitis californica	California grape	Vitaceae
MONTANE HARDWOOD - CONIFER		
Achnatherum occidentalis	Needle grass	Poaceae
Aira carophyllea	Silver European hairgrass	Poaceae
Amsinckia menziesii var. *intermedia*	Rancher's fireweed	Boraginaceae
Anthoxanthum odoratum	Sweet vernal grass	Poaceae
Arbutus menziesii	Pacific madrone	Ericaceae
Arctostaphylos manzanita	Common manzanita	Ericaceae
Arctostaphylos patula	Greenleaf manzanita	Ericaceae
Artemisia douglasiana	Mugwort	Asteraceae
Avena fatua	Wild oat	Poaceae
Brickellia californica	California brickellbush	Asteraceae
Brodiaea elegans ssp. *elegans*	Harvest brodiaea	Liliaceae
Bromus diandrus	Ripgut grass	Poaceae
Bromus hordeaceus	Softchess	Poaceae
Bromus madritensis ssp. *rubens*	Red brome	Poaceae
Bromus tectorum	Cheatgrass	Poaceae
Ceanothus cuneatus	Buck brush	Rhamnaceae

TABLE 2. PLANT SPECIES OBSERVED AT THE HOCKER FLAT MECHANICAL CHANNEL REHABILITATION SITE		
SCIENTIFIC NAME	**COMMON NAME**	**FAMILY NAME**
Centaurea solstitialis	Yellow star thistle	Asteraceae
Clarkia purpurea	Purple clarkia	Onagraceae
Cynodon dactylon	Bermuda grass	Poaceae
Cynosurus echinatus	Hedgehog dogtail	Poaceae
Daucus carota	Queen Anne's lace	Apiaceae
Elymus glaucus	Blue wild rye	Poaceae
Eriogonum nudum	Naked buckwheat	Polygonaceae
Eriophyllum lanatum	Woolly sunflower	Asteraceae
Erodium botrys	Filaree	Geraniaceae
Galium bolanderi	Bolander's bedstraw	Rubiaceae
Hypericum perforatum	Klamathweed	Hypericaceae
Hypochaeris radicata	Rough cat's ears	Asteraceae
Keckiella lemmonii	Lemmon's keckiella	Scrophulariaceae
Linaria genistifolia ssp. *dalmatica*	Dalmatian toadflax	Scrophulariaceae
Lotus humistratus	Foothill lotus	Fabaceae
Lotus purshianus var. *purshianus*	Spanish lotus	Fabaceae
Lupinus bicolor	Bi-colored lupine	Fabaceae
Lupinus albifrons	Silver bush lupine	Fabaceae
Medicago polymorpha	California burclover	Fabaceae
Pellaea mucronata	Bird's-foot fern	Pteridaceae
Petrorhagia dubia	Windmill pink	Caryophyllaceae
Phacelia hastata	Silverleaf phacelia	Hydrophyllaceae
Pinus ponderosa	Ponderosa pine	Pinaceae
Pinus sabiniana	Gray pine	Pinaceae
Plantago lanceolata	English plantain	Plantaginaceae
Poa bulbosa	Bulbous bluegrass	Poaceae
Polypogon maritimus	Mediterranean beard grass	Poaceae
Potentilla glandulosa	Common cinquefoil	Rosaceae
Pseudotsuga menziesii var. *menziesii*	Douglas-fir	Pinaceae
Quercus chrysolepis	Canyon live oak	Fagaceae
Quercus durata	Leather oak	Fagaceae
Quercus kelloggii	Black oak	Fagaceae
Rhamnus purshiana	Cascara	Rhamnaceae
Rubus discolor	Himalayan blackberry	Rosaceae
Streptanthus tortuosus	Mountain jewelflower	Brassicaceae
Toxicodendron diversilobum	Poison oak	Anacardiaceae
Tragopogon dubius	Western salsify	Asteraceae
Trifolium arvense	Rabbitfoot clover	Fabaceae
Trifolium hirtum	Rose clover	Fabaceae
Verbascum thapsus	Woolly mullein	Scrophulariaceae

FIELD VISIT DATES: MAY 14, JUNE 5 and AUGUST 16, 2003

TABLE 1. ADDITIONAL PLANT SPECIES OBSERVED AT THE HOCKER FLAT MECHANICAL CHANNEL REHABILITATION SITE		
SCIENTIFIC NAME	**COMMON NAME**	**FAMILY NAME**
MONTANE RIPARIAN		
Lamium purpureum	Dead nettle	Lamiaceae
Philadelphus lewisii	Wild mock orange	Philadelphaceae
Pinus ponderosa	Ponderosa pine	Pinaceae
Pinus sabiniana	Grey pine	Pinaceae
Prunus virginiana	Western choke-cherry	Rosaceae
Salix laevigata	Red willow	Salicaceae
Scutellaria siphocampyloides	Narrowleaf skullcap	Lamiaceae
Symphoricarpos albus var. laevigatus	Snowberry	Caprifoliaceae
Toxicodendron diversilobum	Poisen oak	Anacardiaceae
MONTANE HARDWOOD - CONIFER		
Aira caryophylla	European hairgrass	Poaceae
Allium amplectens	Allium	Liliaceae
Arabidopsis thaliana	Thale cress	Brassicaceae
Arabis holboelli var. retrofracta	Rock cress	Brassicaceae
Arctostaphylos viscida	Whiteleaf manzanita	Ericaceae
Brassica nigra	Black mustard	Brassicaceae
Brickellia californica	Brickellbush	Asteraceae
Bromus inermis	Smooth brome	Poaceae
Calandrinia ciliata	Red maids	Polygonaceae
Calochortus tolmiei	Pussy ears	Liliaceae
Camissonia contorta	Sun cup	Onagraceae
Castilleja attenuata	Valley tassels	Scrophulariaceae
Ceanothus intergerrimus	Deer brush	Rhamnaceae
Cercocarpus betuloides	Birchleaf mountain mahogany	Rosaceae
Cirsium arvense	Canada thistle	Asteraceae
Clarkia purpurea ssp. quadrivulnera	Four spot clarkia	Onagraceae
Conium maculatum	Poisen hemlock	Apiaceae
Crassula connata	Crassula	Crassulaceae
Cryptantha flaccida	Cryptantha	Boraginaceae
Dichelostemma capitatum	Blue dicks	Liliaceae
Elymus elymoides	Squirreltail	Poaceae
Eschscholzia californica	California poppy	Papaveraceae
Gayophytum diffusum var. parviflorum	Gayophytum	Onagraceae
Holchus lanatus	Velvet grass	Poaceae
Hordeum murinum	Barley	Poaceae
Lupinus microcarpus	Chick lupine	Fabaceae
Mimulus layneae	Serpentine monkeyflower	Scrophulariaceae
Osmorhiza chilensis	Sierran sweet-cicely	Apiaceae
Pentagramma triangularis	Goldenback fern	Pteridaceae
Phacelia imbricata	Phacelia	Hydrophyllaceae
Poa pratensis	Kentucky bluegrass	Poaceae
Polystichum munitum	Swordfern	Dryopteridaceae
Rigiopappus leptocladus	Rigiopappus	Asteraceae
Robinia pseudoacacia	Black locust	Fabaceae
Sambucus mexicana	Blue elderberry	Caprifoliaceae
Symphoricarpus albus var. laevigatus	Snowberry	Caprifoliaceae

TABLE 1. ADDITIONAL PLANT SPECIES OBSERVED AT THE HOCKER FLAT MECHANICAL CHANNEL REHABILITATION SITE		
SCIENTIFIC NAME	**COMMON NAME**	**FAMILY NAME**
Torilis arvensis	Hedge-parsley	Apiaceae
Trifolium willdenovii	Clover	Fabaceae
Verbena lasiostachys	Common verbena	Verbenaceae
Vicia sativa	Vetch	Fabaceae

Appendix K

PROGRAMMATIC AGREEMENT
AMONG THE U. S. BUREAU OF RECLAMATION,
U. S. FISH AND WILDLIFE SERVICE, U.S. BUREAU OF LAND MANAGEMENT,
HOOPA VALLEY TRIBE,
CALIFORNIA STATE HISTORIC PRESERVATION OFFICER, AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING IMPLEMENTATION OF
THE TRINITY RIVER MAINSTEM FISHERY RESTORATION

WHEREAS, the U.S. Bureau of Reclamation (Reclamation), U. S. Fish and Wildlife Service (Service), U.S. Bureau of Land Management (Bureau), and the Hoopa Valley Tribe (Tribe) have determined that implementing the actions (Undertaking) outlined in the Trinity River Mainstem Fishery Restoration Environmental Impact Statement/Report (Trinity EIS/R) for purposes of protecting, restoring, and enhancing fish and wildlife, may affect historic properties; and

WHEREAS, Reclamation, the Service, the Bureau (agencies) and the Tribe have elected to comply with Section 106 of the National Historic Preservation Act(NHPA) for the Undertaking through execution and implementation of a Programmatic Agreement (Agreement) pursuant to 36 CFR Section 800.14, because not all Trinity EIS/R implementing actions have as yet been identified and because neither the scope and magnitude of the Undertaking's effects to historic properties nor the historic properties themselves have been identified at the time of execution of this Agreement; and

WHEREAS, the agencies, pursuant to 36 CFR 800.8(a)(1) and 800.8(a)(3), will coordinate compliance with the requirements of the National Environmental Policy Act (NEPA) for actions covered by this Agreement with the requirements of Subpart B of 36 CFR Part 800, and as part of this process of coordination, may use the NEPA process and associated documentation to supplement compliance with Subpart B; and

WHEREAS, pursuant to 36 CFR Section 800.2(c)(2)(ii), the Tribe=s representative shall be included in the term Tribal Historic Preservation Officer (THPO) for undertakings occurring on or affecting historic properties on its tribal lands and affecting properties of religious and cultural significance to the Tribe located on or off-tribal lands, and for any such undertakings, the primary responsible Federal agency (RFA) shall also consult with the THPO, in addition to the SHPO, where consultation is required under this Agreement; and

WHEREAS, the agencies have consulted with the California State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (Council) pursuant to Section 800.14 (b) of the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act (NHPA) (16 U.S.C. 470f) to resolve any adverse effects of the Undertaking on historic properties; and

WHEREAS, throughout the implementation of this Agreement, Reclamation and the Service the shall consult with Indian tribes, organizations and individuals that may attach religious and cultural significance to, or that may have concerns about the Undertaking's effects on historic properties,

NOW, THEREFORE, Reclamation, the Service, the Bureau, the Tribe, the SHPO, and the Council agree that the following stipulations shall be implemented in order to take into account the effects of the Undertaking on historic properties, and that these stipulations shall govern the Undertaking and all of its parts until this Agreement expires or is terminated.

STIPULATIONS

Reclamation and the Service shall ensure that the following measures are carried out:

I. ASSIGNMENT OF RESPONSIBILITY

Either Reclamation or the Service will be responsible for ensuring that the terms of this Agreement are carried out for all individual actions authorized or funded by the Department of the Interior comprising the Undertaking, irrespective of where or by whom the action will be carried out. Prior to preparation of environmental documentation for each action covered by this Agreement, Reclamation and the Service will consult to determine which agency will serve as primary responsible federal agency (RFA) for such action. The selected RFA will be responsible for implementing the terms of this Agreement with respect to the action proposed. The Service shall comply with the terms of this Agreement for the Undertaking and all individual actions therein, in lieu of the Programmatic Agreement among the Service, Council, and the SHPO executed on May 7, 1997.

II. AREAS OF POTENTIAL EFFECTS (APEs)

a. For purposes of this Agreement, the APE for the Undertaking in its entirety shall consist of the area within the 500 year floodplain of the Trinity River from the Trinity Reservoir downstream to the Hoopa Valley Indian Reservation, the area within the drawdown zones of the Trinity Reservoir, and ancillary areas within or outside of the 500 year floodplain that will be affected by implementing actions and associated facilities, such as material borrow sites, access roads, sediment pond construction and maintenance.

b. At the earliest stage of planning for any action comprising the Undertaking, the RFA will determine and document an area of potential effects (APE)in strict accordance with the definition set forth in 36 CFR 800.16(d). The APE for an action covered by this Agreement will be defined either before or concurrently with the earliest stages of NEPA compliance for the action.

III. REVIEW OF TRINITY EIS/R IMPLEMENTING ACTIONS

a. Coordination with NEPA

The RFA shall ensure that compliance with the terms of this Agreement is coordinated with NEPA compliance. When a specific Trinity EIS/R implementing action is identified, the RFA's archaeologist will establish an APE pursuant to Stipulation III.B., below, and ensure that an appropriate level of effort is conducted to identify historic properties within that APE. Specific steps taken to comply with this Agreement will be included in an Environmental Assessment (EA) or categorical exclusion checklist (CEC) prepared for a Trinity EIS/R implementing action. An EA will, to the extent possible,

describe efforts to identify historic properties and, if applicable, identify and discuss measures that will avoid, minimize or mitigate potential adverse effects to historic properties. CECs will be prepared for minor actions where no historic properties have been identified within the APE. All CECs will be reviewed by Reclamation's Regional Archeologist, or by the Bureau=s Redding or Arcata Field Archeologist, or by the Service=s Regional Archeologist, to ensure that no historic properties will be affected by a proposed action. The final EIS or subsequent NEPA documentation for a Trinity EIS/R implementing action shall include, to the extent possible, appropriate documentation evidencing compliance with the terms of this Agreement. The RFA will ensure that the Finding of No Significant Impact or the Record of Decision for any action includes a plan for the treatment of historic properties adversely affected by such action.

b. IDENTIFYING HISTORIC PROPERTIES

36 CFR 800.4(b)(1) is the general standard which the RFA will use to determine the level of effort needed to identify historic properties within the APE of each Trinity EIS/R implementing action covered by this Agreement. In addition, as part of identification, the RFA will place special emphasis on the consultation prescribed by 36 CFR 800.4(a)(4) and by 36 CFR 800.4(b). The general standard set forth in 36 CFR 800.4(b)(1) will be supplemented by the following:

(1) The results of the cultural resources overview prepared for the Trinity River Mainstem Fishery Restoration EIS/R;

(2)Applicable inventory standards identified in Reclamation Instructions (376.3B) or in the Service's Administrative Manual and the Service's Cultural Resource Management Handbook (1985). Cultural resources and historic properties identified during inventory will be recorded as follows:

(a) A new or updated California Department of Parks and Recreation Form DPR 523 (series 1/95) will be completed in accordance with the Instructions for Recording Historical Resources (Office of Historic Preservation, March 1995). The RFA will ensure that forms are submitted to the appropriate Information Center of the California Historical Resources Information System (CHRIS) for assignment of permanent site numbers. These site numbers will be used to the extent possible as inventory reports are prepared.

(b) National Register Bulletin 38 will be the standard used by the RFA to identify and document traditional cultural properties, based on consultation with the Tribe and other tribes, organizations, or individuals who may attach religious and cultural significance to historic properties that may be affected by the Undertaking. Traditional cultural properties identified during inventory may be recorded on the DPR 523 unless the Tribe or another Indian tribe, organization or individual objects. If such objection arises, the properties may be recorded on a form and in a manner that is in accordance with the recommendations of the Tribe or other Indian tribes, organizations or individuals, subject to the confidentiality requirements set forth in Stipulation VI.C., below. If traditional cultural properties affiliated with

other parties are identified during inventory, these parties will be consulted by the RFA in accordance with 36 CFR 800.2(c)(6).

(c) The applicable cultural resource data base including information available from the appropriate Information Center of the California Historical Resources Information System (CHRIS), and professional staff estimation; and

(d) The National Park Service publication, "The Archeological Survey: Methods and Uses" (King 1978);

c. EVALUATING PROPERTIES AND DETERMINING EFFECTS

(1) A Trinity EIS/R implementing action will be exempt from further consideration under this Agreement if any of the following conditions are met:

(a) The RFA=s archaeologist determines that there are no cultural resources in the APE, based on the results of identification efforts outlined in Stipulation III.B. above; or

(b) The RFA=s archaeologist determines that no cultural resources will be affected, based on the results of identification efforts outlined in Stipulation III.B.and C.; or

(c) The RFA=s archaeologist determines that cultural resources may be affected, but based on the evaluation prescribed in paragraph C.2.of this stipulation, such resources are determined ineligible for inclusion in the National Register of Historic Places (NRHP).

(2) If the RFA=s archaeologist determines that an action covered by this Agreement may affect a cultural resource, the RFA=s archaeologist will evaluate the cultural resource in accordance with the process set forth in 36 CFR 800.4(c)(1) before any activity that may affect the resource is initiated. If the resource in question may be a traditional cultural property, the RFA will use National Register Bulletin 38 in conducting the evaluation.

(3) If the RFA determines pursuant to paragraph C.2. of this stipulation, that the cultural resources subject to effects are eligible for inclusion in the NRHP, the RFA=s archaeologist will follow 36 CFR 800.5 to determine whether such effects may be adverse.

(a) If this consultation results in a finding of no adverse effect to historic properties, the RFA=s archaeologist will conclude the consultation by complying with 36 CFR 800.5(d).

(b) If this consultation results in a finding that historic properties will be adversely affected, the RFA=s archaeologist will ensure that the adverse effects are taken into account in accordance with paragraph D. of this stipulation.

d. HISTORIC PROPERTY TREATMENT PLANS (HPTPs)

(1) The RFA=s archaeologist will develop HPTPs to resolve the adverse effects on historic properties of actions covered by this Agreement. Separate HPTPs may be prepared for individual Trinity EIS/R implementation actions. HPTPs will be developed by the RFA in consultation with the SHPO, the Tribe, other Indian tribes, organizations and individuals, and the Council if it so requests, and with any interested parties identified by the signatory parties to this Agreement. HPTPs will be submitted for review according to the procedures set forth in paragraph D.4. of this stipulation.

(2) HPTPs will be consistent with the AArchaeology and Historic Preservation: Secretary of Interior=s Standards and Guidelines (FR 44716-44742), including the "Secretary of the Interior's Standards and Guidelines for Archaeological Documentation" (48 FR 44734-37)" and the Council's "Recommended Approach for Consultation on Recovery of Significant Information from Archeological Sites" (64 FR 27085-87). HPTPs shall at a minimum:

Describe the historic property or portion of the property where treatment will be implemented. The HPTP shall contain a description of the values that make the property eligible for the National Register of Historic Places, and describe the measures proposed to protect each historic property. These measures may include, but not necessarily be limited to avoidance, monitoring, capping, fencing, land use policy and planning techniques such as zoning restrictions, protective covenants, etc. The preservation of historic properties is the preferred alternative, wherever feasible; if data recovery is proposed, the HPTP also shall:

(a) Specify the research questions to be addressed through recovery of data;

(b) Explain why it is in the public interest to address these research questions, including a description of any efforts to interpret the result of the investigations for the public;

(c) Explain how the historic properties subject to data recovery can address these research questions;

(d) Specify the methods to be used in field work and analysis, and explain how these methods are relevant to the research questions;

(e) Indicate how recovered material and records will be disposed of, taking into account the expressed wishes of the Tribe, of other Indian tribes, organizations, or individuals and, as applicable, of interested parties;

(f) Provide a schedule for completing data recovery, including analysis, reporting and disposition of materials and records;

(g) Include a schedule for providing the Tribe, other Indian tribes, organizations and individuals, SHPO and, as applicable, interested parties, with the opportunity to review and comment on reports documenting implementation of HPTPs.

(h) Include a schedule for completing final data recovery reports and specify when and to whom this report will be distributed;

(i) Provide for development and implementation of a Plan of Action in accordance with 43 CFR 10 for the management of Native American cultural items that will be repatriated to the Tribe or to other Indian tribes pursuant to the Native American Graves Protection and Repatriation Act (NAGPRA); or, where non-federal property is involved, a plan providing for the treatment of Native American human remains and items associated with Native American burials in accordance with the requirements of Sections 5097.98 and 5097.991 of the California Public Resources Code;

(j) Specify that, following any repatriation pursuant to item I., above, the RFA will ensure that all records and all non-repatriated objects resulting from data recovery are curated in accordance with 36 CFR 79;

(k) Include a plan for the treatment of properties discovered during implementation of an action covered by this Agreement;

(l) Include a plan for monitoring construction activities that may affect historic properties; this plan shall include a monitoring schedule, provide for the participation of a professional archeologist, and, as appropriate, Tribal member(s), members of other Indian tribes, organizations, individuals and interested parties.

(3) The RFA will submit draft HPTPs to the SHPO, the Tribe, other Indian tribes, organizations and individuals, the Council if it so requests after being informed of its development, and to any interested parties identified by the signatory parties, for review and comment. These parties shall have 30 days from receipt of any draft HPTP to comment. Failure to respond within this time frame shall not preclude the RFA from finalizing the HPTP. Before it finalizes the HPTP, the RFA will provide the reviewing parties with documentation indicating whether and how any comments from the parties will be incorporated into the final HPTP. Unless the reviewing parties object to this documentation within 15 days following receipt, the RFA may finalize the HPTP as it deems appropriate, and proceed to implement the final HPTP. If the RFA proposes to change a final HPTP, it will notify the reviewing parties about the proposed changes. Reviewing parties will have 10 days from receipt of notification to comment. Failure to respond within this time frame shall not preclude the RFA from changing the final HPTP. Before it changes the final HPTP, the RFA will provide the reviewing parties with documentation indicating whether and how any comments from the parties will be incorporated into the proposed changes. Unless the parties object to this documentation within 10 days following receipt, the RFA may change the final HPTP as it deems appropriate, and proceed to implement the amended final HPTP.

IV. NATIVE AMERICAN CONSULTATION, CURATION AND TREATMENT OF CULTURAL MATERIALS AND HUMAN REMAINS OF NATIVE AMERICAN ORIGIN

a. Reclamation and the Service will ensure that Indian tribes, organizations and individuals are consulted during, and are invited to participate in, the implementation of the terms of this Agreement. Such

consultation and participation shall include the preparation of reports that document such implementation.

b. Reclamation and the Service shall ensure that all records and materials resulting from activities carried out pursuant to this Agreement are curated pursuant to 36 CFR 79 and the provisions of the NAGPRA, 43 CFR 10, as applicable.

c. Reclamation and the Service shall ensure that any Native American human remains and objects defined under NAGPRA encountered through activities carried out pursuant to this Agreement are treated with due respect, and according to the provisions of NAGPRA, its implementing regulations, 43 CFR 10, and, as appropriate, in accordance with applicable state law.

d. Reclamation and the Service will ensure that the expressed wishes of Indian tribes, organizations, and individuals are taken into account when decisions are made relating to the treatment and disposition of Native American archaeological materials and records not subject to the provisions of NAGPRA.

V. PUBLIC PARTICIPATION

Reclamation and the Service shall use the NEPA process, and any other process they deem appropriate, to solicit public comment on the actions covered by this Agreement. The RFA shall ensure that historic preservation issues are included in notices of public meetings so that these issues can be considered and addressed in a timely manner.

VI. DOWNSTREAM AND RESERVOIR DRAWDOWN IMPACTS TO HISTORIC PROPERTIES

Reclamation and the Service shall incorporate and consider effects to historic properties in its conduct of the overall adaptive management program for the Trinity River, should such program be carried out.

Within 1 year of the execution of this Agreement, Reclamation and the Service shall ensure that a cultural resources management plan is developed addressing the identification, evaluation, and assessment of effects to historic properties within the APE downstream of and within the drawdown zone of Trinity Dam that may be affected by inundation, erosion, vandalism, and other indirect effects of the Undertaking. A draft version of the Plan shall be provided to the signatories to this Agreement for a 30-day review, revised to address the comments received, and then implemented. The Plan, developed in consultation with the SHPO, the Tribe, the agencies, and other tribes, organizations, and individuals who may attach religious and cultural significance to historic properties within this specified area, shall discuss:

a. How historic properties will be identified and evaluated for their National Register of Historic Places eligibility;

b. How changes to the integrity and physical condition of historic properties attributable to erosion, inundation, vandalism, and other effects of the Undertaking will be identified and treated; and

c. A schedule for carrying out items 1 and 2, above.

VII. ADMINISTRATIVE STIPULATIONS

a. PROFESSIONAL STANDARDS

(1) All work required by this Agreement that addresses the identification, evaluation, treatment and documentation of historic or potentially historic properties shall be carried out by or under the direct supervision of a person or persons meeting at a minimum the Secretary of Interior=s Professional Qualifications Standards (48 FR 44738-39) (PQS) in the appropriate disciplines. However, nothing in this stipulation may be interpreted to preclude Reclamation and/or Service or any agent or contractor thereof from using the properly supervised services of persons who do not meet the PQS.

(2) All documentation required by this Agreement that addresses the identification, evaluation, and treatment of historic or potentially historic properties shall be responsive to contemporary professional standards, to the Secretary of Interior=s Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716-40), National Park Service Bulletin 38, as well as to standards and guidelines established by the SHPO.

b. REPORT DISTRIBUTION

The RFA shall ensure that copies of all technical reports prepared to satisfy the terms of this Agreement are provided upon completion to the SHPO, the Tribe, other Indian tribes, the appropriate CHRIS Information Center, and to any interested parties designated by the signatory parties to this Agreement. The content of these reports shall be subject to the confidentiality requirements set forth in paragraph C. of this stipulation.

c. CONFIDENTIALITY

(1) Reclamation and the Service shall ensure that all sensitive information, as defined in Section 9 of the Archeological Resources Protection Act (ARPA), Section 304 of the NHPA, and NAGPRA, is managed in such a way that historic properties, traditional cultural properties, sacred objects, and human remains are not compromised, to the fullest extent available under law.

(2) Signatory and concurring parties to this Agreement shall safeguard information about the nature and location of archeological, historic, and traditional cultural properties, and not reveal that information to any additional parties, pursuant to Section 304 of the NHPA and Section 9 of the ARPA, without the express written permission of Reclamation or the Service.

d. REVIEWING IMPLEMENTATION OF THE AGREEMENT

(1) No later than one year after execution of this Agreement, and by the anniversary date of such execution each year thereafter, until the signatory parties to this Agreement agree in writing that its terms have been

fulfilled, Reclamation assisted by the Service, will prepare and provide to all parties to this Agreement, and to each Indian tribe involved in any action covered by this Agreement, a written report that includes, but is not necessarily limited to the following:

(a) A narrative that indicates how many actions were undertaken and that describes and discusses how and with what results, the requirements of Stipulations III. - V., inclusive, were met for each action;

(b) An assessment of the effectiveness of this Agreement;

(c) A discussion of any problems or unexpected issues encountered during the year;

(d) Any changes that Reclamation or the Service believe should be made in implementing this Agreement.

The reviewing parties shall have 45 days from the date of receipt to provide Reclamation and the Service with comments on the annual report. Reclamation and the Service shall take all comments received into account when considering modifications to this Agreement.

(2) At the request of any signatory, Reclamation or the Service shall hold a consultation meeting to facilitate review and comment on the annual report, or to resolve questions, issues or adverse comments that have been raised by the other signatories or by a member of the public. The signatory parties shall consult to identify other parties who may be invited to attend this meeting.

e. RESOLVING OBJECTIONS

(1) Should any signatory to this Agreement, any Indian tribe, organization or individual, or member of the public object in writing to Reclamation or to the Service regarding the manner in which the terms of this Agreement are carried out, or to any documentation prepared in accordance with and subject to the terms of this Agreement, the RFA shall consult with the objecting party to address the objection. The RFA shall determine a reasonable time frame for this consultation. If resolution is reached within this time frame, the RFA may proceed with its action in accordance with the terms of the resolution. If resolution is not reached within this time frame, the RFA shall forward all documentation relevant to the objection to the Council, including the RFA=s proposed response to the objection. Within 30 days after receipt of all pertinent documentation, the Council shall exercise one of the following options:

(a) Advise the RFA that the Council concurs in its proposed response to the objection, whereupon the RFA will respond to the objection accordingly. Thereafter, the RFA may proceed with its action in a manner consistent with its proposed response; or

(b) Provide the RFA with recommendations, which the RFA will take

into account in reaching a final decision regarding its response to the objection. Upon reaching its final decision, the RFA will notify the objecting party and the Council of its final decision, and may thereafter proceed with its action; or

(c) Notify the RFA that the objection will be referred for comment, pursuant to 36 CFR 800.7(a)(4), and proceed to refer the objection and comment. In this event, the RFA shall ensure that their agency heads are prepared to take the resulting comment into account in accordance with 36 CFR 800.7(c)(4) and Section 110(l) of the NHPA. Thereafter, the RFA shall notify the objecting party and the Council of its final decision regarding the objection ,and may thereafter proceed with its action.

(2) Should the Council not exercise one of the foregoing options within 30 days after receipt of all pertinent documentation, the RFA may assume the Council=s concurrence in its proposed response to the objection, advise the objecting party of that response and proceed with its action in a manner consistent with that response.

(3) Disputes pertaining to the NRHP eligibility of cultural resources covered by this Agreement shall be addressed through consultation among the signatories. If such consultation fails to resolve the dispute within a time frame deemed reasonable by the RFA, the dispute will be addressed by the RFA in accordance with 36 CFR ' 800.4(c)(2).

f. AMENDMENT AND TERMINATION

(1) If any signatory believes that this Agreement should be amended, that signatory may at any time propose amendments, whereupon the signatories will consult to consider the amendment pursuant to 36 CFR ' 800.6(c)(7) and 800.6(c)(8). This Agreement may be amended only upon the written concurrence of the signatory parties.

(2) Any signatory party may terminate this Agreement. Termination of this Agreement shall proceed in accordance with the applicable provisions of 36 CFR Part 800.

(3) If this Agreement is terminated and the RFAs elect to proceed with the Undertaking, the RFAs shall comply with 36 CFR ' 800.14(b)(2)(v).

g. DURATION OF THE AGREEMENT

This Agreement will remain in effect for a period of 20 years after all the signatory parties have executed it. At the end of this time period, the Agreement will become null and void, unless it is extended by written agreement of the signatory parties. Not later than 6 months prior to the expiration of the Agreement the RFAs will notify all other parties to the Agreement of its pending expiration and, if the parties choose to continue considering the Undertaking, the RFAs shall reinitiate review of the Undertaking in accordance with 36 CFR Part 800.

h. EFFECTIVE DATE

This Agreement shall take effect when it has been executed by all of the signatory parties.

EXECUTION of this Programmatic Agreement by Reclamation, the Service, the Bureau, the Tribe, the SHPO and the Council and implementation of its terms, evidence that Reclamation, the Service, the Bureau and the Tribe have afforded the Council a reasonable opportunity to comment on the implementation of the alternatives evaluated in the Trinity EIS/R and its effects on historic properties, and that Reclamation, the Service, the Bureau and the Tribe have taken into account the effects of each action comprising implementation of the Trinity River Mainstem Fishery Restoration program on historic properties.

SIGNATORY PARTIES:

ADVISORY COUNCIL ON HISTORIC PRESERVATION

BY: _____ DATE:_____

TITLE: _____

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

BY: _____ DATE:_____

TITLE: _____

U.S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

BY: _____ DATE:_____

TITLE: _____

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

BY: _____ DATE:_____

TITLE: _____

HOOPA VALLEY TRIBE

BY: _____ DATE: _____

TITLE: _____

CALIFORNIA HISTORIC PRESERVATION OFFICER

BY: _____ DATE:_____

TITLE: _____

CONCURRING PARTIES: