SCOTT RIVER WATERSHED-WIDE PERMITTING PROGRAM

Final Environmental Impact Report
FEIR Volume 1: Revisions to the Draft EIR Text

Prepared for
California Department of Fish and Game

August 2009

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225 Bush Street
Suite 1700
San Francisco, CA 94104
415.896.5900
www.esassoc.com

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GLOSSARY

Terms Used in the EIR

The following definitions apply only to the terms used in this Environmental Impact Report.

ACTIVE DIVERSION: A surface water diversion that has been operated at least one out of the last five years.

ADAPTIVE MANAGEMENT: The process of adaptive management is defined with three basic elements: (i) an initial operational decision or program design made in the face of uncertainty about the impacts of the action; (ii) monitoring and research to determine impacts of actions; and (iii) changes to operations or program in response to new information.

AGGRADATION: The geologic process in which streambeds, floodplains, and the bottoms of other water bodies are raised in elevation by the deposition of material eroded and transported from other areas. It is the opposite of degradation.

AGRICULTURAL OPERATOR: Any natural person or any partnership, corporation, limited liability company, trust, or other type of association or any public agency, as defined in CEQA *Guidelines*, § 15379, who diverts water from a stream by means of an active diversion in the Program Area for an agricultural purpose, or is involved in an agricultural operation on property in the Program Area through which or adjacent to which a stream flows.

ALEVIN: Stage in the life cycle of salmon following emergence from the egg stage, characterized by the presence of a yolk sac attached to the body.

ALLUVIUM: A general term for all deposits resulting directly or indirectly from the sediment transport of streams, thus including the sediments laid down in riverbeds, floodplains, lakes, fans, and estuaries. *ALLUVIAL* adj.

ANADROMOUS: Pertaining to fish that spend part of their life cycle in the ocean and return to freshwater streams to spawn, such as salmon, steelhead, and American shad.

ANADROMY: Noun form of the term *anadromous* (see above), often used to refer to the special reach of anadromous fish in a watershed (e.g., fish barriers may represent the upstream extent of anadromy).

AQUIFER: A geological formation, group of formations, or portion of a formation capable of yielding significant quantities of groundwater to wells or springs.

BANKFULL DISCHARGE: The discharge corresponding to the stage at which the floodplain of a particular stream reach begins to be flooded; the point at which bank overflow begins. Also *Bankfull Flow*.

BEDLOAD: Sediment too large to be suspended that moves along or near the streambed by sliding, rolling, or hopping.

BED MATERIAL LOAD: Sediment found in the streambed.

BEST MANAGEMENT PRACTICES (BMPs): Methods, measures, or practices designed to reduce adverse impacts, usually applied as a system of practices rather than a single practice.

BIODIVERSITY/BIOLOGICAL DIVERSITY: The ensemble and the interactions of natural genetic, species, and ecological diversity in a given place at a given time.

BOULDER: Stream substrate particle larger than 10 inches (256 millimeters) in diameter.

BROOD YEAR: Population of coho salmon that perpetuates itself by spawning in three-year intervals. Due to the rigid three-year life cycle of coho salmon, any given stream may provide habitat for three temporally separated populations, or brood years, that are largely reproductively independent from each other (with the exception of precocious males and females, called jacks and jills, respectively, that engage in spawning after two years and thus provide gene flow between brood years). When the spawning season spans portions of more than one year, as it does for coho salmon, the brood year is identified by the year in which spawning began. For example, offspring of coho salmon that spawned in 1996-1997 are identified as “brood year 1996.” Because most coho salmon of a brood year return to spawn after one summer of freshwater life and two summers of ocean life, a brood year tends to form a distinct genetic lineage.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA): California law requiring the disclosure of environmental effects of proposed projects before discretionary approval can be issued by a public or local agency (California Public Resources Code, Division 13, § 21000 - § 21177 and California code of Regulations, Title 14, Chapter 3, § 15000 – § 15387).

CDFG SPECIES OF SPECIAL CONCERN (SSC): Animals not listed under the California Endangered Species Act, but which nonetheless 1) are declining at a rate that could result in listing, or 2) historically occurred in low numbers and known threats to their persistence currently exist. SSC share one or more of the following criteria:

1. They occur in small, isolated populations or in fragmented habitat, and are threatened by further isolation and population reduction.

2. They show marked population declines. Population estimates are unavailable for the vast majority of taxa. Species that show a marked population decline, yet are still abundant, do not meet the Special Concern definition, whereas marked population decline in uncommon or rare species is an inclusion criterion.

3. They depend on a habitat that has shown substantial historical or recent declines in size. This criterion infers the population viability of a species based on trends in the habitats upon which it specializes. Coastal wetlands, particularly in the urbanized San Francisco Bay and south-coastal areas, alluvial fan sage scrub and coastal sage scrub in the southern coastal basins, and arid scrub in the San Joaquin Valley, are examples of California habitats that have seen dramatic reductions in size in recent history. Species that specialize in these habitats generally meet the criteria for threatened or endangered status or special concern status.

4. They occur only in or adjacent to an area where habitat is being converted to land uses incompatible with the animal's survival.

5. They have few California records, or which historically occurred here but for which there are no recent records.

6. They occur largely on public lands, but where current management practices are inconsistent with the animal's persistence.

This designation is intended to result in special consideration for these animals by CDFG, land managers, consulting biologists, and others, and is intended to focus attention on the species to help avert the need for costly listing under CESA and/or the federal Endangered Speices Act, and cumbersome recovery efforts that might ultimately be required. This designation also is intended to stimulate collection of additional information on the biology, distribution, and status of poorly known at-risk species, and focus research and management attention on them.

CDFG's Wildlife Branch, Nongame Wildlife Program is responsible for producing and updating SSC publications for mammals, birds, reptiles and amphibians. The Fisheries Branch is responsible for updates to the Fish Species of Special Concern document. Each report includes a methods, results and discussion section followed by species accounts which may include data on population and range trend, population size, threats, ecological considerations, management recommendations, taxonomic remarks, and life history information relevant to status. A range or distribution map accompanies each account.

Some CDFG species of special concern meet the definition of "endangered, rare, or threatened" in CEQA *Guidelines,* § 15380 defined below. For the purpose of this document these species are referred to as "special status species."

CEQA GUIDELINES: The regulations that implement CEQA (California Code of Regulations, title 14, § 15000 *et seq.*).

CHANNEL: A natural or artificial waterway of perceptible extent that periodically or continuously contains moving water. It has a definite bed and banks, which serve to confine the water.

COBBLE: Stream substrate particles between 2.5 and 10 inches (64 and 256 millimeters) in diameter.

COLLUVIUM: A general term for loose deposits of soil and rock moved by gravity, e.g., talus. *COLLUVIAL* Adj.

COVERED ACTIVITY: An activity the Program covers.

DISCHARGE: Volume of water flowing in a given stream at a given place and within a given period of time, usually expressed as cubic meters per second (m3/sec), or cubic feet per second (cfs). Often symbolized as *Q*.

ENDANGERED, RARE, OR THREATENED SPECIES: As defined in CEQA *Guidelines*, § 15380 (California Code of Regulations, title 14, § 15380),

> (a) “Species” . . . means a species or subspecies of animal or plant or a variety of plant.
>
> (b) A species of animal or plant is:
>
> (1) “Endangered” when its survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors; or
>
> (2) “Rare” when either:
>
> (A) Although not presently threatened with extinction, the species is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or
>
> (B) The species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered "threatened" as that term is used in the Federal Endangered Species Act.
>
> (c) A species of animal or plant shall be presumed to be endangered, rare or threatened, as it is listed in:
>
> (1) California Code of Regulations, Title 14, § 670.2 or 670.5, or
>
> (2) Title 50, Code of Federal Regulations Section 17.11 or 17.12 pursuant to the Federal Endangered Species Act as rare, threatened, or endangered.
>
> (d) A species not included in any listing identified in subdivision (c) shall nevertheless be considered to be endangered, rare or threatened, if the species can be shown to meet the criteria in subdivision (b).

(e) This definition shall not include any species of the Class Insecta which is a pest whose protection under the provisions of CEQA would present an overwhelming and overriding risk to man as determined by:

(1) The Director of Food and Agriculture with regard to economic pests; or

(2) The Director of Health Services with regard to health risks.

EROSION: The group of natural processes, including weathering, dissolution, abrasion, corrosion, and transportation, by which material is worn away from the earth's surface. *EROSIONAL* adj.

ESCAPEMENT: In reference to Pacific salmon, the number of fish of a population that return to a stream to spawn (spawning escapement).

EVOLUTIONARILY SIGNIFICANT UNIT (ESU): A population or group of populations that is considered distinct, and hence a species, for purposes of the federal Endangered Species Act. An ESU must be reproductively isolated from other populations of the same species and must represent an important component in the evolutionary legacy of the species.

FEASIBLE: Capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social and technological factors (CEQA *Statutes*, § 21061.1).

FINE SEDIMENT: The fine-grained particles in stream banks and substrate. The particles are defined by diameter, varying downward from 0.24 inch (6 millimeters). Also *Fines.*

FISH SCREEN: A porous barrier placed across the inlet or outlet of a lake or stream or across the opening of a water diversion structure in a stream to prevent the passage of fish.

FLOOD: Any flow that exceeds the bankfull capacity of a stream or channel and flows out of the floodplain; greater than bankfull discharge.

FLOODPLAIN: The area bordering a stream over which water spreads when the stream overflows its banks at flood stages.

FLOW: 1) The movement of a stream of water and/or other mobile substances from place to place; 2) the movement of water, and the moving water itself; or 3) the volume of water passing a given point per unit of time. Also *Discharge*.

FLUVIAL: Relating to or produced by a river or the action of a river. Situated in or near a river or stream.

FRY: Stage in the life cycle of salmon following the “alevin” stage (see above), characterized by the loss of the yolk sac and beginning of feeding on external prey.

GRADIENT: The slope of a streambed or hillside. For streams, gradient is quantified as the vertical distance of descent over the horizontal distance the stream travels.

GRAVEL: Substrate particle size between 0.08 and 2.5 inches (2 and 64 millimeters) in diameter.

GROUNDWATER: Water below the land surface.

GULLY: A deep ditch or channel cut in the earth by running water after a prolonged downpour.

INCIDENTAL TAKE PERMIT (ITP): A permit issued by CDFG that authorizes the take (see below) of a species listed as threatened, endangered, or candidate under the California Endangered Species Act (CESA) incidental to a lawful activity when specified criteria are met. For the purposes of this document “ITP” will typically be referring to the permit CDFG will issue to SQRCD in accordance with Fish and Game Code, § 2081(b) and (c) to provide take authorization for the watershed-wide permitting Program.

INTERMITTENT STREAM: A stream in contact with the groundwater table that flows only at certain times of the year when the groundwater table is high and/or when it receives water from springs or from some surface source such as melting snow in mountainous areas. It ceases to flow above the streambed when losses from evaporation or seepage exceed the available stream flow. Seasonal.

LARGE WOODY DEBRIS (LWD): Large, relatively stable woody material usually having a diameter greater than 30 cm (12 inches) and a length greater than 2 m (6 feet) that intrudes into the stream channel.

MAINSTEM: The principal, largest, or dominating stream or channel of any given area or drainage system.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM: Federal requirement under the Clean Water Act (CWA) that any discharge of a non-point source of pollution into waters of the United States be in conformance with any established water quality management plan developed under the CWA.

PERENNIAL STREAM: A stream that flows continuously throughout the year.

POPULATION: A group of individuals of the same species that live in the same place at the same time and exhibit some level of reproductive isolation from other such groups. In some contexts, a randomly mating group of individuals that is reproductively isolated from other groups. A population may consist of a single isolated run or more than one connected run. Synonymous with “stock” in this document.

PROGRAM: The Program is the Scott River Watershed-wide Permitting Program

PROGRAM AREA: The Program Area is the Scott River watershed, including the Scott River and its tributaries, in Siskiyou County.

REDD: Nest of a salmon, usually a depression within the gravel substrate of a stream, into which the female deposits her eggs.

RIFFLE: A shallow rapids where the water flows swiftly over completely or partially submerged obstructions to produce surface agitation. Substrate is usually composed of gravel, pebble, and cobble-sized particles.

RILL: An erosion channel that typically forms where rainfall and surface runoff is concentrated on slopes. If the channel is larger than one square foot in size, it is called a gully.

RIPARIAN: Pertaining to anything connected with or immediately adjacent to the banks of a stream or other body of water.

SCOUR: The localized removal of material from the streambed by flowing water. This is the opposite of fill.

SEDIMENT: Fragmented material that originates from weathering of rocks and decomposition of organic material that is transported by, suspended in, and eventually deposited by water or air, or is accumulated in beds by other natural phenomena.

SMOLT: Stage in the life cycle of salmon following the “parr” stage, characterized by hormonal and other physiological changes that prepare the fish for its seaward migration and life in salt water, the loss of parr marks, and appearance of a silvery color.

SPECIAL-STATUS SPECIES For the purpose of this document it is any species that meets the definition of “endangered, rare, or threatened” in CEQA *Guidelines,* § 15380 defined above. Some CDFG species of special concern meet this definition. For the purpose of this document these species are referred to as “special status species.”

STAGE: The elevation of a water surface above or below an established datum or reference.

STREAM: A body of water that flows at least periodically or intermittently through a bed or channel having banks and supports, or could support, fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation. “Stream” includes creeks and rivers.

STREAMBANK: The banks of a stream are the elevations of land that confine the waters of a stream when the waters rise to the highest point at which they remain confined to a definite course and channel. The top of bank boundary will contain the active channel, active floodplain, and the inner banks associated with these features. Bank applies to both that portion of the channel adjacent to the water and the lateral or horizontal distance necessary to protect the physical form and function of the bank.

STREAM REACH: A section of a stream between two points.

SUB-PERMIT: A permit based on the ITP issued by CDFG to an Agricultural Operator or DWR watermaster authorizing the take of coho salmon incidental to a Covered Activity.

SUB-PERMITTEE: An Agricultural Operator or DWR watermaster with a sub-permit issued by CDFG. All sub-permits will require the sub-permittee to comply with the specific avoidance and minimization measures included in the ITP and sub-permits for the Covered Activity the sub-permit covers.

SUBSTRATE: Particulate material comprising the bottom of a body of water, such as mud, silt, gravel, or rock.

SUB-WATERSHED: One of the smaller watersheds that combine to form a larger watershed.

SUSPENDED SEDIMENT: Material (usually clay, silt, and sand) carried for a considerable period of time in suspension without deposition on the bed of the body of water.

TAKE: As defined by Fish and Game Code section 86 "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill."

TRIBUTARY: A stream feeding, joining, or flowing into a larger stream. Also called a feeder stream or side stream.

TURBIDITY: Reduced clarity of a liquid due to the presence of suspended or dissolved matter.

VADOSE ZONE: Sub-surface zone between the ground surface and the groundwater level (water table) within the unsaturated zone. Soil voids in this zone contain air and water.

WATERSHED: The topographic region drained by or contributing water to a stream, river system, or lake. The total land area draining to any point in a stream, as measured on a map, aerial photograph or other horizontal plane. Also called catchment area, watershed, and basin.

WETLAND: Those 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. Wetlands include, but are not limited to, swamps, marshes, bogs, and similar areas or lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water.

Acronyms Used in the EIR

5C Program: Five Counties Salmonid Conservation Program

AB: Assembly Bill

amsl: Above mean sea level

AF: Acre-feet

ASFMRA: American Society of Farm Managers and Rural Appraisers

AST: Aboveground storage tanks

BMPs: Best management practices

Cal/OSHA: California Occupational Safety and Health Administration

Cal-EPA: California Environmental Protection Agency

Caltrans: California Department of Transportation

CAO: Corrective Action Order

CAP: Clean Air Plan

CARB: California Air Resources Board

CCAA: California Clean Air Act

CCR: California Code of Regulations

CDF: California Department of Forestry and Fire Protection

CDFG: California Department of Fish and Game

CDO: Cease and Desist Order

CEQA: California Environmental Quality Act

CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act

CESA: California Endangered Species Act

CFR: Code of Federal Regulations

CFS: Cubic feet per second

CFSP: California Forest Stewardship Program

CHP: California Highway Patrol

CNDDB: California Natural Diversity Data Base

CNPS: California Native Plant Society

Corps: U.S. Army Corps of Engineers

CRP: Community-based Restoration Program

CUP: Conditional Use Permit

CUPA: Certified Unified Program Agency

CWA: Clean Water Act

CWHR: California Wildlife Habitat Relationships

dBA: Decibels (measured on the "A" scale of frequency)

Draft EIR: Draft Environmental Impact Report

DIRT: Direct Inventory of Roads and Treatments

DOT: U.S. Department of Transportation

DPS: Distinct Population Segment

DPW: Siskiyou County Department of Public Works

DTSC: California Department of Toxic Substances Control

DWR: California Department of Water Resources

EDD: California Employment Development Department

EIR: Environmental Impact Report

EIS: Environmental Impact Statement

ESA: Environmental Science Associates

ESA: Endangered Species Act

ESU: Evolutionarily Significant Unit

Fed/OSHA: Federal Occupational Safety and Health Administration

FEIR: Final Environmental Impact Report

FEMA: Federal Emergency Management Administration

FEMAT: Forest Ecosystem Management Assessment Team

FEPA: Federal Environmental Protection Act

FEW: Fresh Emergent Wetlands

FGSC Fruit Growers Supply Company

FMMP: Farmland Mapping and Monitoring Program

FRGP: Fisheries Restoration Grant Program

HCP: Habitat Conservation Plan

HWCL: Hazardous Waste Control Law

ITP: Incidental Take Permit

KMC: Klamath Mixed Conifer

KNF: Klamath National Forest

JITW: Jobs in the Woods

LWD: Large Woody Debris

LTED: Long term economic distress

LUST: Leaking underground storage tank

MLTC: Master List of Terms and Conditions

MMRP: Mitigation Monitoring and Reporting Program

MOU: Memorandum of Understanding

MWAT: Moving weekly average temperature

NAAQS: National Ambient Air Quality Standards

NE/CHRIS: Northeast Center of the California Historical Resources Information System, California State University, Chico

NECSBDC: Northeastern California Small Business Development Center

NEPA: National Environmental Policy Act

NESHAPs: National Emission Standards for Hazardous Air Pollutants

NGVD: National Geodetic Vertical Datum

NIOSH: National Institute of Occupational Safety and Health

NMFS: National Marine Fisheries Service (also known as "NOAA Fisheries")

NOAA: National Oceanic and Atmospheric Administration

NOP: Notice of Preparation

NPDES: National Pollutant Discharge Elimination System

NRCS: Natural Resources Conservation Service

NWI: National Wetlands Index

NWFP: Northwest Forest Plan

NCRWQCB: North Coast Regional Water Quality Control Board

OSHA: Occupational Safety and Health Administration

PM10: Particulate matter smaller than 10 microns

PPN: Ponderosa pine

PPT: Parts per thousand

RAP: Roads Analysis Process

RCRA: Resource Conservation and Recovery Act

REL: NIOSH Recommended Exposure Limit

RM: River mile

RWQCB: Regional Water Quality Control Board

SAA: Streambed Alteration Agreement

SAAQS: State Ambient Air Quality Standards

SCEDC: Siskiyou County Economic Development Center

SLC: State Lands Commission

SONCC: Southern Oregon/Northern California Coast

SQRCD: Siskiyou Resource Conservation District

SRWC: Scott River Watershed Council

SSC: Species of Special Concern

SVAP: Scott Valley Area Plan

SVID: Scott Valley Irrigation District

SVRCD: Shasta Valley Resource Conservation District

SWPPP: Storm Water Pollution Prevention Plan

SWRCB: State Water Resources Control Board

TAC: Toxic Air Contaminant

TMDL: Total maximum daily load

UCCE: University of California Cooperative Extension

UBC: Uniform Building Code

USBR: United States Bureau of Reclamation

USEPA: United States Environmental Protection Agency

USFS: United States Forest Service

USFWS: United States Fish and Wildlife Service

USGS: United States Geological Survey

WY: Water year

WHR: Wildlife habitat relationships

SUMMARY

S.1 Introduction

This Draft Environmental Impact Report (Draft EIR) assesses the potential for adverse environmental impacts from implementing the Scott River Watershed-wide Permitting Program (Program) proposed by the Siskiyou Resource Conservation District (SQRCD) and the California Department of Fish and Game (CDFG). For purposes of this Draft EIR the "Program" is the "Project" being analyzed pursuant to CEQA. The Program Area is the Scott River Watershed, including the Scott River and its tributaries, in Siskiyou County. **Figure S-1** identifies the Program Area, as well as nearby cities and major roadways in the vicinity.

This document has been prepared in accordance with the California Environmental Quality Act (CEQA) statutes and CEQA *Guidelines*.[1] CDFG is the lead agency. Inquiries about the Program, and this Draft EIR, should be directed to:

Bob Williams, Staff Environmental Scientist
California Department of Fish and Game
601 Locust Street
Redding, CA 96001
SCOTTDEIR@dfg.ca.gov

S.2 Background

In early 2002, the Salmon and Steelhead Recovery Coalition petitioned the California Fish and Game Commission (Commission) to list coho salmon (*Oncorhynchus kisutch*) north of San Francisco as an endangered species under the California Endangered Species Act (CESA) (Fish and Game Code, § 2050 *et seq.*).[2] In response, CDFG issued a coho salmon status report to the Commission recommending that coho salmon from San Francisco north to Punta Gorda be listed as endangered, and that coho salmon from Punta Gorda north to the Oregon border be listed as threatened pursuant to the CESA (CDFG, 2004). The Commission found that coho salmon warranted listing in accordance with CDFG's recommendations. Also, the Commission required CDFG to prepare a recovery strategy for coho salmon prior to their formal listing.

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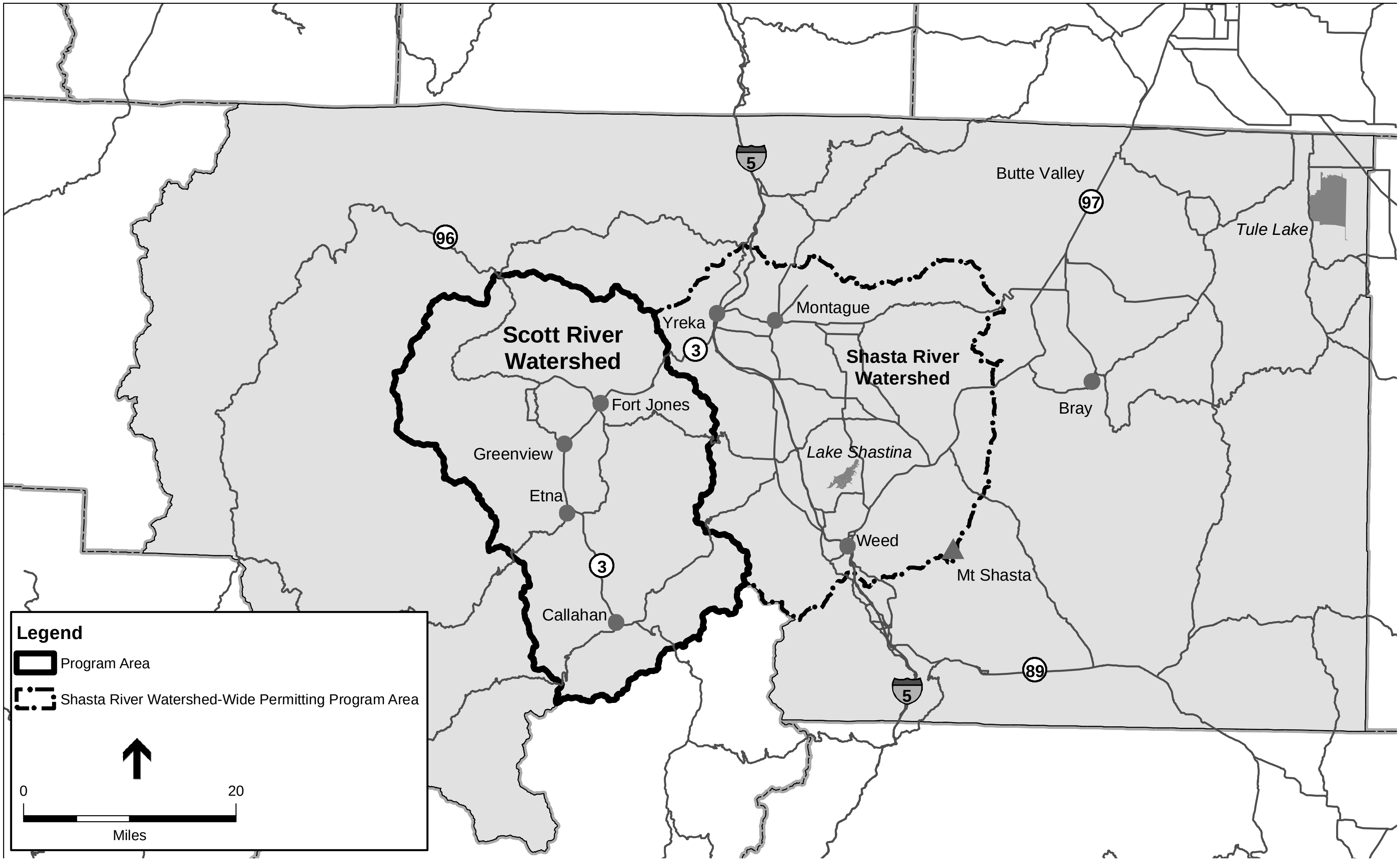
1 The CEQA Guidelines are the regulations that implement CEQA. They are codified as California Code of Regulations, Title 14, § 15000 *et seq.*
2 The symbol "§" represents "section," in reference to specific provisions in statutes and regulations.



SOURCE: ESRI, 2006; ESA 2007

Scott River Watershed-Wide Permitting Program . 206063

Figure S-1
Program Area

In February 2004, the Commission adopted the Recovery Strategy for California Coho Salmon (Coho Recovery Strategy). The Coho Recovery Strategy emphasizes cooperation and collaboration, and recognizes the need for funding, public and private support for restoration actions, and maintaining a balance between regulatory and voluntary efforts to meet the goals of the Coho Recovery Strategy. The Shasta and Scott River watersheds were identified for a pilot program to address coho salmon recovery issues and solutions related to agriculture and agricultural water use in Siskiyou County. On March 30, 2005, the Commission formally designated coho salmon within the Program Area as a threatened species pursuant to CESA.[3] As a result, coho salmon within the Program Area may not be taken[4] except as authorized by CDFG in accordance with CESA.

As part of its efforts to develop the Coho Recovery Strategy, CDFG convened the Shasta-Scott Coho Recovery Team which, in addition to identifying recommendations for the pilot program, identified the need to develop a programmatic implementation framework that works toward the recovery of coho salmon, while providing authorization for the take of coho salmon incidental to otherwise lawful routine agricultural activities in the Shasta and Scott River watersheds. The avoidance, minimization, and selected mitigation measures included in the proposed incidental take permit (ITP) for the Program, and the sub-permits that will be issued in accordance with the ITP, are consistent with the recovery tasks identified in the Shasta-Scott Pilot Program in the Coho Recovery Strategy.

S.3 Summary Program Description

CDFG and SQRCD have worked together to develop the Program for the Scott River watershed. On March 29, 2005, SQRCD submitted an application to CDFG for a watershed-wide ITP pursuant to California Fish and Game Code (Fish and Game Code), § 2081 (b) and (c).[5,6] In addition, on April 22, 2005**,** SQRCD submitted a Streambed Alteration Agreement (SAA) application pursuant to Fish and Game Code, § 1602, also referred to as a “notification.” In response to the application, CDFG in cooperation with SQRCD prepared the ITP and SAA Memorandum of Understanding (MOU) and Master List of Terms and Conditions (MLTC) between CDFG and SQRCD (Appendices A and B, respectively).

The Program is intended to facilitate compliance by Agricultural Operators, California Department of Water Resources (DWR), and SQRCD with CESA and Fish and Game Code, § 1602 by streamlining the process to obtain take authorization and SAAs for activities the Program covers, referred to as a “Covered Activities.”[7] Under the Program, SQRCD will

[3] Coho salmon north of Punta Gorda are within the Southern Oregon-Northern California Coast (SONCC) Coho Evolutionarily Significant Unit (ESU).
[4] “‘Take’ means hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill” (Fish and Game Code, § 86).
[5] The symbol“§” is used to represent the word “section,” in reference to the various sections of statutes and regulations.
[6] SQRCD’s ITP application was deemed complete by CDFG on April 28, 2005.
[7] Covered Activities are described in Chapter 2 and Appendices A and B.

implement key coho salmon recovery projects identified in the Coho Recovery Strategy. Hence, the Program will also further the objectives of that strategy.

The Program consists of the following:

- **Watershed-wide Streambed Alteration Agreement Program (SAA Program)**

  The SAA component of the Program will consist of separate SAAs issued by CDFG to SQRCD and each Agricultural Operator. CDFG will include in each SAA the applicable terms and conditions from the MLTC developed as part of the Program. The terms and conditions protect existing fish and wildlife resources that the Covered Activity or Activities could substantially adversely affect. The MLTC will be an attachment to the MOU between CDFG and SQRCD that describes their roles and responsibilities in regard to the SAA component of the Program.

- **Watershed-wide Incidental Take Authorization for Coho Salmon**

  CDFG will issue an ITP to SQRCD in accordance with Fish and Game Code, § 2081(b) and (c) to provide take authorization in the course of implementing coho salmon restoration projects that are part of the Program. As mentioned above, the restoration projects implement certain tasks identified in the Coho Recovery Strategy and at the same time fully mitigate any take of coho salmon that may occur incidental to conducting a Covered Activity, as CESA requires. CDFG will issue separate take authorization to each Agricultural Operator who enrolls in the Program and DWR in the form of a “sub-permit.” The Program uses the term “sub-permit” because each one will be based on SQRCD’s ITP, but will still be enforceable as a “stand alone” permit. The separate obligations SQRCD will have under its ITP and those the “sub-permittees” will have under their sub-permits are discussed in Chapter 2, Program Project Description.

- **Monitoring Program**

  The ITP will require SQRCD to establish a monitoring program to track the implementation of the mitigation measures for which it is responsible, and to determine the effectiveness of those measures in improving conditions for coho salmon. ~~determine whether or not Agricultural Operators are fulfilling the terms and conditions required by their sub-permits, and to determine the effectiveness of the conditions in the ITP and sub-permits to avoid, minimize, and fully mitigate the incidental take of coho salmon in the Program Area.~~ Sub-permittees are responsible for monitoring the terms and condition of their sub-permit. SQRCD will be available to assist sub-permittees in fulfilling monitoring responsibilities related to the diversion of water and livestock or vehicle crossings. CDFG is responsible for any and all compliance monitoring.

Each of these components is described in greater detail in Chapter 2, Project Description.

CDFG and the Shasta Valley Resource Conservation District have developed a watershed-wide permitting program for the Shasta River watershed similar to the Program for the Scott River watershed. CDFG is conducting a separate environmental review of that Program under CEQA. However, the potential for cumulative effects of the two programs combined is considered in Chapter 4.

Program Timeline

The term of the ITP will be 10 years. During the first five years of the Program, the original term of any SAA CDFG issues under the Program will be five years. CDFG may extend the term one time for a period of up to five years if the SAA holder requests an extension prior to the SAA's expiration. All SAAs issued or extended after the first five years of the Program will expire on the expiration date of the ITP (i.e., the expiration date of the Program).

S.4 Summary of Impacts

Table S-1, at the end of this Chapter presents a summary of the impacts and mitigation measures identified for the Program. The complete impact statements and mitigation measures are presented in Chapter 3, Environmental Setting, Impacts, and Mitigation Measures, and Chapter 4, Cumulative Effects and Other Required Topics. The level of significance for each impact was determined using significance criteria (thresholds) developed for each category of impacts. These criteria are presented in the appropriate sections of Chapters 3 and 4. Significant impacts are adverse environmental impacts that meet or exceed the significance thresholds; less-than-significant impacts are impacts which do not exceed the significance thresholds. Table S-1 indicates the measures that would be implemented to avoid, minimize, or otherwise reduce (i.e., mitigate) significant impacts, and shows the level of significance after mitigation.

S.5 Summary of Alternatives

Alternatives to the Program are described in detail in Chapter 5. The potential impacts of each Alternative are compared with those of the Program. The following summarizes the description and conclusions regarding each Alternative.

No Program Alternative

Under the No Program Alternative, CDFG would not issue a watershed-wide ITP or enter into a watershed-wide SAA MOU and MLTC. Instead, SQRCD, DWR, and each Agricultural Operator would need to comply with Fish and Game Code, § 1600 *et seq*. and CESA on an individual basis. CDFG would prepare individual ITPs and SAAs as it received notifications and ITP applications. Under this approach, CDFG would need to conduct an appropriate level of CEQA review prior to issuing each individual ITP and SAA.

Individual applicants would be responsible for reimbursing CDFG for the cost of preparing the CEQA document for their ITPs and SAAs. The time required to prepare individual CEQA documents for a large number of agricultural diversions in the Scott River watershed could cause delays and disruptions for Agricultural Operators. It is likely that many Agricultural Operators could not afford or would choose not to go through an individual permitting process, resulting in some Agricultural Operators operating either out of compliance with Fish and Game Code § 1600 *et seq*., and CESA or terminating their usual operations.

Although the implementation of the No Program Alternative would meet several of the stated objectives of the Program (see Table 5-2 in Chapter 5), it would not be as effective or efficient at bringing existing agricultural water diverters into compliance with Fish and Game Code, § 1600 *et seq.* and CESA. Most importantly, the No Program Alternative would be less effective at accomplishing or implementing mitigation measures identified in the ITP, accomplishing watershed-wide coordination and implementation of selected key coho salmon recovery tasks, and would not be consistent with commitments identified in the Coho Recovery Strategy.

In-stream Flow Alternative

The Instream Flow Alternative would include the Program as proposed and would also include the development of surface water storage reservoirs to capture excess winter runoff. The stored water would be used to benefit the cold water fisheries by increasing streamflow as necessary to assist fish migration, increase rearing habitat, maintain cooler water temperatures, and improve the potential for riparian vegetation survival. All of these issues are identified in the Limiting Factors Analysis in Chapter 3.3, Biological Resources: Fisheries and Aquatic Habitat, as major factors limiting coho salmon production in the Scott River watershed. Where practical, water may be piped or pumped from reservoirs directly into existing water conveyance systems in exchange for reductions in the volume of water diverted from the Scott River and tributaries. The stored water would not be used to increase the existing irrigated acreage or allow for additional water to be diverted for agricultural purposes.

The Program already contains several provisions to increase instream flows, including SQRCD's ITP Flow Enhancement Mitigation Obligation (Article XIII.E.2.(a)), Additional SQRCD and Sub-Permittee Avoidance and Minimization Obligation A: Water Management (Article XV), Additional SQRCD and Sub-Permittee Avoidance and Minimization Obligation J: Maintain Connectivity of Tributaries in the Mainstem (Article XV), and MLTC Condition 26 ~~25~~ (bypass flows at diversions).

The Shasta-Scott Pilot Program of the Coho Recovery Strategy also contains additional recommendations for "water augmentation" actions for the Scott River Watershed, including the following:

- If feasible, construction of large (off-stream) surface-water storage reservoirs and associated ditch or pipe systems to capture and store a portion of winter and spring high flows.
- Consider the option of ditching or pumping water to storage area; and
- If feasible, raise the level of existing small lakes or create storage using small off-stream reservoirs rather than one large reservoir.

The Instream Flow Alternative would be identical to the Program except that it would also include additional measures from the Recovery Strategy listed above. Specifically, this alternative would involve implementing those Coho Recovery Strategy recommendations regarding water augmentation which are found to be feasible and appropriate.

While no single alternative water supply may be sufficient to result in significant gains in instream flows, a combination of the potential sources discussed above may provide for more suitable water flows and temperatures for rearing coho during the summer and fall months. Furthermore, until the studies are conducted to determine the feasibility of the various measures considered for development of new water supplies, the type and extent of physical impacts of this alternative cannot be determined. Therefore, the analysis in Chapter 5 assumes that all of the additional measures listed above would be found to be feasible and appropriate, and would be implemented under this alternative in addition to all of the flow enhancement provisions of the Program as proposed.

Under the Instream Flow Alternative, all of the objectives of the Program would be met, and, if feasible, water augmentation measures identified in the Coho Recovery Strategy would be implemented. Where the potential for take of coho salmon still existed, such as ongoing surface water diversions and other agricultural activities and restoration actions undertaken by SQRCD, ITPs and SAAs still would be required. As discussed in Chapter 5, impacts of this alternative, particularly those associated with reservoir construction, would be greater than for the Program.

Environmentally Superior Alternative

As part of the evaluation and comparison of alternatives, the CEQA *Guidelines* require that if the "no project" alternative is identified as the environmentally superior alternative, the EIR must also identify the environmentally superior alternative among the other alternatives (CEQA *Guidelines*, § 15126.6(e)(2)). The No Program Alternative is not identified in this Draft EIR as the environmentally superior alternative and, as a result, no environmentally superior alternative is identified. However, for the reasons hightlighted in Chapter 5, Alternatives to the Program, CDFG generally believes the Program is environmentally superior to the alternatives considered here.

Program Alternatives Considered and Rejected

CDFG considered and rejected five other possible alternatives, as follows: 1) Rejected Alternative 1 – Consistency Determination; 2) Rejected Alternative 2 - Adjudication of Water Rights; 3) Rejected Alternative 3 – Hatcheries; 4) Rejected Alternative 4 – Expanded Program Area; and 5) Rejected Alternative 5 – Expanded Range of Covered Activities. The rejected alternatives and the specific reasons they were rejected are discussed in Chapter 5.

S.6 Areas of Controversy

In the fall of 2006, CDFG prepared and released a Notice of Preparation (NOP) (Appendix C) of a Draft EIR and an initial study (Appendix D). Comments submitted during the NOP review period raised issues on the scope and content of the Draft EIR, including:

- alternatives to the Program such as re-adjudication of water rights,
- determination of the proper baseline for the environmental analysis,
- information gaps on minimum flow needs for coho salmon,
- information gaps on inter-connectivity between groundwater and surface water, and
- socio-economic effects of Program requirements on farming and ranching in the Scott Valley.

Comments submitted during the NOP comment period are provided in Appendix E, Scoping Comments, and are addressed throughout this document.

TABLE S-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SCOTT RIVER WATERSHED-WIDE PERMITTING PROGRAM

Impacts	Mitigation Measures	Significance after Mitigation
3.1 Land Use and Agriculture		
3.1-1: The Program could result in the conversion of agricultural land within the Scott River watershed to non-agricultural uses (Less than Significant).	This potential impact was determined to be less than significant. No mitigation measures required.	
3.2 Geomorphology, Hydrology, and Water Quality		
3.2-1: Certain construction activities performed under the Program could result in increased erosion and sedimentation and/or pollutant (e.g., fuels and lubricants) loading to surface waterways, which could increase turbidity, suspended solids, settleable solids, or otherwise decrease water quality in surface waterways (Significant).	***Mitigation Measures Proposed as Part of the Program*** **3.2-1a:** ITP General Condition (b) (Article XIII.E.1) requires the immediate containment and clean-up of any fuel, lubricants, or other hazardous materials that leak or spill during a Covered Activity. **3.2-1b:** ITP Additional SQRCD and Sub-Permittee Avoidance and Minimization Obligation F. – Push-Up Dams and Obligation G. – Other Temporary Diversion Structures (Article XV) requires preparation and adoption of a set of Best Management Practices (BMP) governing the construction, operation, and removal of push-up dams and other temporary diversion structures other than push-up dams. **3.2-1c:** The MLTC includes the following conditions which will reduce the potential for construction-related impacts to water quality: A. Water Diversions: Conditions 33, 36, and 41 ~~31, 34, and 39~~; C. Instream Structures: Conditions 62, 64-66 ~~58-60~~; E. Use of Vehicles in Wetted Portions of Streams: Conditions 73-75 ~~65-67~~; F. Pollution Control: Conditions 76-84 ~~68-75~~; G. Erosion and Sediment Control: Conditions 85-93 ~~76-84~~; I. Dewatering: Conditions 98-101, 103, 105-107 ~~89-92, 94, 96-98~~; and J. Ground-Disturbing Activities: Condition 122 ~~108~~. ***Mitigation Measures Identified in this Draft EIR*** **3.2-1d:** The season for instream construction activities and equipment operations shall be limited to the period from July 1 to October 15. If weather conditions permit and the stream is dry or at its lowest flow, instream construction activities and equipment operations may continue after October 15, provided a written request is made to CDFG at least five days before the proposed work period variance. Written approval from CDFG for the proposed work period variance must be received by SQRCD or Agricultural Operator prior to the start or continuation of work after October 15.	Implementation of Mitigation Measures 3.2-1a through 3.2-1d would substantially reduce the potential for erosion and pollution from project construction sites and, as a result, construction activity-related impacts on water quality would be reduced to a less-than-significant level.

TABLE S-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SCOTT RIVER WATERSHED-WIDE PERMITTING PROGRAM

Impacts	Mitigation Measures	Significance after Mitigation
3.2 Geomorphology, Hydrology, and Water Quality (cont.)		
3.2-1 (cont.)	If work is performed after October 15 as provided above, SQRCD or Agricultural Operator will do all of the following: A. Monitor the 72 hour forecast from the National Weather Service. When there is a forecast of more than 30 percent chance of rain, or at the onset of any precipitation, the work shall cease. B. Stage erosion and sediment control materials at the work site. When there is a forecast of more than 30 percent chance of rain, or at the onset of any precipitation, implement erosion and sediment control measures.	
3.2-2: Certain instream structures proposed to improve fish habitat as part of the Program would be installed within a flood hazard area and could impede or redirect flood flows (Less than Significant).	This potential impact was determined to be less than significant. No mitigation measures required.	
3.2-3: Installation and operation of instream structures permitted under the Program could alter channel stability and degrade water quality by increasing turbidity downstream (Significant).	***Mitigation Measures Proposed as Part of the Program*** **3.2-3a:** ITP Additional SQRCD and Sub-Permittee Avoidance and Minimization Obligation D.4. – Livestock and Vehicle Crossings (Article XV) requires annual monitoring of all livestock and vehicle crossings installed under the Program. If the crossing is exacerbating erosion and contributing fine sediment to the stream, SQRCD shall note that in its Annual Report and the sub-permittee shall be responsible for remediation of the problem. **3.2-3b:** MLTC Conditions 37, 43, 47, and 55 ~~35, 41, 45, and 53~~ would ensure that boulder weirs are sized to resist wash-out and do not create lifts in the stream channel that exceed twelve (12) inches, and that instream structures shall be designed and implemented in accordance with CDFG's Salmonid Stream Habitat Restoration Manual. ***Mitigation Measures Identified in this Draft EIR*** **3.2-3c:** CDFG and SQRCD shall establish performance criteria for new and replacement instream structures including boulder weirs, angular rock for bank protection, bioengineered habitat structures, large woody debris, fish ladders, and other channel restoration or protection measures. The performance criteria shall include, but not be limited to, the following: • Sediment deposition upstream and erosion/scour and subsequent deposition downstream of these instream structures, during bankfull flow conditions, would be avoided to the extent feasible, unless the intent of the particular structure is to facilitate such processes (e.g., gravel trapping);	Implementation of Mitigation Measures 3.2-3a through 3.2-3c would reduce the potential channel stability and water quality impacts to a less-than-significant level.

TABLE S-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SCOTT RIVER WATERSHED-WIDE PERMITTING PROGRAM

Impacts	Mitigation Measures	Significance after Mitigation
3.2 Geomorphology, Hydrology, and Water Quality (cont.)		
3.2-3 (cont.)	• Instream structures shall not alter channel hydraulics such that the project reach can no longer move the imposed sediment load (i.e., upstream supply) with the available range of sediment-transporting flows. This criterion shall focus on the transport of bed-material load; • Instream structures shall not lead to a permanent increase in the downstream transport of sediments that is outside the historical range of sediment flux; • Instream structures shall be designed to withstand a given range of flows (e.g., some structures are permanent, such as fish ladders, while other structures are “semi-permanent,” such as placement of LWD). The range of flows that a particular structure will be designed to handle shall be quantified and rationalized. Engineered structures such fish ladders and boulder weirs designed for grade control, or for fish passage in proximity of a water diversion, require design and assessment by a qualified hydrologist, geologist, engineer, or other similarly qualified individual using methods and levels of rigor that have been established in the engineering and scientific community. Based on the assessment, if the proposed structure would fail to meet the performance criteria, then the structure shall not be installed within that particular reach. The performance criteria shall be included in the SQRCD ITP Monitoring and Adaptive Management Plan (ITP Attachment 3) and their verification and effectiveness shall be included in the Monitoring (ITP Covered Activity 13) or Research (ITP Covered Activity 14) activities of the Program.	
3.2-4: The Program could result in an increase in the extraction of groundwater, which could contribute to decreased baseflows and increased ambient water temperatures in the Scott River and its tributaries (Less than Significant).	This potential impact was determined to be less than significant. No mitigation measures required.	
3.3 Biological Resources: Fisheries and Aquatic Habitat		
3.3-1: Construction, maintenance, and other instream activities associated with various Covered Activities may result in impacts to fisheries resources and their habitat (Significant).	***Mitigation Measures Proposed as Part of the Program*** **3.3-1a:** Implementation of ITP General Conditions (g) Instream work period, (h) Instream equipment work period, and (i) Compliance with Fish and Game Code, § 1600 *et seq.* (Article XIII.E.1) would avoid or minimize potential direct and indirect impacts to coho salmon and CDFG fish species of special concern resulting from instream construction and maintenance activities.	Implementation of the Program, including the mitigation measure discussed above, would reduce potential impacts of construction, maintenance, and other instream activities to coho salmon and CDFG fish species of special concern and their habitat to a less-than-significant level.

TABLE S-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SCOTT RIVER WATERSHED-WIDE PERMITTING PROGRAM

Impacts	Mitigation Measures	Significance after Mitigation
3.3 Biological Resources: Fisheries and Aquatic Habitat (cont.)		
3.3-1 (cont.)	**3.3-1b:** Implementation of numerous applicable conditions in the MLTC would further avoid or minimize potential direct and indirect impacts to coho salmon and CDFG fish species of special concern resulting from instream and upland construction and maintenance activities. ***Mitigation Measures Identified in this Draft EIR*** **3.3-1c:** ITP General Conditions (g) and (h) (Article XIII.E.1) limit the season for instream equipment operations and work related to structural restoration projects to the period of July 1 through October 15 ~~31~~. Similarly, ITP Additional Avoidance and Minimization Measure D (Livestock and Vehicle Crossings) and conditions in the MLTC limit the use of stream crossings to the same period. ~~However, based on adult coho salmon observations in the Scott River (Quigley, 2006a), as well as documented migration timing in the adjacent Shasta River watershed (Hampton, 2006), coho salmon may enter the Scott River prior to October 31. Furthermore, the Chinook salmon spawning season occurs even earlier in the season, depending on streamflows. Therefore, as specified under Mitigation Measure 3.2-1d (Chapter 3.2 Geomorphology, Hydrology, and Water Quality), the season for instream construction activities, equipment operations, and stream crossing utilization shall be limited to the period of July 1 through October 15.~~ If weather conditions permit and the stream is dry or at its lowest flow, instream construction activities and equipment operations may continue after October 15, provided a written request is made to CDFG at least five days before the proposed work period variance. Written approval from CDFG for the proposed work period variance must be received by SQRCD or Agricultural Operator prior to the start or continuation of work after October 15. If work is performed after October 15 as provided above, SQRCD or Agricultural Operator will do all of the following: • Monitor the 72 hour forecast from the National Weather Service. When there is a forecast of more than 30 percent chance of rain, or at the onset of any precipitation, the work shall cease. • Stage erosion and sediment control materials at the work site. When there is a forecast of more than 30 percent chance of rain, or at the onset of any precipitation, implement erosion and sediment control measures.	

TABLE S-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SCOTT RIVER WATERSHED-WIDE PERMITTING PROGRAM

Impacts	Mitigation Measures	Significance after Mitigation
3.3 Biological Resources: Fisheries and Aquatic Habitat (cont.)		
3.3-2: Increased extraction of groundwater could contribute to decreased baseflows and increased ambient water temperatures in the Scott River and its tributaries, thereby impacting coldwater fish habitat (Less than Significant).	This potential impact was determined to be less than significant. No mitigation measures required.	
3.4 Biological Resources: Botany, Wildlife, and Wetlands		
3.4-1: The Program could result in impacts to special-status plant or animal species (Significant).	***Mitigation Measures Proposed as Part of the Program*** **3.4-1a:** ITP General Conditions (g) and (h) (Article XIII.E.1) stipulate that instream work on structural restoration projects and instream equipment operations shall occur from July 1 to October 15 ~~31~~. This restricts noise and other sources of disturbance during most of the nesting season for special status riparian birds. **3.4-1b:** ITP Avoidance and Minimization Obligation B.1 (Article XV) requires that water removed directly from the stream by means of a pump shall have inlets properly screened per CDFG/NMFS fish screen standards (NMFS, 1997). These standards specify a mesh size that would avoid entrainment of special-status species in pumps. **3.4-1c:** Master List of Terms and Conditions (MLTC) Condition 109 ~~100~~ stipulates that, prior to ground-disturbing activities, work sites shall be surveyed for special-status plant species by a qualified botanist. Special-status plant surveys shall be conducted following the *Guidelines for Assessing Effects of Proposed Projects on Rare, Threatened and Endangered Plants and Natural Communities* (CDFG, 2000). The survey report, including the methodology and survey findings, shall be provided to CDFG for review and approval prior to any ground-disturbing activities. MLTC condition 110 ~~101~~ further states that if any special-status plant species are identified at a work site, CDFG shall identify one or more of the following protective measures, but not limited to these measures, to be implemented at the project site before work may proceed: • Fencing to prevent accidental disturbance of special-status plants during construction; • On-site monitoring by a qualified botanist during construction to assure that special-status plants are not disturbed; and/or • Redesign of proposed work to avoid disturbance of special-status plant species.	Seasonal restrictions on equipment operations reduce direct effects on special-status breeding birds. Pre-construction plant and nesting bird surveys, and resulting activity restrictions will avoid impacts to these species. Implementation of Mitigation Measures 3.4-1a through 3.4-1d will reduce the impact to less than significant.

TABLE S-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SCOTT RIVER WATERSHED-WIDE PERMITTING PROGRAM

Impacts	Mitigation Measures	Significance after Mitigation
3.4 Biological Resources: Botany, Wildlife, and Wetlands (cont.)		
3.4-1 (cont.)	***Mitigation Measures Identified in this Draft EIR*** **3.4-1d:** The permissible work window for individual work sites shall be further constrained as necessary to avoid the nesting or breeding seasons of special-status birds and terrestrial animals for which CDFG determines impacts could be significant. At most sites with potential for significant impacts to nesting special-status birds, work shall be conditioned to start after July 31 when the young have typically fledged, potential impacts will be avoided and no surveys will be required. Where work after July 31 would still have the potential to significantly impact nesting special-status birds, work shall not begin until the potential for impacts no longer exists. CDFG may advance the window at individual work sites if: • There is no suitable habitat present. "Suitable habitat" in this sense varies between species and would be determined by CDFG, for example, for the willow flycatcher in accordance with Figura (2007); or, • Surveys determine that nesting birds will not be affected, either because the animals are not present or the nests are safely distant or otherwise screened from the activity. In addition, to prevent impacts to bank swallow nesting areas, no fencing or planting action will be allowed to change the cross-sectional profile of the stream (e.g., lay a cutbank back to an angle of repose for riparian planting) until after a survey is conducted that establishes that bank swallows are not using the area to be affected. No area supporting bank swallows shall be manipulated in any way. To avoid potential impacts to sandhill crane nesting and rearing activities, surveys for active nests shall be performed by a qualified biologist prior to the start of a Covered Activity when a known sandhill crane territory is located within 0.5 mile of the project site and the activity will occur during the typical nesting and rearing season (March 1 to August 15). If active nests are found, a no-disturbance buffer radius of up to 0.5 mile will be required around the nest. The actual size of the buffer may be modified based on an evaluation by a qualified biologist of the sensitivity of the birds to the level of project disturbance. The no-disturbance buffer may be lifted prior to August 15, if it is determined safe to do so by a qualified biologist and approved by CDFG. Any reduction in the 0.5 mile buffer radius will be approved in writing by CDFG.	

TABLE S-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SCOTT RIVER WATERSHED-WIDE PERMITTING PROGRAM

Impacts	Mitigation Measures	Significance after Mitigation
3.4 Biological Resources: Botany, Wildlife, and Wetlands (cont.)		
3.4-1 (cont.)	To avoid potential impacts to Swainson's hawk nesting and rearing activities, surveys for active nests within 0.5 miles of a project site shall be performed by a qualified biologist when a Covered Activity will occur in known Swainson's hawk nesting territory during the typical nesting and rearing season (March 15 to August 15). If one or more active Swainson's hawk nests are present within the 0.5 mile survey area, the active nest(s) shall be monitored by a qualified biologist prior to and during project activities. If, in the professional opinion of the qualified biologist, the nesting pair's behavior suggests agitation or disturbance by project activities, all activities in the area shall immediately stop pending consultation with CDFG. Following a review of the breeding pair's behavior, both as reported by the biologist and independently verified by CDFG, CDFG will determine whether the Covered Activity may continue during the nesting season and, if so, the conditions under which they may continue. The no-disturbance buffer may be lifted prior to August 15, if it is determined safe to do so by a qualified biologist and approved by CDFG. Any reduction in the 0.5 mile buffer radius will be approved in writing by CDFG. If, during the non-breeding season, a Swainson's hawk nest is present in the project area and has been used within the past breeding seasons, the nest site shall not be disturbed pending consultation with CDFG. To avoid potential impacts to willow flycatchers during the typical nesting and rearing season (May 15 to August 30), no project related activities shall occur within 300 feet of potential nesting habitat. A Covered Activity may be performed within the 300-foot buffer zone if surveys for active nests are performed prior to the start of the Covered Activity and no active nests are present.	
3.4-2: Construction of new and maintenance and repair of existing stream access and crossings could result in impacts to special-status plant or animal species (Less than Significant).	This potential impact was determined to be less than significant. No mitigation measures required.	
3.4-3: ITP Covered Activity 10, the grazing of livestock within the <u>riparian exclusion zone</u> ~~bed, bank, or channel of a stream~~ different from current operations (i.e., not part of baseline conditions), could impact sensitive habitat and special-status species (Significant).	***Mitigation Measures Proposed as Part of the Program*** **3.4-3~~a~~:** ITP Additional SQRCD and Sub-Permittee Avoidance and Minimization Obligation E.5 (Article XV) stipulates that livestock grazing be done in accordance with a grazing management plan prepared by the sub-permittee and approved by CDFG. The grazing management plan shall address the timing, duration, and intensity <u>(number of livestock allowable per unit area [i.e., stocking rate])</u> of livestock grazing within the riparian zone and shall explain how the proposed management plan will result in improved riparian function and enhanced aquatic habitat.<u> Grazing plans completed in accordance with the ITP shall include, in addition to other specified requirements, a means to prohibit livestock in live streams.</u>	Implementation of Mitigation Measures 3.4-3a and 3.4-3b will reduce the impact to less than significant.

TABLE S-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SCOTT RIVER WATERSHED-WIDE PERMITTING PROGRAM

Impacts	Mitigation Measures	Significance after Mitigation
3.4 Biological Resources: Botany, Wildlife, and Wetlands (cont.)		
3.4-3 (cont.)	~~***Mitigation Measures Identified in this Draft EIR***~~ ~~**3.4-3b:** The ITP stipulation noted in Mitigation Measure 3.4-3a does not constitute complete mitigation because the actual restriction is not sufficiently specific. Mitigation Measure 3.4-3b clarifies "intensity" to stipulate the number of livestock allowable per unit area (i.e., stocking rate) per unit of time. Grazing plans completed in accordance with the ITP shall include, in addition to other specified requirements, a means to prohibit livestock in live streams.~~	
3.4-4: ITP Covered Activities may result in incidental discharge of fill into wetlands under federal jurisdiction causing temporary, direct and indirect impacts to wetland function (Less than Significant).	This potential impact was determined to be less than significant. No mitigation measures required.	
3.4-5: Water efficiency measures required by the Program could in some instances significantly impact nesting special-status birds (Significant).	***Mitigation Measures Proposed as Part of the Program*** None specified. ***Mitigation Measures Identified in this Draft EIR*** **3.4-5:** Where piping or lining of a diversion ditch is performed as a water efficiency measure under the Program, any required woody vegetation removal shall be considered an activity subject to the same mitigation measure as prescribed for other riparian impacts (Mitigation Measure 3.4-1d).	Implementation of Mitigation Measure 3.4-5 will reduce the impact on birds nesting in vegetation along diversion ditches to less than significant.
3.5 Cultural Resources		
3.5-1: Impacts to known and unknown cultural resources may result either directly or indirectly during the implementation and operational phases of a Covered Activity under the Program (Significant).	***Mitigation Measures Proposed as Part of the Program*** **3.5-1a:** Master List of Terms and Conditions (MLTC) Condition <u>111c</u> ~~102~~ states that prior to any ground-disturbing activities, the responsible party shall contract with at least one qualified archaeologist and paleontologist to complete cultural and paleontological resource surveys, to identify any previously recorded and unknown historical resources, unique archeological resources, or unique paleontological resources, using standard survey protocols. The survey report must be provided to the California Department of Fish and Game (CDFG) for review and approval prior to any ground-disturbing activities. **3.5-1b:** MLTC Condition <u>112</u> ~~103~~ notes that if any potentially significant historical resources, unique archaeological resources and/or paleontological resources are identified at the work site, CDFG shall consult with the consulting archaeologist or paleontologist to identify one or more of the following protective measures, or site specific measures, to be implemented at the project site before work may proceed:	Implementation of Mitigation Measures 3.5-1a through 3.5-1h would reduce the potential impacts to known and unknown cultural resources to a less-than-significant level.

TABLE S-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SCOTT RIVER WATERSHED-WIDE PERMITTING PROGRAM

Impacts	Mitigation Measures	Significance after Mitigation
3.5 Cultural Resources (cont.)		
3.5-1 (cont.)	• Redesign of proposed work to avoid disturbance of cultural or paleontological resources; • Fencing to prevent accidental disturbance of cultural or paleontological resources during construction; and/or • On-site monitoring by a cultural and/or paleontological resource professional during construction to assure that resources are not disturbed. **3.5-1c:** MLTC Condition 116 ~~104~~ states that the responsible party shall report any previously unknown historical resources, unique archaeological resources, and paleontological remains discovered at the site to CDFG and other appropriate agencies. **3.5-1d:** MLTC Condition 117 ~~105~~ states that if cultural resources such as lithic debitage, groundstone, historic debris, building foundations, or bone are discovered during ground-disturbing activities, work shall cease within 20 meters (66 feet) of the discovery. Furthermore, work near archaeological finds shall not resume until a professional archaeologist has evaluated the materials and offered recommendations for further action. **3.5-1e:** MLTC Condition 122 ~~108~~ states that the responsible party shall instruct all persons who will be completing any ground-disturbing activity at a worksite to comply with conditions set forth in the SAA Memorandum of Understanding (MOU) and to inspect each work site before, during and after completion of ground-disturbing activity at the work site. ***Mitigation Measures Identified in this Draft EIR*** **3.5-1f:** Prior to carrying out MLTC Condition 111c ~~102~~, the archaeologist/paleontologist shall; a.) contact the Native American Heritage Commission for a Sacred Lands File check and a list of appropriate Native American contacts for consultation concerning the project site and, if necessary, to assist with the development of mitigation measures; and b.) make a determination ~~shall first be made~~ as to whether the area has had an adequate archaeological survey by a professional archaeologist and whether any historic or prehistoric sites have been recorded within a ¼-mile radius of the project area. This records review may be conducted at NE/CHRIS on a case-by-case basis for each project. Alternatively, a professional archaeologist will be contracted to conduct a watershed-wide records search at NE/CHRIS and prepare a map showing the previous surveys and recorded sites. An update of this information would then be prepared at least every two years. This map, which will show the locations of archaeological sites, would be considered confidential and made available only to individuals on an as-needed basis.	

TABLE S-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SCOTT RIVER WATERSHED-WIDE PERMITTING PROGRAM

Impacts	Mitigation Measures	Significance after Mitigation
3.5 Cultural Resources (cont.)		
3.5-1 (cont.)	**3.5-1g:** If none of the protective measures described in MLTC Condition 112 ~~103~~ can be implemented, then an archaeological data recovery program (ADRP) shall be implemented, unless the professional archaeologist determines that the archaeological resource is of greater interpretive use than research significance and that interpretive use of the resource is feasible. The project archaeologist and CDFG shall meet and consult to determine the scope of the ADRP, and the project archaeologist shall prepare a research design for the project which shall be submitted to CDFG for review and approval. This document shall identify how the proposed data recovery program would preserve the significant information the archaeological resource is expected to contain. The document will specifically identify the scientific/historical research questions being asked, the archaeological resources' expected data classes, and how the expected data classes would address the applicable research questions. Following approval of the plan by CDFG, the ADRP shall be implemented and a report prepared. Data recovery, in general, should be limited to the portions of the historical property that could be adversely affected by the proposed project. Destructive data recovery methods shall not be applied to portions of the archaeological resources if nondestructive methods are practical. All significant cultural materials recovered shall be, as necessary, subject to scientific analysis, professional museum curation, and a report shall be prepared by a qualified archaeologist according to current professional standards. If the recovered artifacts are from a prehistoric site, the local Native American groups will be consulted relative to the disposition of these materials. **3.5-1h:** If built historical resources (e.g. structures, buildings, or similar) that qualify for listing in the California Register of Historic Resources (CEQA *Guidelines*, § 15064.5)) are identified through the implementation of measure MLTC Condition 111c ~~102~~ and cannot be avoided through implementation of measure MLTC Condition 112 ~~103~~, SQRCD or the Agricultural Operator will comply with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (Standards) which would, in accordance with CEQA *Guidelines,* § 15064.5(b)(3), reduce potential impacts associated with the alteration or modification of a historical resource (including historic districts and individually eligible resources) to a less-than-significant level. If both avoidance and compliance with the Standards are infeasible, the Covered Activity in question shall be changed or not pursued, such that the historical resource is not destroyed or altered. Activities that would result in such disturbance are not authorized under the Program because SQRCD or the Agricultural Operator would be unable to mitigate the impact to a point where clearly no significant effect on the environment would occur.	

TABLE S-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SCOTT RIVER WATERSHED-WIDE PERMITTING PROGRAM

Impacts	Mitigation Measures	Significance after Mitigation
3.5 Cultural Resources (cont.)		
3.5-2: Covered Activities could adversely affect known or unknown paleontological resources (Significant).	***Mitigation Measures Proposed as Part of the Program*** **3.5-2a:** Implement **Mitigation Measures 3.5-1a – 3.5-1e** (MLTC Conditions 111, 112, 116, 117, and 122 ~~102, 103, 104, 105, and 108~~), as described above. ***Mitigation Measures Identified in this Draft EIR*** **3.5-2b:** MLTC Condition 117 ~~10~~5 (see Mitigation Measure 3.5-1d) states that if cultural resources such as lithic debitage, groundstone, historic debris, building foundations, or bone are discovered during ground-disturbing activities, work shall cease within 20 meters (66 feet) of the discovery. Work near the archaeological finds shall not resume until a professional archaeologist has evaluated the materials and offered recommendations for further action. This measure does not, however, specify the criteria for protecting paleontological resources. Therefore, in the event of an unanticipated paleontological discovery during ground-disturbing activities, the following measure shall be implemented: • Temporarily halt or divert work within 20 meters (66 feet) of the find until the discovery is examined by a qualified paleontologist (per Society of Vertebrate Paleontology standards (SVP, 1995 and SVP, 1996). • Document the discovery as needed, evaluate the potential resource, and assess the significance of the find under the criteria set forth in CEQA *Guidelines*, § 15064.5. • Notify the appropriate agencies to determine procedures that would be followed before construction is allowed to resume at the location of the find. • If CDFG determines that avoidance is not feasible, the paleontologist shall prepare an excavation plan for mitigating the effect of the project on the qualities that make the resource important, and such plan shall be implemented. The plan shall be submitted to the CDFG for review and approval.	Implementation of Mitigation Measures 3.5a and 3.5-2b would reduce the potential impacts to paleontological resources to a less-than-significant level.
3.5-3: Covered Activities could result in damage to previously unidentified human remains (Less than Significant).	This potential impact was determined to be less than significant. No mitigation measures are required.	

TABLE S-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SCOTT RIVER WATERSHED-WIDE PERMITTING PROGRAM

Impacts	Mitigation Measures	Significance after Mitigation
3.6 Hazards and Hazardous Materials		
3.6-1: Construction activities could result in discovery and release of previously unidentified hazardous materials into the environment (Significant).	***Mitigation Measures Proposed as Part of the Program*** **3.6-1a:** The Program's incidental take permit (ITP) General condition (b) (Article XIII.E.1) states the Siskiyou Resource Conservation District (SQRCD) "and any sub-permittee shall immediately stop, contain, and clean-up any fuel, lubricants, or other hazardous materials that leak or spill while engaged in a Covered Activity. SQRCD or the sub-permittee shall notify the Department immediately of any leak or spill of hazardous materials into a stream or in a place where it can pass into a stream. While engaged in a covered activity, SQRCD and all sub-permittees shall store and handle hazardous materials at least 150 feet away from the edge of mean high water elevation of any stream and properly dispose any unused or leftover hazardous materials offsite. Exceptions to this provision may be provided in individual sub-permits for pre-existing structures with adequate containment facilities." Conditions 76 through 84 ~~68 through 75~~ of the Program's streambed alteration agreement Memorandum of Understanding Attachment 1 Master List of Terms and Conditions (MLTC), contain similar provisions. ***Mitigation Measures Identified in this Draft EIR*** **3.6-1b:** SQRCD shall prepare a standard Hazardous Substance Discovery Plan that shall include provisions that would be implemented if any subsurface hazardous materials are encountered during construction. Provisions outlined in the Plan shall be followed by SQRCD and/or any sub-permitee and shall include immediately stopping work in a contaminated area and contacting appropriate resource agencies, including the California Department of Fish and Game (CDFG) designated monitor, upon discovery of subsurface hazardous materials. The Plan shall include the phone numbers of the county and state agencies and primary, secondary, and final cleanup procedures. The Hazardous Substance Discovery Plan shall be submitted to CDFG for review and approval prior to the commencement of Program construction activities.	Mitigation Measures 3.6-1a and 3.6-1b would reduce this impact to a less than significant level.
3.6-2: Program construction activities could ignite dry vegetation and start a wildland fire (Significant).	***Mitigation Measures Proposed as Part of the Program*** No mitigation measures are included in the proposed MLTC or ITP. ***Mitigation Measures Identified in this Draft EIR*** **3.6-2:** Water tanks and/or fire extinguishers shall be present at Covered Activity construction sites and will be available for fire protection during the fire season (approximately late spring to early fall). All construction vehicles will have fire suppression equipment and construction personnel shall be required to park vehicles away from dry vegetation. SQRCD and/or sub-permittees shall contact and coordinate with CDF to determine the minimum amounts of fire equipment to be carried on the vehicles and appropriate locations for the water tanks/fire extinguishers. SQRCD and/or sub-permittees shall submit verification of its consultation with CDF to CDFG.	Mitigation Measure 3.6.2 would reduce this impact to a less-than-significant level.

TABLE S-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SCOTT RIVER WATERSHED-WIDE PERMITTING PROGRAM

Impacts	Mitigation Measures	Significance after Mitigation
3.7 Public Utilities, Service Systems and Energy		
3.7-1: The Program could result in the modification or expansion of existing water supply systems (Less than Significant).	This potential impact was determined to be less than significant. No mitigation measures required.	
3.7-2: Construction activities could inadvertently contact underground utility lines and/or facilities during excavation and other ground disturbance, possibly leading to short-term utility service interruptions (Less than Significant).	This potential impact was determined to be less than significant. No mitigation measures required.	
3.7-3: Replacement of gravity-based surface water diversions with diversions or wells utilizing pumps, would increase power consumption and air emissions (Less than Significant).	This potential impact was determined to be less than significant. No mitigation measures required.	
3.7-4: Construction activities and water pumping associated with Covered Activities and ITP mitigation measures would generate greenhouse gas emissions that would contribute to global warming (Less than Significant).	***Mitigation Measures Proposed as Part of the Program*** This potential impact was determined to be less than significant. No mitigation measures required. ***Additional Mitigation Measures Identified in This Draft EIR*** The mitigation measures discussed below were identified as part of this Draft EIR. While these measures are not required to reduce this impact to less than significant, they are technically feasible. Still, CDFG does not have the statutory or regulatory authority to impose these requirements. As a result, they will only be implemented voluntarily or by another regulatory agency (e.g., CARB) that has the authority to require them, whether now or in the future. **3.7-4a:** Program participants are encouraged to fuel all diesel equipment, including pumps, vehicles, and construction equipment, with a minimum 20 percent biodiesel (maximum 80 percent conventional diesel) blend (B-20). B-20 biodiesel is currently available commercially in Siskiyou County.[8] A blend of 20 percent biodiesel will reduce CO_2 emissions by approximately 15 percent (USDOE, 2005), although with a slight increase in NOx (the increase in NOx emissions would not exceed significance thresholds established by SQAPCD – see the emissions calculations in the technical appendix to the Initial Study in Appendix D). **3.7-4b:** Renewable energy sources such as photovoltaic or wind power could be used to power some pumps installed to meet Program requirements for stockwatering and moving points of diversion downstream. **3.7-4c:** Table 3.7-2 shows the reduction in emissions achieved by using renewable energy sources for 10 percent of the projected increase in pumping due to the Program, and from the use of biodiesel.	

8 B-20 is currently available locally at Cross Petroleum, 1012 North Mount Shasta Boulevard, Mount Shasta, CA 96067.

CHAPTER 1
Introduction

1.1 Proposed Program

The California Department of Fish and Game (CDFG) and the Siskiyou Resource Conservation District (SQRCD) are proposing a Watershed-wide Permitting Program for the Scott River watershed (Program). The purpose of the Program is to provide a streamlined and comprehensive permitting framework to enable farmers and ranchers throughout the Scott River watershed (Program Area) to continue their routine agricultural activities, while complying with Fish and Game Code, §1600 *et seq.* and the California Endangered Species Act (CESA) (Fish and Game Code, § 2050 *et seq.*).

The agricultural water diversions, activities related to the diversions, and the other activities the Program covers, referred to in the Program as the "Covered Activities,"[1] are subject to Fish and Game Code, § 1600 *et seq.* because they substantially divert or obstruct the natural flow of rivers, streams, or lakes in the Program Area; substantially change the beds, channels, or banks of rivers, streams, or lakes in the Program Area; and/or use material from the beds, channels, or banks of rivers, streams, or lakes in the Program Area. As discussed in greater detail below and in Chapter 2, Project Description, Program participants will comply with Fish and Game Code, § 1600 *et seq.* by obtaining streambed alteration agreements (SAAs).

CESA prohibits take[2] of endangered, threatened, and candidate species unless the take is authorized by CDFG. The Covered Activities are subject to CESA because they could result in take of coho salmon *(Oncorhynchus kisutch*). Coho salmon that occur in the Program Area are listed as threatened under CESA. As discussed in greater detail below and in Chapter 2 (Project Description[3]) Program participants will comply with CESA by obtaining incidental take authorization from CDFG pursuant to Fish and Game Code, § 2081(b) and (c).

Farmers and ranchers who are eligible to participate in the Program are referred to as "Agricultural Operators." An "Agricultural Operator" is defined in the Program as: any natural person or any partnership, corporation, limited liability company, trust, or other type of association, or any public agency, as defined in CEQA *Guidelines*, § 15379, who diverts water from a stream by means of an active diversion in the Program Area for an agricultural purpose, or is involved in an agricultural operation on property in the Program Area through which or

1 Covered Activities are described fully in Chapter 2, Project Description.
2 "Take" means hunt, pursue, catch, capture or kill, or attempt to hunt, pursue, catch, capture, or kill (Fish and Game Code, § 86).
3 For purposes of this Draft EIR the "Program" is the "Project" being analyzed pursuant to CEQA.

adjacent to which a stream flows. "Active diversion" is defined as a surface water diversion that has been operated at least one out of the last five years.

SQRCD and the Department of Water Resources (DWR) will also participate in the Program. SQRCD will participate because, as part of the Program, it will be implementing coho salmon restoration projects that are subject to Fish and Game Code, §1600 *et seq.* and those projects could result in take of coho salmon in the Program Area. DWR will participate in the Program because it currently provides watermastering service in the Program Area. Under the Program, the watermaster in some instances will need to take certain actions to avoid or minimize the take of coho salmon as it relates to operating water diversions and managing water in the Program Area.

The Program consists of:

- **Watershed-wide Streambed Alteration Agreement Program (SAA Program)**

  The SAA component of the Program will consist of separate SAAs issued by CDFG to SQRCD and each Agricultural Operator. CDFG will include in each SAA the applicable terms and conditions from the "Master List of Terms and Conditions" (MLTC) developed as part of the Program. The terms and conditions are intended to protect existing fish and wildlife resources that the Covered Activity or Activities could substantially adversely affect. The MLTC will be an attachment to a Memorandum of Understanding (MOU) between CDFG and SQRCD that describes their roles and responsibilities in regards to the SAA component of the Program.

- **Watershed-wide Incidental Take Authorization for Coho Salmon**

  CDFG will issue an "incidental take permit" (ITP) to SQRCD in accordance with Fish and Game Code, §2081(b) and (c) to provide it take authorization in the course of implementing coho salmon restoration projects that are part of the Program. The restoration projects are intended to implement certain tasks identified in the Recovery Strategy for California Coho Salmon the Fish and Game Commission adopted in 2004 (Coho Recovery Strategy) and, at the same time, fully mitigate any take of coho salmon that occurs incidental to conducting a Covered Activity, as CESA requires. CDFG will issue separate take authorization to the Agricultural Operators who enroll in the Program and DWR in the form of a "sub-permit." The Program uses the term "sub-permit" because each will be based on SQRCD's ITP, but still enforceable as a "stand alone" permit. The separate obligations SQRCD will have under its ITP and those the "sub-permittees" will have under their sub-permits are discussed in Chapter 2, Project Description.

- **Monitoring Program**

  The ITP will require SQRCD to establish a monitoring program to track the implementation of the mitigation measures for which it is responsible, and to determine the effectiveness of those measures in improving conditions for coho salmon. ~~determine whether or not Agricultural Operators are fulfilling the terms and conditions required by their sub-permits, and to determine the effectiveness of the conditions in the ITP and sub-permits to avoid, minimize, and fully mitigate the incidental take of coho salmon in the Program Area.~~ Sub-permittees are responsible for monitoring the terms and condition of their sub-permit. SQRCD will be available to assist sub-permittees in fulfilling monitoring responsibilities related to the diversion of water and livestock or vehicle crossings. CDFG is responsible for any and all compliance monitoring.

Each of these components is described in greater detail in Chapter 2, Project Description.

CDFG and the Shasta Valley Resource Conservation District (SVRCD) have developed a watershed-wide permitting program for the Shasta River watershed similar to the Program for the Scott River watershed. CDFG is conducting a separate environmental review of that Program under CEQA. However, the potential for cumulative effects of the two programs combined is considered in Chapter 4.

1.2 Environmental Review of the Program

1.2.1 Lead Agency

CDFG is the public agency with the principal responsibility for approving and administering the Program, and therefore, as defined in CEQA and the CEQA *Guidelines*,[4] is the "lead agency" under CEQA for the purpose of preparing the Environmental Impact Report (EIR) for the Program (Public Resources Code, § 21067; CEQA *Guidelines*, § 15367). CDFG has identified the North Coast Regional Water Quality Control Board (NCRWQCB),[5] the State Water Resources Control Board (SWRCB), and the Office of Historic Preservation as potential "responsible agencies" under CEQA. A responsible agency is a state, local, or regional agency, or board or commission other than the lead agency that has discretionary approval power over a project for which the lead agency is preparing or has prepared an environmental document (Public Resources Code, § 21069; CEQA *Guidelines*, § 15381).

The Covered Activities could affect the beds of navigable waters and other "state owned 'sovereign' land," which are within the jurisdiction of the State Lands Commission (CEQA *Guidelines*, § 15386(b)). As a result, CDFG has identified the State Lands Commission as a "trustee agency" for the Program. A trustee agency is a state agency that has jurisdiction over natural resources held in trust for the people of the state that could be affected by a project or program (Public Resources Code, § 21070; CEQA *Guidelines*, § 15386).

Federal agencies that might have discretionary approval power over the Covered Activities include the U.S. Army Corps of Engineers (Corps) under the Clean Water Act and the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) under the federal Endangered Species Act. However, if these or any other federal agencies must approve a Covered Activity, they will not rely on the EIR for the Program. Instead, they will need to comply with the National Environmental Policy Act (NEPA) either as the lead agency, in which case they will be responsible for preparing their own environmental document, or as a cooperating agency, in which case they will consider the NEPA lead agency's environmental document in approving the Covered Activity.

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[4] The CEQA *Guidelines* are the regulations that implement CEQA. The CEQA *Guidelines* are in the California Code of Regulations, title 14, § 15000 *et seq.*

[5] NCRWQCB informed CDFG that it may rely on this document as a responsible agency in issuing any required permits for Covered Activities that are required as part of the Scott River Total Maximum Daily Loads discussed in Chapter 3.2. According to NCRWQCB, restoration activities that discharge waste to waters of the state will require water quality certifications under Clean Water Act section 401 and/or Porter-Cologne Water Quality Control Act waste discharge requirements, both of which are discretionary actions subject to CEQA. If possible, NCRWQCB staff intends to propose a general water quality certification/waste discharge requirements for restoration activities to further streamline and coordinate permitting in the Scott River watershed (Leland, 2008).

1.2.2 Need for Environmental Review

The overall intent of the Program is to reduce the environmental impacts of historic, ongoing agricultural water diversions and activities related to those diversions, as well as coho salmon restoration projects in the Program Area. Nonetheless, CDFG determined it was necessary to prepare this Draft EIR for the Program to comply with CEQA because, 1) establishing and implementing the Program by issuing SAAs, the ITP, and sub-permits for the Covered Activities constitute discretionary approvals by CDFG; and 2) based on the Initial Study for the Program, CDFG determined the Covered Activities have the potential to cause significant effects on the environment, as defined in the CEQA *Guidelines* (CEQA *Guidelines,* § 15382).

The four purposes of this Draft EIR are:

1. To describe the Program;
2. To determine whether the Program has the potential to cause significant adverse effects on the physical environment;
3. Where such effects are identified, to develop feasible mitigation measures to reduce or eliminate the environmental impacts;
4. To consider feasible alternatives to the Program that could attain most of the Program's objectives, while reducing its environmental impacts.

1.2.3 Scope of the Draft EIR

This Draft EIR analyzes the Program by describing the Program and the Covered Activities; the environmental setting where the Covered Activities will occur; an evaluation of the effects the Covered Activities could have on the physical environment; for those effects that CDFG determines could be significant, a description of any mitigation measures that can be incorporated into the Covered Activities through the MLTC and ITP to reduce those effects to less than significant; and a description of a reasonable range of potentially feasible alternatives to the Program. If CDFG approves the Program, any mitigation measures identified in this Draft EIR that are not in the MLTC and ITP will be added to them.

Program EIR

This Draft EIR is a "program EIR," i.e., an EIR for the Program at a project-specific level. As described in CEQA *Guidelines,* §15168(a), a program EIR is:

> "An EIR . . . prepared on a series of actions that can be characterized as one large project and are related either:
>
> (1) Geographically;
>
> (2) As logical parts in the chain of contemplated actions;

(3) In connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or

(4) As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways."

A program EIR is appropriate in this case because the Program will comprise a series of actions that can be characterized as one large project (i.e., the issuance by CDFG of SAAs to SQRCD and Agricultural Operators and take authorization to SQRCD, Agricultural Operators, and DWR for only those activities the Program covers) that are related geographically (i.e., within the Scott River watershed), carried out under the same authorizing statutory authority (i.e., Fish and Game Code, §1600 *et seq.* and CESA), and have generally similar environmental impacts that can be mitigated in similar ways.

Before CDFG issues a SAA and sub-permit, it will 1) confirm that the activity is a Covered Activity, and, if so, 2) determine in light of the project-specific information whether the impacts of the Covered Activity are adequately addressed in the Final EIR for the Program and its related mitigation measures. CDFG will prepare subsequent or supplemental CEQA analysis if it determines that the Covered Activity will result in new significant or more substantially severe impacts than addressed in the Final EIR for the Program.

Effects Deemed Less Than Significant in the Initial Study

On October 20, 2006, CDFG published its Initial Study for the Program, a copy of which is included as Appendix D. Pursuant to CEQA *Guidelines*, §15063(c), the Initial Study was used to focus this Draft EIR on the effects of the Program that CDFG determined could be significant, and to identify the effects of the Program determined to be less than significant or not significant. The Initial Study identifies the effects of the Program as less than significant (at both a project and cumulative level) on the environmental factors listed below. As a result, these factors are not further analyzed in this Draft EIR:

- Aesthetics
- Air Quality
- Geology, Soils, and Seismicity[6]
- Mineral Resources
- Noise
- Population and Housing
- Recreation
- Transportation and Traffic

[6] Geomorphic effects are considered in this Draft EIR with Hydrology and Water Quality.

Response to Comments

In comments on CDFG's Notice of Preparation for this Draft EIR, and comments received during the scoping meetings CDFG held in October 2006 (Appendix E), several individuals suggested that the Program would be inadequate to restore coho salmon and other anadromous fish in the Scott River watershed. In response, CDFG notes the following:

- The Program is not intended to substitute for the Coho Recovery Strategy, nor is it intended to be a vehicle for implementation of the full Coho Recovery Strategy. Overall, however, the Program is consistent with the "programmatic implementation framework" called for in the Coho Recovery Strategy. The restoration activities included as mitigation in the ITP are also consistent with elements of the Coho Recovery Strategy. As described in the Coho Recovery Strategy, the effort to restore coho salmon in California must go well beyond the mitigation measures that will be implemented as part of the Program.

- A primary purpose of the Program is to enable Agricultural Operators to continue routine farming and ranching activities in the Program Area and SQRCD's restoration project implementation, while avoiding, minimizing, and mitigating for take of coho salmon that might occur incidental to those activities, in compliance with Fish and Game Code, § 1600 *et seq.* and CESA.

- Because coho salmon is the only listed salmonid species in the Scott River watershed, CDFG does not have the authority to issue incidental take authorization for Chinook salmon (*O. tschawytscha*) or steelhead (*O. mykiss*). However, many of the minimization, avoidance, and mitigation measures included in the ITP and many of the conditions that will be included in the SAAs will also serve to benefit other anadromous fish species and aquatic and riparian resources. However, pursuant to CEQA, CDFG must examine the potential impacts of the Program on listed and non-listed fish species. Hence, this Draft EIR also examines such impacts on fish species in the Program Area other than coho salmon (see Chapter 3.3, Biological Resources: Fisheries and Aquatic Habitat).

- The Program does not in any way "challenge" existing legal water rights. CDFG is authorized to impose conditions on water diversions and other Covered Activities to protect fish and wildlife resources that could affect the exercise of such water rights under Fish and Game Code, §1600 *et seq.*, CESA, and other state laws, but it does not have the authority to revoke those rights. That authority rests with the SWRCB. Therefore, the revocation of an existing legal water right by CDFG would not constitute a feasible mitigation measure, and therefore this Draft EIR does not include such a measure.

- The overall condition of the Scott River's anadromous fishery is reviewed in Chapter 3.3, Biological Resources: Fisheries and Aquatic Habitat. Conditions in the Klamath River are briefly discussed in the context of the discussion on cumulative impacts in Chapter 4.

1.2.4 Comments on the Draft EIR

This Draft EIR will be circulated for a period of 60 days, during which time all interested parties will have the opportunity to review the document and provide CDFG with comments on its contents and analysis. During the 60-day period, CDFG will hold a public hearing to receive written and verbal comments.

Following the close of the 60-day comment period, CDFG will respond to all comments received within the 60-day period, and publish the responses, along with any revisions to this Draft EIR, in a Final EIR. At that time, the Regional Manager of CDFG's Northern Region will decide whether to certify (i.e., adopt) the Final EIR. If it is certified, CDFG will take one of the following two actions:

1. Approve the Program as proposed, with mitigation measures identified in the Final EIR incorporated into the Program; or

2. Disapprove the Program.

1.3 Documents Attached and Incorporated by Reference in the Draft EIR

An EIR may "incorporate by reference all or portions of another document which is a matter of public record or is generally available to the public" (CEQA *Guidelines*, § 15150). Portions of several documents relevant to the environmental analysis for the Program have been summarized in various chapters throughout this Draft EIR. The proposed SAA MOU and attached MLTC and ITP are attached to this Draft EIR as Appendices A and B, respectively. In addition, the following documents are essential to understanding the background, environmental setting, and regulatory context of the Program, and therefore are incorporated herein by reference:[7]

- CDFG, Initial Study for the Scott River Watershed-wide Permitting Program, October, 2006 (attached as Appendix D). This document was the first step in the CEQA process for the Program. The Initial Study was used to identify those environmental factors that could be adversely affected by the Program. Those environmental factors that were found not to be potentially affected by the Program are not further considered in this Draft EIR.

- CDFG Report to the California Fish and Game Commission, *Recovery Strategy for California Coho Salmon*, February 2004. This document describes historic and current coho salmon population trends, examines the causes for the decline of the species, and lays out a strategy for recovering the species, including a pilot program that addresses agricultural activities the Shasta and Scott River watersheds. The Recovery Strategy is further reviewed in Chapter 3.3, Biological Resources: Fisheries and Aquatic Habitat.

- NCRWQCB, *Staff Report for the Action Plan for the Scott River Watershed Sediment and Temperature Total Maximum Daily Loads*, December, 2005, available at http://www.swrcb.ca.gov/rwqcb1/programs/tmdl/scott/scott2.html.

- SQRCD *Incidental Take Permit Application for Coho Salmon (Oncorhynchus kisutch)*, March 29, 2005. This document is the formal application by SQRCD for the ITP. It includes SQRCD's analysis of potential impacts on coho salmon of proposed Covered Activities, and proposed avoidance, minimization, and mitigation measures, many of which are incorporated in the draft ITP. It also includes as attachments extensive background

[7] All referenced documents are available at CDFG's Northern Region Office at 601 Locust Street, Redding, California 96001.

information on the Scott River and its watershed that is further reviewed and incorporated into the setting sections in Chapters 3.2 and 3.3.

- SQRCD *SAA Notification*, April 22, 2005. This document is the formal application for a Streambed Alteration Agreement, pursuant to Fish and Game Code, § 1602.

1.4 Organization of the Draft EIR

The Draft EIR is organized into six chapters, preceded by a Table of Contents and Summary, each of which is described briefly below.

Summary. The Draft EIR Summary, prepared in accordance with CEQA *Guidelines*, § 15123, contains an overview of key elements of the Draft EIR. This Summary includes a description of the Program (the full description is found in Chapter 2), as well as a description of Program alternatives as they compare to the Program (the full alternatives analysis is found in Chapter 5). Areas of controversy are also discussed. The Summary concludes with a comprehensive list of environmental impacts and mitigation measures identified in the Draft EIR, indicating the level of significance of each impact before and after mitigation, presented in table format.

Chapter 1 – Introduction. The Introduction briefly describes the CDFG permitting and environmental review processes for the Program, identifies the technical documents that are incorporated by reference into the Draft EIR, and describes the organization of the Draft EIR.

Chapter 2 – Project Description. The Project Description is prepared pursuant to CEQA *Guidelines*, § 15124 and contains a discussion of the Program attributes through text, figures, and tables. Specifically, Chapter 2 includes an overview of the Program, describes the need for, objectives, and benefits of the Program; describes in general the activities the Program covers (i.e., the Covered Activities); and describes in detail the terms and conditions in the MLTC (i.e., measures necessary to protect fish and wildlife resources) and ITP (i.e., avoidance, minimization, and mitigation measures).

Chapter 3 – Environmental Setting, Impacts, and Mitigation Measures. Chapter 3 begins with an introduction followed by seven “sub-chapters” (Chapters 3.1–3.7). The introduction discusses the environmental setting for the Program in broad terms and explains how the Chapter is organized. Following from the introduction, each sub-chapter includes a more focused discussion of the environmental setting pertinent to the resource the sub-chapter addresses (e.g., Land Use and Agriculture); a description of the criteria used to determine whether a particular impact could be significant; the environmental impacts the Covered Activities could have on the resource; a determination of whether they will be significant based on the significance criteria; and where the impact is identified as potentially significant, a description of the mitigation measure(s) that will reduce the impact to less than significant. The social and economic effects of the Program are discussed in the context of its potential to induce changes in land use.

Chapter 4 – Cumulative Effects and Other Required Topics. Chapter 4 identifies and describes existing environmental statutes and regulations CDFG administers and enforces, as well as activities and programs under the jurisdiction of other agencies that could contribute to significant cumulative impacts. It also indicates the potential for the Program, in combination with other projects in the watershed, to contribute to significant cumulative impacts. This Chapter also discusses the potential the Program could have to induce growth and significant irreversible environmental changes if the Program is implemented.

Chapter 5 – Alternatives to the Program. In accordance with CEQA *Guidelines*, § 15126.6, Chapter 5 presents a reasonable range of potentially feasible alternatives designed to attain most of the basic objectives of the Program while avoiding or substantially reducing the potentially significant environmental impacts of the Program. Chapter 5 analyzes two alternatives to the Program.

Chapter 6 – Draft EIR Authors, Persons and Organizations Contacted. Chapter 6 identifies the individuals who were involved in the preparation of the Draft EIR. Persons and organizations contacted in preparation of the Draft EIR are referenced at the end of each Chapter.

Appendices. The Draft EIR contains several appendices of technical and procedural materials that are pertinent to the analysis in the Draft EIR. The appendices are listed in the Table of Contents.

References

Leland, David, North Coast Regional Water Quality Control Board, Santa Rosa, California, written communication, February 6, 2008.

CHAPTER 2
Project Description

This Chapter describes the Scott River Watershed-wide Permitting Program (Program) which for the purposes of this Draft Environmental Impact Report (EIR) is the "Project" analyzed and hereafter referred to as the "Program". The environmental analysis of the Program in the following chapters is based on this description.

2.1 Program Overview

2.1.1 Program Objectives

The Program is intended to facilitate compliance with Fish and Game Code, § 1600 *et seq.* and the California Endangered Species Act (CESA) (Fish and Game Code § 2050 *et seq*.) within the Scott River watershed (Program Area) (see **Figure 2-1**) by the Siskiyou Resource Conservation District (SQRCD) and Agricultural Operators[1] when conducting specified activities the Program covers. The Department of Water Resources (DWR) is also included in the Program because the current watermaster responsible for implementing certain decreed water rights in the Scott River watershed (see Chapter 3.2, Geomorphology, Hydrology and Water Quality) is a DWR employee.[2]

In meeting that objective, the Program will also implement certain stream restoration projects in the Scott River watershed identified in the Fish and Game Commission's (Commission) Recovery Strategy for California Coho Salmon (February 2004) (Coho Recovery Strategy) as key coho salmon (*Oncorhynchus kisutch*) recovery projects. Under the Program, SQRCD will be responsible for implementing those recovery projects, which are among the activities the Program covers. The events culminating in the Commission's adoption of the Coho Recovery Strategy and the Program's relationship to it are described briefly below.

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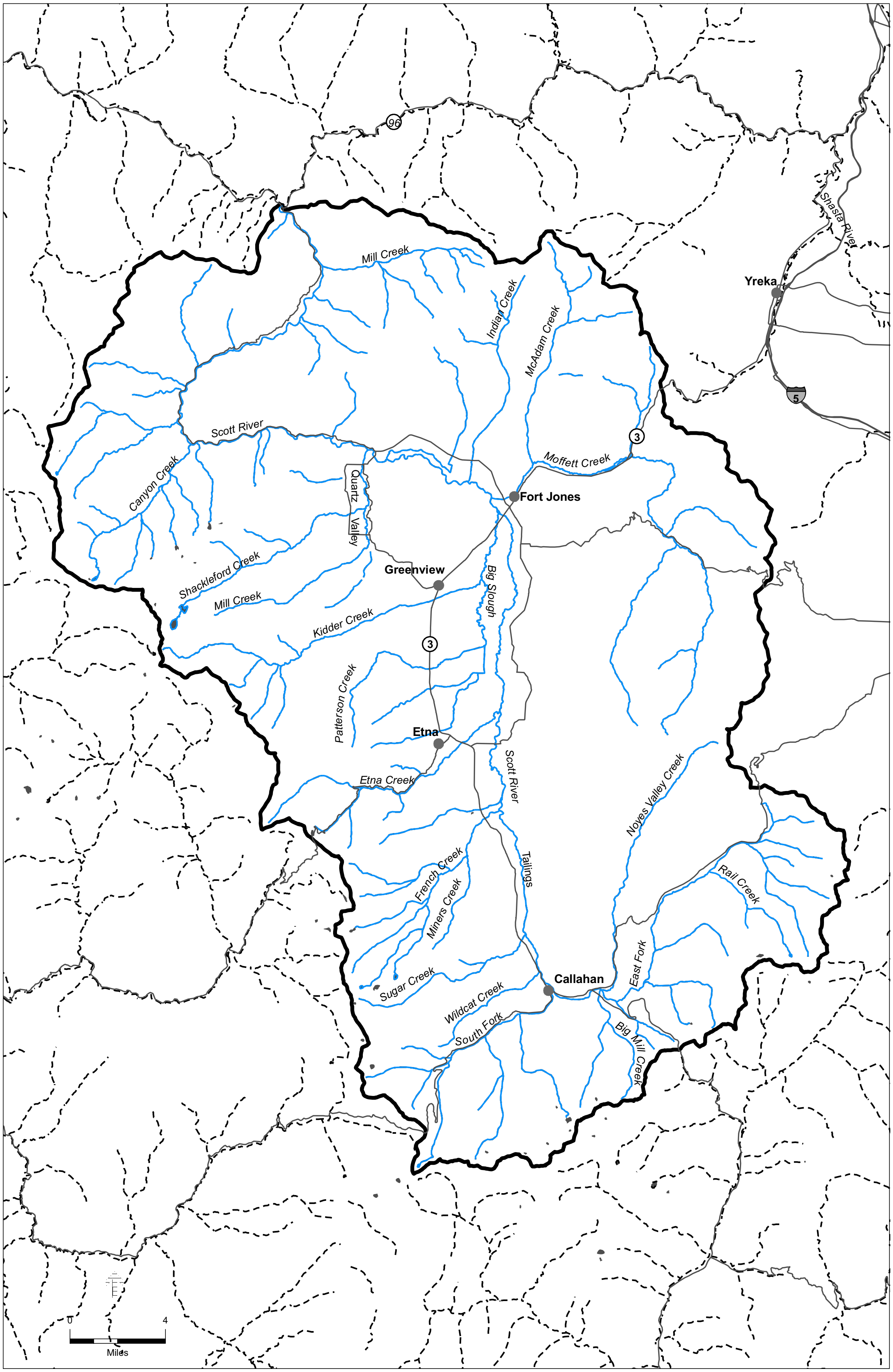
[1] The Program defines "Agricultural Operator" as any natural person or any partnership, corporation, limited liability company, trust, or other type of association or any public agency, as defined in CEQA *Guidelines*, § 15379, who diverts water from a stream by means of an active diversion in the Program Area for an agricultural purpose, or is involved in an agricultural operation on property in the Program Area through which or adjacent to which a stream flows. The Program defines "active diversion" as a surface water diversion that has operated at least one out of the last five years.

[2] Interested stakeholders are exploring the possibility of developing and operating an alternative watermastering program to replace the current service provided by DWR. Additional information regarding this potential change in watermaster service is included in Chapter 4 under "Changes to the State Watermaster Program."



SOURCE: ESA, 2007

Scott River Watershed-Wide Permitting Program . 206063

Figure 2-1
Program Area

Status of and Recovery Strategy for Coho Salmon

In early 2002, the Salmon and Steelhead Recovery Coalition petitioned the Commission to list coho salmon north of San Francisco as an endangered species under CESA. In response, the California Department of Fish and Game (CDFG) issued a coho salmon status report to the Commission, recommending that coho salmon from San Francisco north to Punta Gorda be listed as endangered, and that coho salmon from Punta Gorda north to the Oregon border be listed as threatened pursuant to CESA (CDFG, 2004). The Commission found that coho salmon warranted listing in accordance with CDFG's recommendations. The Program Area is north of Punta Gorda. As a result of the Commission's finding, coho salmon within the Program Area are listed as a threatened species under CESA,[3] and may not be taken[4] except as authorized by CDFG in accordance with CESA.

In February 2004, the Commission adopted the Coho Recovery Strategy. The Coho Recovery Strategy emphasizes cooperation and collaboration, and recognizes the need for funding, public and private support for restoration actions, and maintaining a balance between regulatory and voluntary efforts to meet the goals of the Coho Recovery Strategy. The Shasta and Scott River watersheds were identified for a pilot program to address coho salmon recovery issues and solutions related to agriculture and agricultural water use in Siskiyou County. In addition to identifying recommendations for the pilot program, the Shasta-Scott Recovery Team identified the need to develop a programmatic implementation framework that works toward the recovery of coho salmon, while providing authorization to take coho salmon incidental to otherwise lawful routine agricultural activities in the Shasta and Scott River watersheds. The avoidance, minimization, and selected mitigation measures included in the proposed incidental take permit (ITP) for the Program, and the sub-permits that will be based on the ITP, are consistent with the recovery tasks identified in the Shasta-Scott Pilot Program in the Recovery Strategy.

2.1.2 Objectives of Program Participants

Siskiyou Resource Conservation District

SQRCD is a non-profit public agency, organized under Division 9 of the Public Resources Code. The mission of SQRCD is to recognize, identify, and meet conservation and restoration needs through voluntary landowner/manager and resource user participation by providing technical, financial, and educational leadership within the bounds of SQRCD. The vision of SQRCD is to meet the natural resource conservation and restoration needs of the Scott River watershed by providing a means for the development of projects from the design phase through project implementation, and, on an as-needed basis, the assessment of projects and programs (SQRCD, 2005).

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3 Coho salmon north of Punta Gorda are within the Southern Oregon-Northern California Coast (SONCC) Coho Evolutionarily Significant Unit (ESU).

4 "Take" means hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill (Fish and Game Code, § 86).

SQRCD's objectives for the Program are as follows:

- Support landowner activities (both private and public) in order to enhance the conservation and economic stability of Siskiyou County's natural resources;
- Assist Agricultural Operators in completing projects consistent with the tasks identified in the Coho Recovery Strategy and projects identified in the Scott River Watershed Council Strategic Action Plan (Scott River Watershed Council, 2005);
- Assist Agricultural Operators in meeting the requirements of Fish and Game Code, § 1600 *et seq.* and CESA by working with CDFG to develop a Program that streamlines the process to obtain streambed alteration agreements (SAA) under Fish and Game Code, § 1600 *et seq.* and incidental take authorizations under CESA;
- Comply with Fish and Game Code, § 1600 *et seq.* and CESA while performing instream and/or near-stream coho salmon restoration activities;
- Provide incentives for Agricultural Operators in the Scott River watershed to implement coho salmon recovery tasks;
- Increase the viability of coho salmon and other plant, fish, and wildlife resources in the Scott River watershed by improving water quality and riparian habitat, minimizing any adverse effects from agricultural activities, and restoring habitat by providing a clear set of activities and conditions to Agricultural Operators;
- Protect and improve the biological functioning of the Scott River watershed and natural resources while maintaining the economic viability of agriculture; and
- Implement the permit conditions identified in the Program for coho salmon and other stream resources in the Scott River watershed.

California Department of Fish and Game

CDFG is responsible for conserving, protecting, and managing California's fish, wildlife, and native plant resources, in part by administering and enforcing Fish and Game Code, § 1600 *et seq.* and CESA. In issuing SAAs to SQRCD and Agricultural Operators, an ITP to SQRCD, sub-permits to Agricultural Operators and DWR under the Program, CDFG intends to minimize impacts to biological resources within the Scott River watershed, including coho salmon, from SQRCD's stream restoration projects and agricultural water diversions and activities related to those diversions in the Scott River watershed. CDFG intends also to work with SQRCD to enhance coho salmon habitat in the Scott River watershed through the implementation of key coho salmon recovery tasks. Hence, CDFG's objectives for the Program are as follows:

- Fulfill the commitment to develop a permitting framework within the context of the Shasta-Scott Pilot Program in the Coho Recovery Strategy;
- Work with SQRCD and Agricultural Operators to develop a watershed-wide permitting program that covers agricultural water diversions and other agricultural activities related to those diversions in the Scott River watershed;

- Protect and conserve coho salmon when authorizing providing incidental take authorization for activities in the Scott River watershed that may affect the species;
- Eliminate unauthorized take of coho salmon caused by water diversions in the Scott River watershed and avoid, minimize, and fully mitigate take of coho salmon incidental to diverting water with a valid water right, recovery actions, and other lawful activities;
- Implement selected key coho salmon recovery tasks that are essential to improving habitat conditions for coho salmon in the Scott River watershed; and
- Bring existing agricultural water diverters into compliance with Fish and Game Code, § 1600 *et seq*. and CESA.

Agricultural Operators

The objectives of the Agricultural Operators are as follows:

- Protect and conserve coho salmon and other plant, fish, and wildlife resources while maintaining the economic viability of their agricultural operations in the Scott River watershed; and
- Comply with Fish and Game Code, § 1600 *et seq.* and CESA in conducting the activities the Program covers subject to those statutes.

Department of Water Resources

As mentioned above, the current watermaster responsible for administering and enforcing certain water rights within the Program Area is a DWR employee. The objectives of DWR are as follows:

- Implement the applicable decrees pursuant to applicable provisions in the California Water Code;
- Ensure watermastering activities are in compliance with CESA;
- Verify that watermastered diverters are in compliance with their respective adjudicated water right(s); and
- Work with CDFG to avoid or minimize the stranding[5] of coho salmon when CDFG determines that a permitted water diversion is causing or will cause stranding.

2.1.3 Program Advantages

Participation in the Program has many advantages, including the following:

- The Program implements selected key coho salmon recovery tasks on a watershed-wide level which also serve to meet the full mitigation requirement for incidental take authorization under CESA;

[5] The ITP defines "stranding" as a situation in which coho salmon are in a location with poor aquatic habitat conditions due to a reduction in flow from which they cannot escape.

- SQRCD (through the ITP), Agricultural Operators and DWR (through their sub-permits) will be authorized to take coho salmon if such take occurs incidental to conducting a Covered Activity;
- SQRCD will have one watershed-wide ITP for its coho salmon restoration projects, which will minimize the time and effort needed when compared to obtaining incidental take authorization on a project-by-project basis;
- With the Master List of Terms and Conditions (MLTC) and the ITP, it will take much less time for CDFG to prepare individual SAAs for SQRCD projects subject to Fish and Game Code, § 1602 and SAAs and sub-permits for participating Agricultural Operators;
- Participating Agricultural Operators may receive assistance from SQRCD to prepare their SAA notifications, and will not be required to pay a notification fee to CDFG because SQRCD has paid that fee;
- Any take authorized under CESA must be fully mitigated. Because SQRCD will fully mitigate the take of coho salmon that might occur under the Program by implementing selected key coho salmon recovery projects, participating Agricultural Operators will not be responsible for meeting the full mitigation requirement.
- SQRCD and participating Agricultural Operators will not be responsible for CDFG's cost to prepare the EIR for the Program and any other CEQA-related costs; and
- The Program provides a coordinated approach to implement selected restoration projects critical for recovering coho salmon and bringing existing agricultural water diverters into compliance with Fish and Game Code, § 1600 *et seq.* and CESA.

2.1.4 Program Permitting Structure

Authorization for Covered Activities

As explained below, the activities the Program covers, referred to in the Program as the "Covered Activities," are subject to Fish and Game Code, § 1600 *et seq.* and CESA, Fish and Game Code, § 1600 *et seq.* only, or CESA only. As a result, Agricultural Operators, SQRCD, and DWR must comply with one or both of those statutes before conducting a Covered Activity. The Covered Activities are described in detail below.

To comply with Fish and Game Code, § 1600 *et seq.* outside the Program, each of those entities would need to submit a notification and notification fee and obtain a SAA from CDFG in accordance with Fish and Game Code, § 1602. To be in compliance with CESA outside the Program, the entity would need to apply for and obtain an ITP from CDFG in accordance with Fish and Game Code, § 2081(b) and (c), which is part of CESA. Before CDFG could issue a SAA or an ITP, it would first need to comply with the California Environmental Quality Act (CEQA) (Public Resources Code, § 21000 *et seq.*). In permitting the activities the Program covers, CDFG would be the CEQA lead agency, and as such, would be entitled to recover from the applicant the costs it incurs to comply with CEQA.

Under the Program, CDFG will issue SQRCD and Agricultural Operators individual SAAs for purposes of complying with Fish and Game Code, § 1600 *et seq.* Similar to the standard notification process under Fish and Game Code, § 1602, Agricultural Operators will need to notify CDFG in order to obtain a SAA, but they will not be required to pay a notification fee because, as discussed above, SQRCD has paid that fee. As a condition of participating in the Program, SQRCD and Agricultural Operators must also obtain separate authorization from CDFG to authorize any take of coho salmon that may occur incidental to a Covered Activity within the Program Area for purposes of complying with CESA. DWR will obtain take authorization from CDFG, but will not need to obtain a SAA.

For Agricultural Operators and DWR, their take authorization will be based on the ITP that CDFG will issue to SQRCD. Because they will be based on SQRCD's ITP, they are referred to as "sub-permits" in the Program, but like the SAAs that CDFG issues under the Program, they will be fully enforceable by CDFG as separate, or "stand alone" permits. The structure and conditions of each SAA, ITP, and sub-permit CDFG will issue under the Program are described in greater detail below.

Streambed Alteration Agreements

On April 22, 2005, SQRCD submitted a notification for a watershed wide streambed alteration agreement program to CDFG. At the time, CDFG and SQRCD expected that CDFG would use the notification to prepare one SAA that would apply to SQRCD and Agricultural Operators when conducting certain Covered Activities. By doing so, SQRCD and Agricultural Operators would not need to submit separate notifications to CDFG, and CDFG would not need to prepare a separate SAA for each of those entities. After further discussions, however, it became apparent to CDFG and SQRCD that this approach was not workable, and thereafter they adopted a different approach for the SAA component of the Program.

Under the Program, SQRCD and Agricultural Operators will be required to notify CDFG and in that notification describe the particular Covered Activity or Activities for which they are seeking authorization in order to comply with Fish and Game Code, § 1602. If the entity wants to complete an activity that is not one of the Covered Activities, the entity will need to notify CDFG pursuant to the standard procedure outside the Program. SQRCD may provide assistance to Agricultural Operators in preparing and submitting their notifications to CDFG pursuant to the Memorandum of Understanding (MOU) between CDFG and SQRCD, which is attached as Appendix B. The MOU identifies CDFG's and SQRCD's roles and responsibilities in administering and implementing the SAA (i.e., Fish and Game Code, § 1600 *et seq.*) component of the Program.

After CDFG determines the notification is complete and includes only those activities covered by the Program, it will prepare a SAA for the applicant. The conditions CDFG includes in the SAA will be based on the MLTC that is attached to the MOU. Those conditions are part of the Program. A copy of the proposed MLTC is attached as part of Appendix B. The MLTC includes general conditions that will be included in each SAA regardless of the Covered Activity or

Activities the SAA authorizes and specific conditions from which CDFG will select and include in a SAA based on the Covered Activity or Activities the SAA authorizes.

The specific set of MLTC conditions in the SAA will be those measures necessary to protect fish and wildlife resources the Covered Activity or Activities may substantially adversely affect, as required in Fish and Game Code, § 1603. Under that section *outside* the Program, if an applicant disagrees with any conditions CDFG includes in a draft SAA, the entity may request a meeting with CDFG to resolve the disagreement informally. If that occurs but the applicant and CDFG cannot resolve the disagreement, the entity may request that a three-person arbitration panel be convened to resolve the dispute. By contrast, the conditions CDFG includes in a SAA issued under the Program may not be arbitrated. As a result, in the event an Agricultural Operator disagrees with any of those conditions, and the Agricultural Operator and CDFG cannot resolve the disagreement informally, the Agricultural Operator must either accept the Program SAA regardless of the disagreement, or apply for a SAA outside the Program like any other non-participant. In the latter case, if the Agricultural Operator disagrees with any condition CDFG includes in the draft non-Program SAA, the dispute resolution procedure under Fish and Game Code, § 1603 described above will be available to the Agricultural Operator. However, if an Agricultural Operator elects to obtain a SAA outside the Program, it may no longer participate in the Program, having "opted out."

Also under the Program, in order for a SAA notification to be complete the applicant must include a copy of an executed ITP or sub-permit (described below) issued by CDFG under the Program. Agricultural Operators must also include an agreement signed by the Agricultural Operator that will allow non-enforcement CDFG personnel and SQRCD personnel access to the sub-permittee's property ~~where the Covered Activity will occur for purposes of monitoring~~ to determine whether the terms and conditions of SQRCD's ITP and SAAs or the Agricultural Operator's SAA and sub-permit are fulfilled and effective. If the Covered Activity will occur on property not owned by the Agricultural Operator, the access agreement must be signed by the owner of the property.

During the first five years of the Program, the original term of any SAA CDFG issues under the Program will be five years. CDFG may extend the term one time for a period of up to five years, but not beyond the expiration date of the ITP, if the SAA holder requests an extension prior to the SAA's expiration. All SAAs issued or extended after the first five years of the Program will expire on the expiration date of the ITP (i.e., the expiration date of the Program).

Incidental Take Authorization

Under CESA, a person may not take a species that the Commission has accepted as a candidate species or listed as a threatened or endangered species unless the take is incidental to an otherwise lawful activity and the person obtains authorization from CDFG in the form of an ITP. Because coho salmon within the Program Area are listed as threatened under CESA, and CDFG has determined that the Covered Activities could result in take of coho salmon, SQRCD, Agricultural Operators, and DWR will be required to obtain take authorization under the Program. On March 29, 2005, SQRCD submitted an application to CDFG for an ITP pursuant to Fish and

Game Code, § 2081(b) and (c). Thereafter, CDFG and SQRCD worked together to develop a watershed-wide ITP as part of the CESA component of the Program.

As discussed above, for SQRCD, take authorization under the Program will be in the form of an ITP. A copy of the proposed ITP under the Program is attached as Appendix B. For Agricultural Operators and DWR, such authorization will be in the form of "sub-permits" that will be based on SQRCD's ITP, but, like the ITP, each will be fully enforceable by CDFG as a separate permit, as explained in greater detail below. The avoidance, minimization, and mitigation measures included in the ITP and sub-permits are part of the Program.

Under the ITP, SQRCD will be required to comply with the avoidance, minimization, and mitigation measures included in the ITP for its own projects, which, as mentioned above, are key coho salmon recovery projects identified in the Coho Recovery Strategy. The sub-permits will include avoidance and minimization measures the "sub-permittees" (i.e., Agricultural Operators and DWR) must implement, in some cases with SQRCD's assistance. SQRCD will meet the sub-permittees' CESA obligation to fully mitigate for any take of coho salmon that occurs incidental to conducting their Covered Activities by implementing the key coho salmon recovery projects mentioned above. Those projects are described in the ITP as mitigation for any take of coho salmon that occurs incidental to the Covered Activities.

Although SQRCD will be responsible for implementing the coho salmon recovery projects described in the ITP, and therefore for meeting the full mitigation requirement under CESA as it applies to the sub-permittees' Covered Activities, the sub-permittees' take authorization is not solely contingent on their compliance with the avoidance and minimization measures for which they are responsible under their sub-permits. It is also contingent on SQRCD's implementation of the key coho salmon recovery projects that apply to the sub-permittees' Covered Activities. Hence, any failure by SQRCD to implement those projects and any other mitigation measures could result in the suspension or revocation by CDFG not just of SQRCD's take authorization under the Program, but also the sub-permittees' because, as mentioned above, those projects will serve to meet the full mitigation issuance criteria for take authorization under CESA.

SQRCD will also be required to conduct monitoring activities to determine whether or not the terms and conditions of <u>their ITP</u> ~~each sub-permit~~ are being fulfilled and are effective. In order to ensure that SQRCD will be able to meet this obligation, the sub-permits will include provisions that allow SQRCD and CDFG to enter a sub-permittee's property and other private property Covered Activities might affect and/or where Covered Activities occur. <u>Sub-permittees will be responsible for monitoring the terms and conditions of their sub-permits by completing the appropriate implementation and effectiveness monitoring checklists for their Covered Activities and submitting them to CDFG. CDFG is responsible for any and all compliance monitoring.</u>

The term of the Program ITP will be 10 years and all sub-permits will be written to expire on the expiration date of the Program ITP. As mentioned above, Program SAAs will also expire on or before the ITP expiration date.

Covered Activities

As mentioned above, the Program applies to various Covered Activities, which are described below. The first nine Covered Activities are subject to Fish and Game Code, § 1600 *et seq.*[6] and CESA, and therefore are included in the proposed MLTC and ITP. The remaining five Covered Activities are not subject to Fish and Game Code, § 1600 *et seq.*, and therefore they are not included in the MLTC. However, they are included in the ITP (along with the other nine Covered Activities) because like the other nine Covered Activities, they could result in take of coho salmon in the Program Area. By participating in the Program, SQRCD, through the ITP, and Agricultural Operators and DWR, through their sub-permits, will have authorization pursuant to CESA for take of coho salmon that might occur incidental to conducting a Covered Activity.

Below is a summary of the 14 Covered Activities, followed by a more detailed description of the conditions in the proposed MLTC and ITP which CDFG will include in SAAs and sub-permits. Again, the first nine Covered Activities are included in the proposed MLTC and ITP, and the remaining five are included only in the proposed ITP.

ITP and MLTC Covered Activity 1: Water Diversions. This activity includes only the diversion of surface water by an appropriative or riparian right through a conduit or opening from streams, channels, or sloughs within the Scott River watershed by an Agricultural Operator for agricultural purposes in accordance with a valid water right, including, but not limited to, those specified in one of the following court decrees: Shackleford Creek Decree (1950), French Creek Decree (1958), and the Scott River Decree (1980).

ITP and MLTC Covered Activity 2: Water Diversion Structures. This category includes only the following activities relating to water diversion structures:

a) Ongoing management and/or maintenance of existing flashboard dams, including the placement of boards into concrete abutments across the wetted channel to build head to divert water, and the removal of the boards;

b) Ongoing maintenance, management, and repair of boulder weirs;

c) Installing, operating, maintaining, and removing push-up dams. "Push-up dam" is defined as a temporary diversion structure created by using <u>motorized equipment (for example loaders, backhoes, or excavators)</u> to move bedload within the stream channel to form a flow barrier that seasonally diverts the flow of the stream;[7]

d) Installing, operating, maintaining, and removing other temporary diversion structures that are not push-up dams. "Other temporary diversion structure" is defined as any temporary structure (other than a push-up dam) used to divert water seasonally from a stream and is

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[6] Fish and Game Code, § 1602 requires an entity to notify CDFG before substantially diverting or obstructing the natural flow of, or substantially changing or using any material from the bed, channel, or bank of, any river, stream, or lake, or depositing or disposing of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

[7] A scoping comment requested that bulldozing be prohibited in streams. The MLTC and ITP will place several restrictions on use of heavy equipment in streams (see below). The impacts of the use of heavy equipment in streams are further analyzed in Chapters 3 and 4 of this Draft EIR.

typically made with materials such as hay bales, hand-stacked rocks and cobble, tarps, wood, and/or a combination of these materials placed in the channel with or without the use of motorized ~~heavy~~ equipment;

e) Installing or placing pumps and sumps and maintaining existing pumps and sumps within or adjacent to the active channel of a stream, which sometimes requires the use of large machinery within or adjacent to the active channel; and

f) Installing headgates and measuring devices, sized appropriately for the authorized diversion, that meet CDFG's and/or DWR's standards on or in a diversion channel, which usually is done by excavating the site to proper elevation using large machinery, positioning the headgate and measuring device at the appropriate elevation, and installing rock or other "armoring" around the headgate to protect the structure. During installation, the streambank could be affected by the construction of concrete forms and other necessary construction activities. Where diversions are under the control of the State Watermaster Service, the headgate or valve and measuring device design shall also be approved by DWR.

ITP and MLTC Covered Activity 3: Fish Screens. This category includes only the installation, operation, and maintenance of the types of fish screens described below, provided they meet CDFG's and the National Marine Fisheries Service's (NMFS) criteria for steelhead fry as they exist at the time the screen is installed. Installing a fish screen usually includes site excavation, forming and pouring a concrete foundation and walls, excavation and installation of a fish bypass pipe or channel, and installation of the fish screen structure. Heavy equipment is typically used for excavation of the screen site and bypass. If the fish screen is placed within or near flood prone areas, typically rock or other "armoring" is installed to protect the screen. The average size of the bed, channel, and/or bank area affected by the installation of a bypass pipe or channel ranges from 40 to 100 square feet. Fish screen types include:

a) Self-cleaning screens, including flat plate self-cleaning screens, and other self-cleaning designs, including, but not limited to, rotary drum screens and cone screens, with a variety of cleaning mechanisms, consistent with CDFG and NMFS screening criteria; and

b) Non-self cleaning screens, including tubular, box, and other screen designs consistent with CDFG and NMFS screening criteria.

ITP and MLTC Covered Activity 4: Stream Access and Crossings. This category includes only the moving of livestock and vehicles across flowing streams or intermittent channels and/or the construction, maintenance, and use of stream crossings at designated locations where potential spawning gravels, incubating eggs, and fry are not present based on repeated site specific surveys. Factors considered when selecting a crossing location include the stream gradient, channel width, and the ability to maintain the existing channel slope. Generally, to construct a crossing in a low gradient stream, a boulder weir is placed on the downstream side of the crossing at or near grade and angular quarry rock is placed in the crossing location; the width of the crossing does not exceed 25 feet; the crossing spans the entire width of the channel; the crossing is "keyed" into the bank on each side; the approaches on both sides do not exceed a slope of 3:1; and bank armoring (usually using quarry rock) is added where needed.

ITP and MLTC Covered Activity 5: Fencing. This activity includes only the installation and maintenance of livestock exclusion fencing to protect the riparian zones, including the construction of fencing along livestock and vehicle crossings and livestock watering lanes.

ITP and MLTC Covered Activity 6: Riparian Restoration and Revegetation. This activity includes only the restoration, including revegetation of riparian areas, consistent with the methods specified in the most current edition of CDFG's *Salmonid Stream Habitat Restoration Manual*, or as otherwise approved in writing by CDFG.[8] Typically, riparian vegetation is planted within or adjacent to the active channel, and often in or near the wetted channel. Plantings include herbaceous perennials, emergent species, native grasses, trees, and shrubs. Planting methods vary by species, site, and size of material planted, ranging from hand planting to using a backhoe or excavator. For riparian trees, planting densities range from 130 to 300 plantings per acre, depending on the restoration goals (e.g., shading, sediment trapping, and bank stabilization), substrate, and hydrology. Trees and cuttings range in size from small rooted plugs to large diameter pole plantings. When installing pole plantings, heavy equipment may be used to excavate to or below water table depth. Maintenance activities include the occasional use of hand tools, portable pumps, pick-up trucks and/or water trucks in or near the bed, bank, or channel, for irrigation, debris removal, and replanting of restoration sites.

ITP and MLTC Covered Activity 7: Instream Structures. This activity includes only the installation, maintenance, and repair of the following instream structures consistent with the methods specified in the most current edition of CDFG's *Salmonid Stream Habitat Restoration Manual:*

a) Structures to protect the bed and banks of streams;

b) Bioengineered habitat structures;

c) Deflectors;

d) Boulder clusters;

e) Boulder weirs for instream habitat or to replace flashboard dams, push up dams, and other temporary diversion structures;

f) Large woody debris; and

g) Spawning gravels to enhance spawning habitat.

ITP and MLTC Covered Activity 8: Stream Gages. This category includes the installation and maintenance of stream gages in the active stream channel, usually using pipe two inches or greater in diameter. Typically, the pipe is secured to the bank by notching it into the bank and by then attaching it to the bedrock, a boulder, or a concrete buttress. Generally, heavy equipment is not needed to install and maintain stream gages.

ITP and MLTC Covered Activity 9: Barrier Removal Projects/Fish Passage Projects. Activities required to perform the projects listed below are included, although CDFG may add others to the list in the future. Each project will provide access to historic fish spawning and rearing habitat.

8 The most current edition of the manual is available at www.dfg.ca.gov/fish/Resources/HabitatManual.asp

a) Modification of the Scott Valley Irrigation District dam to create volitional fish passage upstream and downstream for both juvenile and adult salmonids;

b) Installation and maintenance of two or more boulder weirs and improved head works at Farmers Ditch; and

c) The following barrier removal and fish passage projects on tributaries to the East Fork of the Scott River:

- Rail Creek fish barrier removal project;
- Grouse Creek low flow fish passage project;
- Big Mill Creek fish barrier and channel restoration projects; and
- Shackleford Creek confluence gravel aggradation maintenance.

ITP Covered Activity 10: Grazing Livestock. This activity includes the grazing of livestock within the riparian exclusion zone ~~adjacent to the channel or within the bed, bank, or channel~~ of the Scott River or its tributaries in accordance with a grazing management plan approved by CDFG. The grazing plan will address the timing, duration, and intensity (number of livestock allowable per unit area [i.e., stocking rate]) of livestock grazing within the riparian zone and will explain how the proposed management plan will result in improved riparian function and enhanced aquatic habitat. In addition, the grazing plan will describe the means by which the livestock will be prohibited from entering live streams.[9]

ITP Covered Activity 11: Water Management. This activity includes water management, water monitoring, and watermastering (either state or Special District ~~private~~) activities, including the operation of headgates in conjunction with measuring devices to assure that each diversion is operated in compliance with its associated water right or adjudicated volume.

ITP Covered Activity 12: Permit Implementation. This includes other activities associated with the implementation of avoidance, minimization, and mitigation measures required by the ITP, a sub-permit, or a SAA.

ITP Covered Activity 13: Monitoring. This includes activities associated with the determination of whether or not the required terms and conditions of the ITP, ~~each~~ a sub-permit, or a SAA are being fulfilled and are effective.

ITP Covered Activity 14: Research. This includes activities associated with conducting studies to improve the scientific understanding of salmonid distribution, natural history, and population dynamics, etc. in the Scott River watershed.

[9] A scoping comment requested that grazing be prohibited in streams. Grazing in streams and riparian corridors is a historic, ongoing activity in the Scott River watershed that along with its impacts is part of the baseline. Although the Program will not prohibit such grazing, it will reduce its impacts by excluding livestock from some riparian zones by installing and maintaining fencing (see ITP and MLTC Covered Activity 5). Also, as stated above, under ITP Covered Activity 10, any grazing of livestock within the riparian exclusion zone ~~adjacent to the channel or within the bed, bank, or channel~~ of the Scott River or its tributaries may only occur in accordance with a grazing management plan that will result in improved riparian function and enhanced aquatic habitat. In addition, a grazing management plan will describe the means by which livestock will be prohibited from entering live streams. The impacts of grazing in streams and riparian corridors are further analyzed in Chapters 3 and 4 of this Draft EIR.

2.2 Conditions in the Proposed MLTC

The MLTC contains 130 ~~114~~ separate conditions (see Appendix B for full language). These are divided into general and specific conditions.

2.2.1 General Conditions in the MLTC

The proposed MLTC contains 20 ~~19~~ general conditions, primarily administrative, that will be included in all SAAs issued under the Program. General conditions are organized in the MLTC under the following sections: A. ~~1)~~ "Administrative"; B. ~~2)~~ "Amendments"; C. ~~3)~~ "Suspension and Revocation"; D. ~~4)~~ "Liability"; E. ~~5)~~ "Access"; and F. ~~6)~~ "Other Laws." The "Other Laws" section in the MLTC requires the holder of a SAA issued by CDFG under the Program to comply with all local, state, and federal laws before commencing a Covered Activity, which includes CESA.

2.2.2 Specific Conditions in the MLTC

The remaining conditions in the proposed MLTC address the potential physical effects of the nine Covered Activities the MLTC includes. As mentioned above, the specific conditions CDFG includes in a SAA will depend on the particular Covered Activity or Activities described in the notification that the SAA will be authorizing. The specific conditions are intended to protect existing fish and wildlife resources the Covered Activity or Activities could substantially adversely affect.

The specific conditions are organized in the MLTC under the following sections: a. ~~1)~~ "Water Diversions"; b. ~~2)~~ "Riparian Restoration and Revegetation"; c. ~~3)~~ "Instream Structures"; d. ~~4)~~ "Habitat and Species Protection"; e. ~~5)~~ "Use of Vehicles in Wetted Portions of Streams"; f. ~~6)~~ "Pollution Control"; g. ~~7)~~ "Erosion and Sediment Control"; h. ~~8)~~ "Bank Stabilization"; i. ~~9)~~ "Dewatering"; j. ~~10)~~ "Ground-Disturbing Activities"; and k. ~~11)~~ "Monitoring."

Each holder of a SAA issued by CDFG under the Program will be responsible for complying with the general conditions and each specific condition that CDFG includes in the SAA.

2.3 Conditions in the Proposed ITP

The proposed ITP includes measures to avoid, minimize, and fully mitigate the take of coho salmon that might occur incidental to a Covered Activity, as Fish and Game Code, § 2081(b) and (c) require. As mentioned above, SQRCD and Agricultural Operators will be responsible for implementing the avoidance and minimization measures in the ITP and sub-permits, respectively, for their own Covered Activities. However, SQRCD, rather than Agricultural Operators, will be responsible for implementing the mitigation measures in the ITP. CDFG may also include measures in a sub-permit that are not included in the proposed ITP if it determines that the additional measures are necessary to avoid and minimize take of coho salmon incidental to the activity or activities the sub-permit covers.

2.3.1 General Conditions in the ITP

The proposed ITP contains the general conditions described below that will apply to SQRCD and, through their sub-permits, Agricultural Operators and DWR.

ITP General Condition a: This condition requires SQRCD to conduct an education program for all sub-permittees within 60 days of the close of each sub-permittee enrollment period. After the ITP takes effect, a 60-day sub-permittee enrollment period will begin. Any Agricultural Operator who wants to enroll in the Program after the initial enrollment period closes may do so from January 1 to February 28 each year. The education program will consist of a presentation by a person or persons knowledgeable about the biology of coho salmon, the terms of the ITP, and CESA. The education program will include a discussion of the biology of coho salmon, their habitat needs, their threatened status under CESA, and the avoidance, minimization, and mitigation measures required by the ITP.

ITP General Condition b: This condition requires SQRCD and any sub-permittee to stop, contain, and clean-up any fuel, lubricants, or other hazardous materials that leak or spill while engaged in a Covered Activity; to notify CDFG immediately of any leak or spill of hazardous materials into a stream or in a place where it can pass into a stream; and to store and handle hazardous materials at least 150 feet away from the edge of mean high water elevation of any stream, unless adequate containment for an existing facility is provided and approved by CDFG.

ITP General Condition c: This condition requires sub-permittees to provide non-enforcement CDFG representatives written consent to access the sub-permittee’s property for the specific purpose of verifying compliance with, or the effectiveness of, required avoidance, minimization, and mitigation measures and/or for the purpose of fish population monitoring, provided CDFG notifies the sub-permittee at least 48 hours in advance. <u>The sub-permittee is entitled to be present or have a representative present. Sworn peace officers may enter private lands if necessary for law enforcement purposes pursuant to Fish and Game Section 857 or as otherwise authorized by law.</u>

ITP General Condition d: Under this condition, each sub-permittee will be solely responsible for any costs the sub-permittee incurs to implement any avoidance or minimization measures required under their sub-permit and SQRCD shall be solely responsible for any costs it incurs to implement any mitigation and monitoring measures required under the ITP.

ITP General Condition e: This condition specifies that SQRCD’s mitigation obligations under the ITP will end only when SQRCD has implemented the avoidance, minimization, and mitigation measures identified in the ITP, for which it is responsible, that are necessary to fully mitigate the authorized take of coho salmon that occurred while the ITP and all sub-permits were in effect and the Final Report (described below) is deemed complete.

ITP General Condition f: This condition requires SQRCD to submit to CDFG an irrevocable letter of credit or another form of financial security other than a bond (Security) approved by CDFG’s Office of the General Counsel in the principal sum of $100,000. The Security must allow CDFG to draw on the principal sum if CDFG, in its sole discretion, determines that SQRCD or a sub-permittee has failed to comply with any of the avoidance, minimization, mitigation, or monitoring measures for which SQRCD or sub-permittee is responsible.

If CDFG draws on the Security, it must use the amount drawn to implement measures SQRCD or a sub-permittee has failed to implement, or, if CDFG determines the measure(s) can no longer be successfully implemented or will not be effective, some other measures within the Program Area that CDFG determines will more effectively avoid, minimize, or mitigate impacts on coho salmon caused by a Covered Activity.

ITP General Condition g: This condition allows instream work on structural restoration projects by SQRCD or a sub-permittee to occur only from July 1 to October 15 ~~31~~ when coho salmon are least likely to be present and/or when water temperatures exceed the tolerance levels of coho salmon. If the work needs to be completed before July 1 or after October 15 ~~31~~, SQRCD or the sub-permittee may request a variance from CDFG in writing. If CDFG grants the request, the work must be completed in accordance with the avoidance, minimization, mitigation, and monitoring measures CDFG might specify in granting the variance.

ITP General Condition h: Under this condition, instream equipment operations by SQRCD or a sub-permittee will occur when coho salmon are least likely to be present and/or when water temperatures exceed the tolerance levels of coho salmon, which is generally from July 1 to October 15 ~~31~~, except as otherwise provided in the Best Management Practices (BMPs) adopted pursuant to the ITP. SQRCD must contact CDFG to verify when such operations may begin each year prior to their commencement. If work needs to be completed before July 1 or after October 15, SQRCD is required to request, in writing, a variance from CDFG. If CDFG grants the variance, the work will be completed in accordance with the avoidance, minimization, mitigation, and monitoring measures CDFG specifies in granting the variance. The condition also specifies that to the extent possible, all such work must be done from outside the channel. All refueling of machinery must be done no less than 150 feet away from the edge of the mean high water elevation of any stream. Access without specific CDFG approval is allowed to correct emergency problems demanding immediate action (as defined in Public Resources Code section 21060.3).

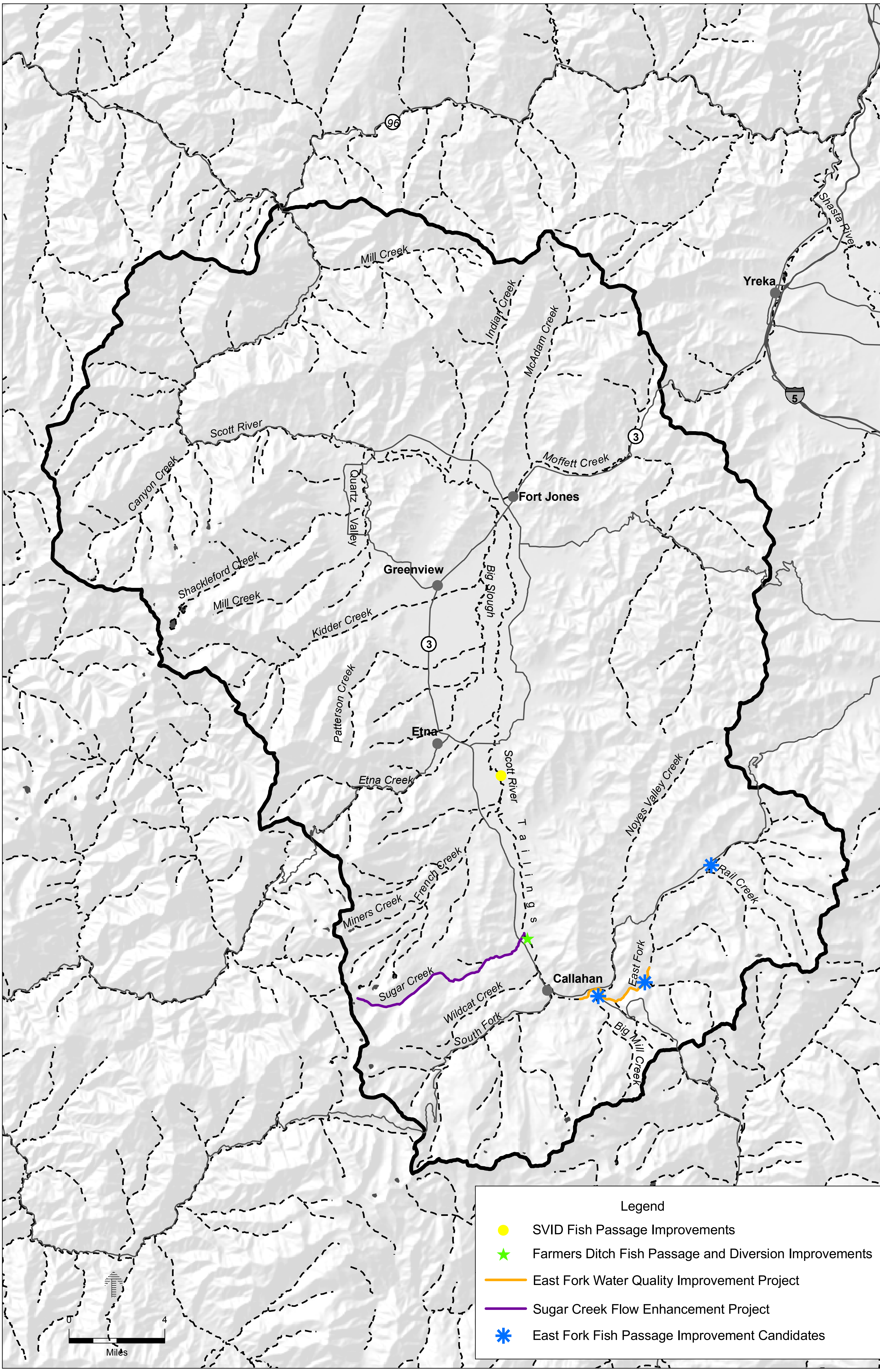
ITP General Condition i: This condition requires SQRCD and each sub-permittee to comply with Fish and Game Code, § 1600 *et seq*., if applicable.

2.3.2 Additional Obligations in the ITP to Avoid and Minimize Take of Coho Salmon

In addition to general conditions described above, the proposed ITP includes the specific obligations described below that SQRCD and/or each sub-permittee, except DWR, must implement in order to avoid and minimize the incidental take of all life stages of coho salmon in the Program Area when engaged in a Covered Activity (see **Figure 2-2**). DWR's sub-permit obligations are discussed in section 2.3.6.

ITP Additional Avoidance and Minimization Obligation A: Water Management. This includes compliance with water rights, verification of the quantity of water diverted, and a requirement to install headgates and water measuring devices on water diversion structures.

ITP Additional Avoidance and Minimization Obligation B: Fish Screens. This includes the requirement to fit diversions with fish screens that meet CDFG and NMFS screening criteria for steelhead fry, provide a bypass channel or device to enable fish to return to the main stream channel, cleaning and maintenance requirements, and high flow provisions.



SOURCE: ESA, 2007

Scott River Watershed-Wide Permitting Program . 206063

Figure 2-2
Location of Mitigation Projects
Proposed as Part of the Program

ITP Additional Avoidance and Minimization Obligation C: Fish Passage Improvements. SQRCD and each sub-permittee with fish passage problems will implement specified requirements in an effort to eliminate all fish barriers. This obligation requires SQRCD to create a priority list of diversions that impede fish passage, and to submit this list to CDFG for review and approval within one year of the effective date of the ITP. The priority list will be used to focus efforts to remove fish barriers in the most critical areas early in the Program. SQRCD must also coordinate with CDFG to develop and conduct a fish passage workshop for those who own, operate, or use diversions that are likely to obstruct fish passage. The workshop will be held within one year of the effective date of the ITP.

In addition to the above requirements, each sub-permittee will be required to provide permanent volitional fish passage for both adult and juvenile coho salmon, both upstream and downstream, at each of their diversions within five years of the effective date of their sub-permit. Where such passage is determined by CDFG to be inadequate, the sub-permittee will be required to submit to CDFG plans to improve passage ~~to~~ for CDFG's review and approval. As a part of the review, CDFG will make a determination regarding whether or not engineered drawings are necessary for the project. If engineered drawings are deemed necessary, they will be submitted to CDFG for review and approval prior to implementing the project. Annual reports that document progress to provide adequate fish passage at these diversions will be provided to SQRCD by the owner of the diversion which SQRCD will submit to CDFG with the SQRCD's Annual Report that SQRCD will be required to submit under the ITP.

ITP Additional Avoidance and Minimization Obligation D: Livestock and Vehicle Crossings. The ITP contains provisions to reduce the potential for take of coho salmon from livestock and vehicles crossing streams. Those obligations include: a prohibition on livestock and vehicles crossing flowing streams between October 15 ~~31~~ and July 1, except in designated, CDFG-approved crossing lanes, and criteria for site selection and crossing design, construction, periodic inspection, and maintenance.

ITP Additional Avoidance and Minimization Obligation E: Riparian Fencing/Grazing of Livestock in Riparian Areas. The ITP includes several provisions for riparian fencing and restriction of livestock from riparian areas intended to improve the condition of the riparian vegetation for the benefit of coho salmon. These include a requirement that, within one year of the effective date of the ITP, SQRCD develop a Riparian Fencing Plan for CDFG review and approval that prioritizes areas for riparian protection; a requirement for sub-permittees to install, maintain, and repair livestock exclusion fencing in accordance with the Riparian Fencing Plan; a requirement for sub-permittees to allow the planting of riparian revegetation and installation of exclusion fencing along designated stream reaches located on their property, and restrictions on sub-permittees' grazing of livestock within a fenced riparian area. High priority areas identified in the priority plan will be addresses as soon as practical.

ITP Additional Avoidance and Minimization Obligation F: Push-Up Dams. The ITP requires SQRCD, within six months of the effective date of the ITP, to consult with CDFG to prepare and adopt a set of BMPs that govern the construction, operation, and removal of push-up dams. The BMPs will specify the conditions under which such dams may be constructed, including work windows and the type of equipment that may be used for construction and removal; provisions to allow fish passage; and measures to minimize stream sedimentation and other water quality impacts. Once they are approved by CDFG, sub-permittees who use push-up dams will implement the BMPs to minimize dam-related impacts. Within five years of the effective date of their sub-permit, sub-permittees will replace their push-up dams with boulder ~~vortex~~ weirs or some other CDFG approved diversion method, unless CDFG determines that an alternative method is not feasible.

ITP Additional Avoidance and Minimization Obligation G: Other Temporary Diversion Structures. The ITP requires SQRCD to consult with CDFG to prepare and adopt a set of BMPs that govern the construction, operation, and removal of temporary diversion structures other than push-up dams. The BMPs will specify the conditions under which these other temporary diversion structures may be used, including work windows and a description of the construction methods which may be used to construct and remove them with or without the use of motorized ~~heavy~~ equipment; provisions to allow fish passage; and measures to minimize stream sedimentation and address other water quality issues.

Within two years of the effective date of the ITP, any sub-permittee who uses an “Other Temporary Diversion Structure” will request in writing that SQRCD and CDFG assess the structure. If CDFG determines the structure will not comply with the Fish and Game Code, even after implementation of the BMPs, the sub-permittee will replace the structures within five years of the determination with a boulder ~~vortex~~ weir or some other structure approved by CDFG.

ITP Additional Avoidance and Minimization Obligation H: Bioengineered Bank Stabilization. In areas where the slopes of streambanks on a sub-permittee’s property have become unstable due to actions by the sub-permittee and re-stabilization measures are necessary to re-establish vegetation, the sub-permittee shall implement bioengineered bank stabilization techniques[10] to prevent additional erosion from occurring. The techniques to be implemented must be consistent with methods identified in the most recent version of CDFG’s *Salmonid Stream Habitat Restoration Manual*, and must be approved by CDFG on a site-by-site basis. Any bank stabilization required pursuant to a sub-permit will be implemented within three years of the effective date of the sub-permit.

ITP Additional Avoidance and Minimization Obligation I: Irrigation Tailwater Reduction and/or Capture. Under the ITP, SQRCD will assist sub-permittees in the design and implementation of tailwater reduction and capture systems. SQRCD will inventory and prioritize tailwater sources for remediation and submit the priority list of sites to CDFG for its review and approval within two years of the effective date of the ITP. High priority areas identified in the priority plan will be addressed as soon as practical. Tailwater capture systems will be consistent with the standards contained in U.S. Department of Agriculture’s Natural Resources Conservation Service guidelines. Any sub-permittee whose property is on the priority list must have tailwater reduction and capture systems in place by the expiration of their sub-permit.

[10] Bioengineered bank stabilization structures use a combination of living plants, such as willow or other riparian trees, shrubs, and inert materials such as gravel and rip-rap. Bioengineered structures tend to provide more aquatic and riparian habitat attributes than conventional bank stabilization structures.

ITP Additional Avoidance and Minimization Obligation J: Maintain Connectivity of Tributaries in the Mainstem. A break in connectivity between French and Lower Shackleford Creeks and the Scott River prior to June 15 can impede movement of juvenile coho salmon. In order to address that problem, if such a break is about to occur before June 15, each sub-permittee will be required to refrain from diverting a portion of the water the sub-permittee otherwise would be allowed to divert.

ITP Additional Avoidance and Minimization Obligations: Stranding. The ITP includes additional avoidance and minimization obligations under Article XIII.E.2.a.iv, Article XVII.C, and Article XVIII to address any stranding of coho salmon that might occur. The ITP defines "stranding" as a situation in which coho salmon are in a location with poor aquatic habitat conditions, due to a reduction in flow, from which they cannot escape.

ITP Article XIII.E.2.a.iv requires SQRCD to develop and implement a Contingency Plan for Dry and Critically-Dry Water Years (Contingency Plan). Among other elements, the Contingency Plan will include a strategy to avoid stranding and a Diversion Ramp-up Management Plan (Management Plan). The purpose of the Management Plan is to coordinate and monitor irrigation so as to minimize rapid reductions in instream flows and the possible stranding of coho salmon.

ITP Article XVII.C requires DWR to meet with CDFG on a weekly basis during the diversion season and inform CDFG of any points of diversion in the watermastered areas where stranding is probable. CDFG will then work with SQRCD and sub-permittees to correct or avoid such stranding by some means other than reducing or ceasing the diversion and/or changing the timing or manner of the diversion in accordance with ITP Article XVIII (see below). As a last resort, CDFG will inform the sub-permittee of the required measures to be implemented to reduce stranding. CDFG will ~~instruct~~ work with DWR to implement such ~~to reduce or cease the diversion and/or change the timing or manner of the diversion and take any other~~ measures within DWR's control ~~that CDFG determines are necessary to correct or avoid stranding, which DWR will implement immediately~~.

Under ITP Article XVIII, if CDFG determines that a diversion covered by a sub-permit is causing or will cause the stranding of coho salmon, CDFG will take the steps in the order below to avoid or minimize such stranding:

a) CDFG will determine whether or not the sub-permittee is in compliance with the sub-permit.

b) If the sub-permittee is not in compliance with the sub-permit, CDFG will contact the sub-permittee to determine why they are not in compliance and take appropriate action.

c) In either case, CDFG will consult with SQRCD and the sub-permittee to determine whether there are any measures SQRCD and/or sub-permittee can take to avoid or minimize stranding.

d) If reducing or ceasing the diversion and/or changing the timing or manner of the diversion will avoid or minimize stranding, and that is determined by CDFG to be the only available measure to avoid or minimize stranding, CDFG will work with SQRCD and the sub-permittee and, if applicable, DWR, to take such action.

2.3.3 Mitigation Obligations of SQRCD: Flow Enhancement, Habitat Improvement, and Fish Passage

The ITP contains mitigation obligations that SQRCD will be required to meet to compensate for take of coho salmon that may occur incidental to a Covered Activity, whether caused by SQRCD or an Agricultural Operator to whom CDFG has issued a sub-permit. The mitigation obligations also require the involvement of sub-permittees, and in some instances, other entities. The mitigation obligations are summarized below.

Flow Enhancement Mitigation Obligations

To mitigate potential take of coho salmon from the diversion of water in streams where coho salmon occur, SQRCD will implement the programs described below to provide for or support the instream needs of coho salmon at specific life-cycle stages.

Flow Enhancement Mitigation 1: Development and Implementation of Scott River Water Trust. Immediately upon the effective date of the ITP, SQRCD will begin developing a locally-based Scott River Water Trust (Water Trust). The Water Trust will lease or purchase water from sub-permittees for instream beneficial use in accordance with guidelines prepared by SQRCD and approved by CDFG.

Flow Enhancement Mitigation 2: Improve Baseline Instream Flows Via Water Efficiency Improvements. The ITP will require SQRCD to improve baseline instream flows and/or water quality within critical reaches of the Scott River and its tributaries and at critical life stages of coho salmon by installing water efficiency improvement projects and/or water management improvement projects on sub-permittees' properties or by changing or adding points of diversion to keep flows instream to points of use. Within one year of the effective date of the ITP, SQRCD will provide to CDFG, for its review and approval, a list of priority stream reaches for flow enhancement and/or water quality based on coho salmon life stage need, and will work with sub-permittees to address their overall irrigation efficiency and delivery considerations to accomplish aquatic habitat improvement. Generally, a California Water Code, §1707 water transfer/dedication for instream benefits will be pursued where the net water savings are consistent with the State Water Resources Control Board policy.[11]

Flow Enhancement Mitigation 3: Sugar Creek Flow Enhancement. Sugar Creek provides some of the coldest summer water temperatures in the Scott River watershed and possesses high-quality, over-summering habitat. Flows from 1.2 to 6.0 cubic feet per second (cfs) used for irrigation purposes will be dedicated to instream use within one year of the effective date of the ITP.

[11] Water Code, § 1707 authorizes the State Water Resources Control Board to approve a petition to change an existing water right specifically for the purpose of preserving or enhancing wetlands, fish and wildlife, or recreation in or on the water. Such a change requires that the original use under the existing right cease or be reduced in the amount of the change.

Flow Enhancement Mitigation 4: Develop and implement a Contingency Plan for Dry and Critically-Dry Water Years. Under the ITP, SQRCD would be required to submit a detailed Contingency Plan for Dry and Critically-Dry Water Years to CDFG for review and approval within three years of the effective date of the ITP. The Contingency Plan will identify the criteria to determine when a year is dry or critically-dry and describe a process by which SQRCD will coordinate with sub-permittees to augment stream flows. SQRCD will determine whether the water year will be dry or critically-dry by April 1, based on the criteria in the Contingency Plan. Measures contained within the Contingency Plan will incorporate the best available information on both surface and groundwater (where relevant) to minimize the likelihood that critical coldwater flows to the Scott River and its tributaries are impaired. In addition, the Contingency Plan will identify data gaps and will include a strategy to avoid stranding.

One component of the Contingency Plan shall be the Diversion Ramp-Up Management Plan (Management Plan). During the irrigation season, significant changes in stream flow occur when agricultural water users cease or begin diverting water at the same time. A rapid decrease in flow can result in the stranding of fish in shallow pools and side channels below diversions, as well as a loss of critical rearing habitat. To address this problem, SQRCD, in consultation with CDFG and DWR, will be required to develop and implement a Management Plan to coordinate and monitor irrigation so as to minimize rapid reductions in instream flows and the possible stranding of coho salmon. SQRCD will submit the Management Plan to CDFG for its review and approval within three ~~one~~ years from the effective date of the ITP. SQRCD and the sub-permittees would begin implementing the Management Plan immediately upon CDFG's approval.

Flow Enhancement Mitigation 5: Install Alternative Stock Water Systems. Water is diverted for stock watering purposes and/or off-stream storage in October, November, and December each year after diversions for irrigation cease. In those years when the seasonal rains arrive late, such stock water diversions can limit the ability of returning adult coho salmon to reach spawning areas. To address that problem, SQRCD will identify priority areas where additional instream flows in the fall will contribute significantly to adult coho migration. A priority plan will be established by SQRCD that identifies where alternative stock watering systems may be beneficial for coho salmon and the priority list will be submitted to CDFG for its review and approval within one year from the effective date of the ITP.

During the term of the ITP, SQRCD will install an average of two alternative stock watering systems per year. The watering systems will use groundwater, off stream storage, or other appropriate methods rather than surface water. Higher stream flows will facilitate adult coho salmon access to spawning areas. For purposes of the ITP, an alternative stock water system means the wells, pumps, water lines, watering troughs, and other physical components used to provide groundwater to livestock. Sub-permittees will be reimbursed from the Water Trust or equivalent means if funds are available for the cost per day of running the alternative stock water system and no sub-permittee will be required to forego exercising a right to divert for stock water purposes for more than four consecutive years.

Flow Enhancement Mitigation 6: East Fork Water Quality and Quantity Improvement Project. The ITP will require SQRCD to undertake the East Fork Water Quality and Quantity Improvement Project. This project will provide instream flows and reduce historical use up to five cfs throughout the irrigation season in the East Fork Scott River. In addition, fish passage will be improved by installing a vortex boulder weir at the head of China Cove Ditch to eliminate the existing gravel dam. That project will be completed within three years of the effective date of the ITP.

Habitat Improvement Mitigation Obligations

The ITP would obligate SQRCD to undertake various habitat improvement projects to mitigate the impacts to coho salmon habitat caused by the Covered Activities.

Habitat Improvement Mitigation 1: Spawning Gravel Enhancement. Under the ITP, SQRCD will work with CDFG to develop and implement a Spawning Gravel Enhancement Plan (Gravel Enhancement Plan). The Gravel Enhancement Plan will identify areas where gravel for coho salmon spawning could be placed effectively and where gravel can be recruited, and prioritize immediately-needed gravel enhancement projects throughout the Program Area. SQRCD will submit the Gravel Enhancement Plan to CDFG for review and approval within two years from the effective date of the ITP.

SQRCD will design and install constrictors and/or other spawning area enhancement structures at a total of five priority stream reaches where spawning gravels are not plentiful, if deemed necessary in the Gravel Enhancement Plan. SQRCD will complete all gravel enhancement projects prior to the expiration of the ITP.

Habitat Improvement Mitigation 2: Instream Habitat Improvement Structures. SQRCD, in consultation with CDFG and sub-permittees, will identify locations in the Program Area where instream habitat improvement structures would benefit coho salmon, and list those locations in order of priority. SQRCD will submit the priority list to CDFG for its review and approval within one year from the effective date of the ITP. SQRCD will install at least 20 instream habitat improvement structures at sites identified on the priority list.

Habitat Improvement Mitigation 3: Riparian Planting. The ITP will require SQRCD and the sub-permittees to prepare and submit to CDFG for its review and approval a priority list of areas currently being used by coho salmon for spawning and rearing. The list must be submitted within two years of the effective date of the ITP. Before the ITP expires, SQRCD will plant 20 acres of riparian habitat in the areas included on the priority list to improve instream cover and shade canopy, improve channel stabilization, and trap or hold sediment. Ten of those acres will be planted within five years of the effective date of the ITP.

Barrier Removal and Fish Passage Mitigation Obligations

Significant barriers exist in the Scott River and its tributaries that prevent fish passage or limit access to historic spawning and rearing areas. Some fish migration barriers have been in existence for many years. Because removal of fish passage barriers can have short-term negative effects, possibly including take of coho salmon, these mitigation measures are also a Covered Activity (see ITP and MLTC Covered Activity 9 above). The ITP requires SQRCD to continue to work toward eliminating the fish passage barriers identified below.

Barrier Removal and Fish Passage Mitigation Obligation 1: Fish Passage at the Scott Valley Irrigation District Diversion Head. The Scott Valley Irrigation District (SVID) diversion structure on the Scott River is the largest diversion in the Program Area. The diversion structure allows for adult passage when minimum flow volumes reach 12 to15 cfs. It does not provide for upstream passage of juveniles. In order to provide passage for adult and juvenile coho salmon, SQRCD will work with SVID to provide volitional fish passage to both adult and juvenile coho salmon at Young's Dam within seven years of the effective date of the ITP.

Barrier Removal and Fish Passage Mitigation Obligation 2: Installation of two or more Boulder Weirs and Improved Head Works at Farmers Ditch. Farmers Ditch is the second largest diversion in the Scott River watershed. A gravel dam is currently used to divert water from the upper portion of the Scott River into the ditch. The annual construction of the dam disturbs the channel, creates turbidity, and presents a fish passage barrier. SQRCD will replace the gravel push-up dam with two or more boulder ~~vortex~~ weirs. The diversion take-out will be relocated upstream and the initial section of the diversion will be piped to reduce ditch loss. The weir will provide for fish passage whenever flow is present. SQRCD will be responsible for installing the boulder weirs within one year of the effective date of the ITP.

Barrier Removal and Fish Passage Mitigation Obligation 3: Development of Fish Passage – Rail Creek tributary to the East Fork of the Scott River. The East Fork of the Scott River is an important coho salmon tributary. While the summer water temperatures of the East Fork are very warm, the tributaries to the East Fork are cold, and historically provided over-summering habitat for coho salmon. Currently, an earthen dam in Rail Creek prevents access by anadromous fish to approximately one mile of spawning and summer rearing habitat. The impact of limited access to cold water tributaries of the East Fork is considered significant. In order to provide year-round fish passage to upper Rail Creek, SQRCD shall engineer and construct an appropriate fish passage facility at the earthen dam within seven years of the effective date of the ITP.

2.3.4 Monitoring and Adaptive Management Program

The proposed ITP requires SQRCD to establish a monitoring program to track the implementation of the mitigation measures for which it is responsible, and to determine the effectiveness of those measures in improving conditions for coho salmon (Monitoring Program). In addition, SQRCD is available to assist the sub-permittees in fulfilling monitoring responsibilities related to the diversion of water and livestock or vehicle crossings. SQRCD will fund all monitoring activities it is responsible for performing. The Monitoring Program is summarized below and is more fully described in ITP Attachment 3. ~~the to determine whether the sub-permittees are fulfilling all sub-permit terms and conditions, the implementation of avoidance, minimization, and mitigation measures identified in the ITP and any sub-permit, and the effectiveness of those measures in improving conditions for coho salmon.~~

~~Under the terms of the ITP, SQRCD will be responsible for instituting a comprehensive monitoring program. Under this Program, SQRCD will be responsible for confirming and monitoring the implementation of the mitigation measures for which they are responsible. They will also be responsible for monitoring to determine whether the sub-permittee is fulfilling the terms and conditions of their sub-permits. The monitoring program will include a means to: 1) confirm and monitor the implementation of the minimization and avoidance measures for which~~

1. SQRCD shall be responsible for determining if it is fulfilling the terms and conditions of this Permit by instituting a comprehensive monitoring program. The program shall include a means to confirm and monitor the implementation of the mitigation measures for which it is responsible.

2. The sub-permittee shall be responsible for monitoring the terms and condition of their sub-permit by completing the appropriate implementation and effectiveness monitoring checklists for their Covered Activities and submitting them to the Department. SQRCD is available to assist the sub-permittee in completing the water diversion and livestock and vehicle crossings checklists.

3. The SQRCD shall inspect the screen, headgate, measuring device, diversion structure and livestock and vehicle crossings annually and is available to assist the sub-permittee in filling out the qualitative effectiveness monitoring checklists for those Covered Activities.

4 If during any field review of a sub-permittees water diversion facilities and/or livestock or vehicle crossing, the SQRCD identifies a sub-permittee who may not or has not implemented the terms and conditions of their sub-permits the SQRCD shall inform the sub-permittee and work with the sub-permittee to develop a strategy for implementing the terms and conditions of the sub-permit.

5. At the discretion of either the SQRCD or the sub-permittee, the Department will be notified in order to assist in the development of an implementation strategy.

6. If the SQRCD and the sub-permittee cannot agree upon an acceptable strategy for implementation of the terms and conditions of the sub-permit, or the implementation of a term or condition of this Permit which requires the SQRCD to implement certain mitigation measures on the property of sub-permittees, the Department shall be notified.

7. SQRCD shall summarize the results of its monitoring activities in each of its Annual Reports (described below). Analysis of the past year's monitoring activities and the monitoring data shall be provided to the Department at that time.

8. After revocation, relinquishment, expiration, or termination of the Permit, SQRCD shall deliver a Final Report (described below) to the Department analyzing all of the avoidance, minimization, and mitigation measures implemented pursuant to this Permit, including an evaluation of their effectiveness.

9. SQRCD's obligations under this Permit shall not end until the Final Report has been deemed complete by the Department (Section XVI.C), regardless of when the Permit expires, or is revoked, relinquished, or terminated.

10. SQRCD shall conduct photo monitoring to document the installation, operation, maintenance, and effectiveness of all avoidance, minimization, and mitigation activities (individually, "project") for which it is responsible under this Permit.

    Photo monitoring shall be used to document current conditions, implementation and effectiveness by:

    - documenting pre- and post-site conditions;
    - identifying key steps taken during and after the completion of a project;
    - determining whether a project was correctly implemented pursuant to SQRCD and Department guidelines; and
    - document ongoing maintenance of the project.

    Sequential photographs shall be taken over time in order to show changes in site conditions. At a minimum, photographs shall be taken at three different times: before project implementation, directly after project implementation, and again at a later date appropriate to the particular project.

11. SQRCD shall conduct monitoring activities prior to and immediately after project implementation for those projects for which it is responsible. Data collection shall include pre-project implementation checklists, implementation checklists and photo monitoring.

12. SQRCD and Department project evaluators shall have access to photographs and project files to take with them on site visits.

13. SQRCD shall conduct qualitative effectiveness monitoring after project implementation, and annually thereafter, for all mitigation measures for which it is responsible pursuant to this Permit by filling out the qualitative effectiveness monitoring checklist and conducting photo monitoring for those particular project types.

14. SQRCD shall identify at least one specific objective for each project installed pursuant to this Permit. The objective shall be documented in project files by SQRCD and shall be reported to the Department in the Annual Report.

15. SQRCD shall conduct quantitative effectiveness monitoring of 10% of all instream measures implemented. For purposes of quantitative effectiveness monitoring instream measures shall include: spawning gravel enhancement (if determined necessary), instream habitat structures, livestock and vehicle crossings, fish passage improvements, and instream flow.

~~the sub-permittees are responsible; and 2) identify sub-permittees who are not fulfilling the terms and conditions of their sub-permits. SQRCD will be required to notify CDFG immediately of sub-permittees who are not fulfilling a term or condition of their sub-permit.~~

~~SQRCD's monitoring program will also be used to determine the effectiveness of the avoidance, minimization, and mitigation measures identified in the ITP and sub-permits, and the extent to which the objectives of those measures are being or have been met. The results of the effectiveness monitoring will be used as a basis for an adaptive management program to refine future avoidance, minimization, and mitigation measures.~~

2.3.5 SQRCD Reporting Requirements

The ITP includes several reporting requirements that apply to SQRCD. This includes an Annual Report for each year that the ITP is in effect, a Five-Year Report, and a Final Report.

Each Annual Report will include the following information: 1) a general description of the status of the Program, including a description of all avoidance, minimization, and mitigation measures that were implemented during the previous year; 2) a copy of an implementation database with notes showing the current implementation status of each avoidance, minimization, and mitigation measure; 3) the results of all monitoring conducted to determine whether the terms and conditions of the ITP are being met and their effectiveness; and 4) all monitoring data.

Five years after the effective date of the ITP, SQRCD will be required to conduct a comprehensive review of the Program and submit its findings in the form of a Five-Year Report to CDFG. As part of its review, SQRCD will evaluate coho salmon recovery task implementation and community participation. The Five-Year Report will include an analysis of the Program beginning on the effective date of the ITP, as well as the activities that have been implemented since that time. The Five-Year Report will include recommended adaptive management actions to improve operations.

No later than six months after the ITP expires (or is relinquished, revoked, or terminated), SQRCD will be required to submit a Final Report to CDFG. The Final Report will include: 1) a copy of the implementation database with notes showing when each avoidance, minimization, and mitigation measure was implemented; 2) all available information about the incidental take of coho salmon the ITP covers; 3) information about the impacts the Covered Activities have had on coho salmon, notwithstanding the implementation of the avoidance, minimization, and mitigation measures; 4) the beginning and ending dates of all construction activities the ITP ~~or any sub-permit~~ covers; 5) an assessment of the effectiveness of the ITP's ~~and sub-permits'~~ terms and conditions to avoid, minimize, and mitigate impacts on coho salmon; 6) recommendations on how those terms and conditions might be changed to more effectively avoid, minimize, and mitigate such impacts in the future; and 7) any other pertinent information.

2.3.6 Department of Water Resources Obligations under Sub-Permit

The ITP includes special provisions for DWR, under the assumption that the current watermaster responsible for administering and enforcing certain water rights within the Program Area, who is a DWR employee, will be a sub-permittee.[12] As such, DWR would be responsible for complying with the following terms and conditions:

1. To assist with the implementation and compliance monitoring of the ITP and sub-permits, DWR will provide to CDFG water use data for all diversions with watermaster service in the Program Area, including, but not limited to, the name of the diverter, the location of the diversion, the quantity of water that may lawfully be diverted and used, the dates the watermaster visits each diversion, and the estimated or measured quantity of water diverted by the watermaster on each visit. DWR will provide the data in the form of a database on a monthly basis from April to November each year by the second week of each month following data collection.

2. DWR will implement the Scott River Decree (Wildcat, Sniktaw, and Oro Fino Creeks watersheds only), French Creek Decree, and Shackleford Creek Decree and any other applicable court decrees pursuant to provisions of the Water Code in the adjudicated portions of the Scott River watershed, unless CDFG instructs DWR otherwise as described below. As part of that responsibility, the DWR watermaster will verify that each sub-permittee is in compliance with their respective water right(s). The watermaster will create a database of all diversions visited on a monthly basis to verify compliance with water rights and will provide these data monthly to CDFG.

3. DWR will meet with CDFG in person or by telephone on a weekly basis during the diversion season in order to inform CDFG of any points of diversion in the watermastered areas where stranding is probable. CDFG will make a determination regarding whether or not any diversion is causing or will cause the stranding of coho salmon. For the purpose of this ITP, “stranding” is defined as a situation in which coho salmon are in a location with poor aquatic habitat conditions, due to a reduction in flow, from which they cannot escape. ~~CDFG will instruct DWR to reduce or cease the diversion and/or change the timing or manner of the diversion and take any other measures within DWR’s control that CDFG determines are necessary to correct or avoid stranding and DWR will implement those measures immediately. However, before instructing DWR as described above, CDFG will make every effort to work with SQRCD and the sub-permittee to correct or avoid such take by some means other than reducing or ceasing the diversion and/or changing the timing or manner of the diversion.~~

4. <u>CDFG will make every effort to work with SQRCD and sub-permittee to correct or avoid such take by some means other than reducing or ceasing the diversion and/or changing the timing or manner of the diversion.</u>

5. <u>If CDFG determines that reducing or ceasing the diversion and/or changing the timing or manner of the diversion will avoid or minimize stranding, and that is the only available measure to avoid or minimize stranding, CDFG will inform the sub-permittee of the</u>

[12] Any subsequent watermaster who is not a DWR employee will be required to obtain a sub-permit.

required measures to be implemented to reduce stranding. CDFG will work with DWR to implement such measures within DWR's control.

As mentioned in footnote 2 above and explained in Chapter 4, DWR's watermaster responsibilities may be transferred to a newly established watermaster district. If that were to occur, CDFG would terminate DWR's sub-permit, in which case all of DWR's responsibilities under the sub-permit would terminate. However, the new watermaster would be required to comply with CESA by obtaining authorization from CDFG for incidental take of coho salmon. This authorization would likely be obtained through a sub-permit issued by CDFG under the Program similar to DWR's or through an ITP outside the Program.

References

Scott River Watershed Council, *Initial Phase of the Scott River Watershed Council Action Plan: Update*, Etna, CA, October, 2005.

Siskiyou County Resource Conservation District (SQRCD), *Incidental Take Permit Application for Coho Salmon*, submitted to California Department of Fish and Game, March 29, 2005.

State of California, Department of Fish and Game (CDFG), *Recovery Strategy for California Coho Salmon*, report to the Fish and Game Commission, February 4, 2004.

CHAPTER 3

Environmental Setting, Impacts, and Mitigation Measures

This Chapter includes seven sub-chapters that evaluate the potential environmental impacts of the Program as they relate to: 1) Land Use and Agriculture (Chapter 3.1); 2) Geomorphology, Hydrology, and Water Quality (Chapter 3.2); 3) Biological Resources: Fisheries and Aquatic Habitat (Chapter 3.3); 4) Biological Resources: Botany, Wildlife, and Wetlands (Chapter 3.4); 5) Cultural Resources (Chapter 3.5); 6) Hazards and Hazardous Materials (Chapter 3.6); and 7) Public Utilities, Service Systems, and Energy (Chapter 3.7). As discussed in Chapter 1, the California Department of Fish and Game (CDFG) in its Initial Study determined that the effects of the Scott River Watershed-wide Permitting Program (Program) on the following resources would be less than significant, and therefore are not analyzed further in this Draft Environmental Impact Report (EIR): 1) aesthetics; 2) air quality; 3) geology, soils, and seismicity; 4) mineral resources; 5) noise; 6) population and housing; 7) public services; 8) recreation; and 9) transportation and traffic.

Each sub-chapter includes a focused discussion of the environmental setting pertinent to the resource the sub-chapter addresses (e.g., Land Use and Agriculture); a description of the criteria used to determine whether a particular impact could be significant; the environmental impacts the Covered Activities could have on the resource; a determination of whether they will be significant based on the significance criteria; and where the impact is identified as potentially significant, a description of feasible mitigation measure(s) that will reduce the impact to less than significant. The mitigation measures in the subsequent sub-chapters are either part of the Program, and therefore included in the Master List of Terms and Conditions (MLTC) and Incidental Take Permit (ITP), or are identified in the Draft EIR. Mitigation measures identified in this Draft EIR will be incorporated into the Program by adding them to the MLTC and/or ITP unless otherwise indicated. The social and economic effects of the Program are discussed in the context of its potential to induce changes in land use.

The environmental impacts identified in the sub-chapters are numbered sequentially beginning with the sub-chapter number. For example, the first impact in Chapter 3.3 (Biological Resources: Fisheries and Aquatic Habitat) is impact number 3.3-1, the second impact is 3.3-2, and so forth. Each mitigation measure is numbered to correspond with the impact it addresses. Hence, the mitigation measures to address Impacts 3.3-1 and 3.3-2 would be Mitigation Measures 3.3-1 and 3.3-2, respectively.

Environmental Setting

In order to evaluate the potential environmental impacts of approving and implementing the Program, this Chapter describes the physical environmental conditions in the Program Area as they existed at the time CDFG deemed Siskiyou Resource Conservation District's (SQRCD's) ITP application complete on April 28, 2005. It is against this baseline which the potential environmental impacts of approving and implementing the Program were measured. This approach is consistent with CDFG's California Endangered Species Act (CESA) implementing regulations which is a certified regulatory program under California Environmental Quality Act (CEQA) (CEQA *Guidelines*, § 15251, subd. (o); California Code of Regulations, title 14, § 783.5.) Under those regulations, CDFG considers an ITP application it has deemed complete to be the project description for purposes of its required lead agency review under CEQA. This approach is also consistent with CEQA *Guidelines,* § 15125, which acknowledges the importance of identifying a baseline that best ensures meaningful environmental review. Important to the evaluation described above is an understanding of the Program's regional setting. The regional setting is described below.

Some of the activities the Program covers are historic, ongoing activities that over time have caused and will continue to cause environmental impacts within the Program Area, including, for example, take of coho salmon (*Oncorhynchus kisutch*). These activities and their impacts are part of the baseline and are expected to continue regardless of the Program; that is, they will not be caused by the Program. Chapters 3.1–3.7 describe these ongoing, historic activities and their impacts as part of their discussion on the existing environmental setting pertinent to the resource they address.

As CEQA requires, this Draft EIR analyzes the physical, project-related changes to the baseline the Program could cause, and for those changes that are determined to be significant, identifies feasible mitigation measures to reduce those impacts to less than significant. As mentioned above, such changes would not include the environmental impacts caused by historic, ongoing activities that are part of the baseline. As a result, under CEQA, mitigation for those activities will not be required. Nonetheless, the Program is expected to reduce the environmental impacts caused by historic, ongoing activities, and thereby improve existing environmental conditions in the Program Area compared to the baseline. The Program is expected to improve environmental conditions because, under the Program, the Streambed Alteration Agreements (SAAs) and sub-permits CDFG will be issuing for these historic, ongoing activities will require Agricultural Operators to incorporate into those activities measures to protect fish and wildlife resources and to avoid, minimize, and fully mitigate any take of coho salmon that might occur incidental to those activities.

In summary, mitigation for these ongoing historic baseline activities will not be required pursuant to CEQA because the Program will not result in an increase in environmental impacts from these activities; rather, the mitigation for impacts to fish and wildlife resources from these activities will be identified in the SAA, ITP and/or sub-permit participants must obtain as a condition of participating in the Program.

Regional Setting

The Program Area analyzed in this Draft EIR is the Scott River watershed, including the Scott River and its tributaries, in Siskiyou County, as shown in **Figure 2-1** in Chapter 2 (Program Area). The locations of the site-specific mitigation projects specified in the ITP are shown in **Figure 2-2**.

The Scott River is one of four main tributaries to the Klamath River in California, the others being the Trinity, Salmon, and Shasta Rivers. The Klamath River drains a portion of the Cascade Province to the east and a portion of the Klamath Province to the west. The Scott River enters the Klamath at River Mile 143 at an elevation of 1,580 feet and drains a watershed area of approximately 812 square miles. Major tributaries to the 58-mile long Scott River include Shackleford/Mill, Kidder, Etna, French, and Moffett Creeks and the South and East Forks Scott River. The Scott River is part of the Klamath Mountain Province, which encompasses land in both Southern Oregon and Northern California.

The Scott River watershed is bounded in the southwest by the Salmon Mountains, to the west by the Marble Mountains, to the northwest by the Scott Bar Mountains, and to the east by lower hills, collectively known as the Mineral Range. The Scott River originates in the Scott Mountains to the south. The entire watershed is within Siskiyou County in the north central part of California. There are two incorporated towns in the watershed, Etna and Fort Jones, as well as the smaller communities of Callahan, Greenview, and Quartz Valley. State Highway 3 is the main transportation route through the Scott River watershed.

The mainstem Scott (approximately 53 percent of the watershed acreage) is predominantly surrounded by farm and rangeland. Field crops, including alfalfa and other hay crops, and raising stock are the principal agricultural pursuits. All surface water rights in the Program Area upstream of the USGS gaging station (no. 11519500, approximately 10 miles downstream from Fort Jones) are adjudicated according to one of three decrees: the Shackleford Creek Decree (1950), the French Creek Decree (1958), and the Scott River Decree (1980). The decrees, as explained by Scott River Watershed Council (SRWC) (2006), identify: 1) the area where such water may be used; 2) the priority of each water right as it relates to other water rights on the same source; 3) the purpose for which the water is used (e.g., irrigation, municipal, domestic, stock-water); and 4) the diversion season. The Scott River Decree also specifies the amount of water each user is entitled to divert from surface streams or to pump from the interconnected groundwater supplies near the river. All previous riparian claims prior to 1914 and appropriative water rights were included in each of the decrees within the Scott River watershed (SRWC, 2006). According to hydrologic analyses by USGS (2006), the total allotment of water under the three decrees is greater than the average monthly flow of the Scott River from June through December, based on 64 years of record. The Department of Water Resources (DWR) provides watermastering services for some portions of the Program Area.

Additional information on the environmental setting, particularly regarding coho salmon habitat, is included in Chapter 3.2, Geomorphology, Hydrology, and Water Quality, and Chapter 3.3, Biological Resources: Fisheries and Aquatic Habitat. The Scott River watershed's geology is described in the Geology section of the Initial Study (Appendix D).

Physical Changes Likely to Result from the Program

The environmental impact analysis in the following chapters relies on several assumptions regarding the likely physical effects of Program implementation, relative to existing conditions. These include the following:

- Program implementation will result in less agricultural water being diverted, which in turn will result in increased streamflows in tributary streams and the mainstem Scott River, particularly during summer and fall low-flow periods and during drought years;
- Requirements for bypass flows, fish passage, and fish screens at diversions will reduce mortality of coho salmon and other fish species at and downstream of diversions;
- Remediation of artificial barriers to fish passage, some of which have been in place for many years, will enable coho salmon and other anadromous fish to reoccupy historic spawning and rearing habitat that is currently inaccessible to them;
- Conditions placed on Covered Activities will reduce pollutant loads to streams, including heat gain, sediment, nutrients, and hazardous substances;
- Design requirements for diversion structures and other instream structures will improve geomorphic function of streams, including sediment transport;
- Conditions placed on grazing and vehicle access within riparian areas and at stream crossings, and required riparian fencing, revegetation, and stream restoration will result in improved riparian conditions and stream habitat;
- The required education program (ITP General Condition a) will likely result in a greater understanding among Agricultural Operators of the habitat needs and vulnerabilities of coho salmon and other aquatic species, which may encourage them to take additional measures not specified in the Program to protect and enhance these resources;[1]
- Conditions placed on ground-disturbing activities will reduce the potential for damage to or destruction of cultural and historical resources;
- Monitoring and reporting requirements, including the SQRCD ITP Monitoring and Adaptive Management Plan (ITP Attachment 3), will provide an opportunity to improve Program effectiveness over time.

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[1] Such additional measures are considered speculative and not used as a basis for the environmental impact analysis in this Draft EIR.

References

Scott River Watershed Council (SRWC), *Initial Phase of the Scott River Watershed Council Strategic Action Plan October 2005 Update*, May 2, 2006.

United States Geological Survey (USGS), 11519500 Scott River near Fort Jones, CA. Water-Data Report CA-2005, ca.water.usgs.gov/waterdata.html, accessed December 2006.

CHAPTER 3.1
Land Use and Agriculture

This Chapter discusses the existing environment of the Scott River watershed (**Figure 3.1-1**) (Program Area) with regards to land use and agriculture; identifies potential impacts the Scott River Watershed-wide Permitting Program (Program) could have on those resources; and identifies mitigation for those impacts determined to be potentially significant. This evaluation is based on field reconnaissance, review of local land use information, adopted land use plans and policies, agricultural datasets from the Department of Conservation (DOC) and the Department of Water Resources (DWR), aerial photographs, and other sources.

3.1.1 Setting

Regional Agricultural Setting

Siskiyou County Socio-demographics and Economy

Population

Siskiyou County's total population in 2006 was estimated to be approximately 46,100. Over the last two decades, there has been little change to the County's population with a relatively low population growth rate of 0.6 percent per year on average (EDD, 2006). In recent years, the rate of population growth has declined.[1] Between 2000 and 2005, the County annual population growth has been just over 0.4 percent per year – a rate about a third of California's statewide average annual growth rate (U.S. Census, 2006).

Projections for Siskiyou County's population differ. The California Department of Finance estimates that the County's total population will remain nearly unchanged with 45,900 residents expected in 2020 (EDD, 2006). The California Department of Transportation's (Caltrans) 2006-2030 Economic Forecast, however, projects that there will be 50,175 Siskiyou County residents in 2020 (Caltrans, 2006).[2]

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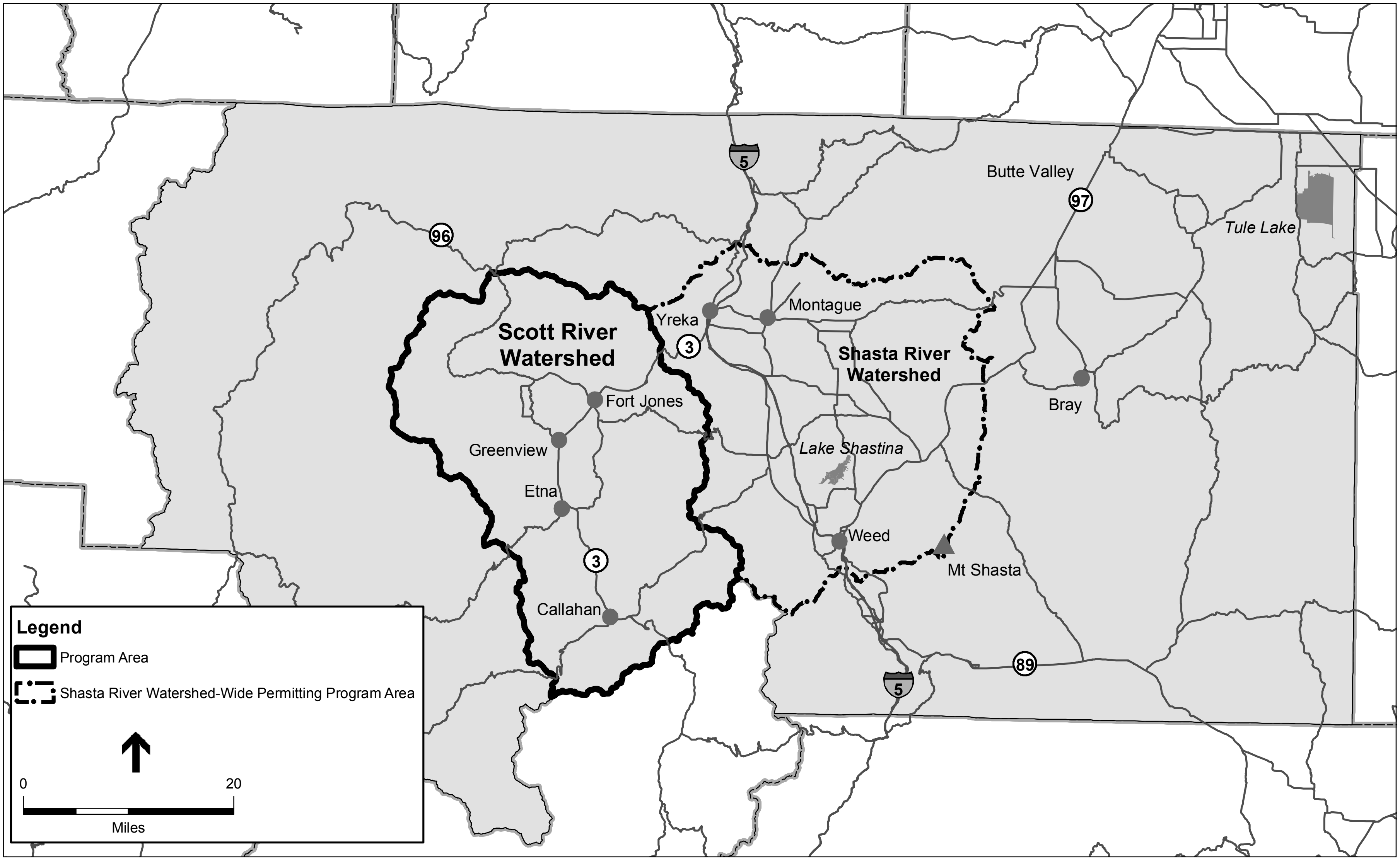
[1] Population growth is defined as the increase in the number of people who inhabit an area or region. Population growth rate is defined as the rate at which the population is increasing or decreasing in a given year expressed as a percentage of the base population size. It takes into consideration all the components of population growth, namely births, deaths and migration.

[2] As a transportation planning agency, Caltrans' analysis and projections might be expected to be more aggressive in anticipating the region's future growth. Its projections appear to differ most in their future net migration changes and in new housing units for the County.



SOURCE: ESRI, 2006; ESA 2007

Scott River Watershed-Wide Permitting Program . 206063

Figure 3.1-1

Regional Setting - Siskiyou County

Demographic analysis suggests that past and current demographic shifts toward a "graying" of Siskiyou County's population will continue.[3,4] Forty-two percent of the County's population is over 50, with 17 percent of the population being composed of 50-59 year olds and another 25 percent being 60 and over. Since 1990, the number of adults between the ages of 50-59 increased seven percent, while adults ages 30-39 decreased eight percent, and children ages 0-9 decreased five percent.

Siskiyou County's natural population growth rate[5] is expected to remain negative for the foreseeable future as its younger residents are expected to continue leaving the area due to the limited job opportunities available locally. This demographic shift tends to reduce the number of children born and raised in the area. In contrast, population growth for the area is expected from a continuing influx of older and higher income new residents attracted to the area's rural lifestyle and comparatively inexpensive housing (Caltrans, 2006).

Employment

Siskiyou County's total employment was estimated to be 13,600 in 2005.[6] The major employers within Siskiyou County are Government (28.5 percent), the Trade, Transportation and Utilities sector (18.2 percent), Leisure and Hospitality industry (13.4 percent) and Education and Health Services sectors (12.2 percent). The Agriculture sector provides approximate 5.1 percent of the employment within Siskiyou County (EDD, 2006). Since 1998, Siskiyou County's agriculture and manufacturing industries have suffered substantial job losses countywide. The County's agricultural sector lost 420 jobs (nearly a 35 percent decrease) while its manufacturing businesses lost 260 jobs representing a 27 percent employment decrease (SCEDC, 2006). Between 1998 and 2002, most of the job growth within Siskiyou County occurred within the sectors of: financial activities; trade, transportation and utilities; and the leisure and hospitality industry (SCEDC, 2006).

In 2005, Siskiyou County's total available labor force was an estimated 18,810. The County's unemployment rate has consistently been substantially higher than the state average. After a recent peak unemployment rate of 9.5 percent in 2003 (when the statewide unemployment rate for California was 6.8 percent), the unemployment rate had decreased slightly to 8.9 percent in 2005 (EDD, 2006).

The most recent economic projections of Siskiyou County's future economy predict that its unemployment rate will remain significantly above the statewide rate and will average approximately 9.7 percent through 2030 (Caltrans, 2006).

3 A "graying population" refers to a decline in the birth rate. With a decline in the number of young people within a community, this means that the proportion of older people in the population will rise (Poole and Wheelock, 2006).
4 The U.S. Census defines an "older" population as ages 55+. The US Census defines an "elderly" population as ages 65+ (US Census, 2007b).
5 Natural population growth includes births and deaths, without taking into account net migration.
6 Industrial employment does not include self-employed residents.

Income

The average income level for Siskiyou County residents is below the state average income level. In 2005, the per capita income of Siskiyou County residents averaged $25,730. This was approximately 75 percent of the per capita income of all California residents which averaged $34,264 (Caltrans, 2006). Siskiyou County residents' median household income was proportionately lower than the comparable statewide median household income level. In 2004, estimated median household income for County residents was $32,531 – approximately 65 percent of the corresponding statewide median income level of $49,894. On a related note, the proportion of the County's population in poverty is estimated to have been 15.1 percent in 2004 which was greater than the state average poverty rate of 13.2 percent (US Census, 2007a).

The County's low personal income and related high unemployment levels are key indicators of an economically depressed area. The U.S. Department of Commerce's Economic Development Administration has recognized Siskiyou County as being in Long Term Economic Distress (SRWC, 2005). Similarly, the State of California's Enterprise Zone Program also established a major section of the neighboring Shasta Valley as a State Enterprise Zone (**Figure 3.1-2**).[7] The State Enterprise Zone Program targets 39 economically distressed areas throughout California. This designation helps provide and attract state and local incentives which both encourage business investments and promote new job creation (SCEDC, 2007).

Siskiyou County Agricultural Sector

Agricultural Sector Revenues

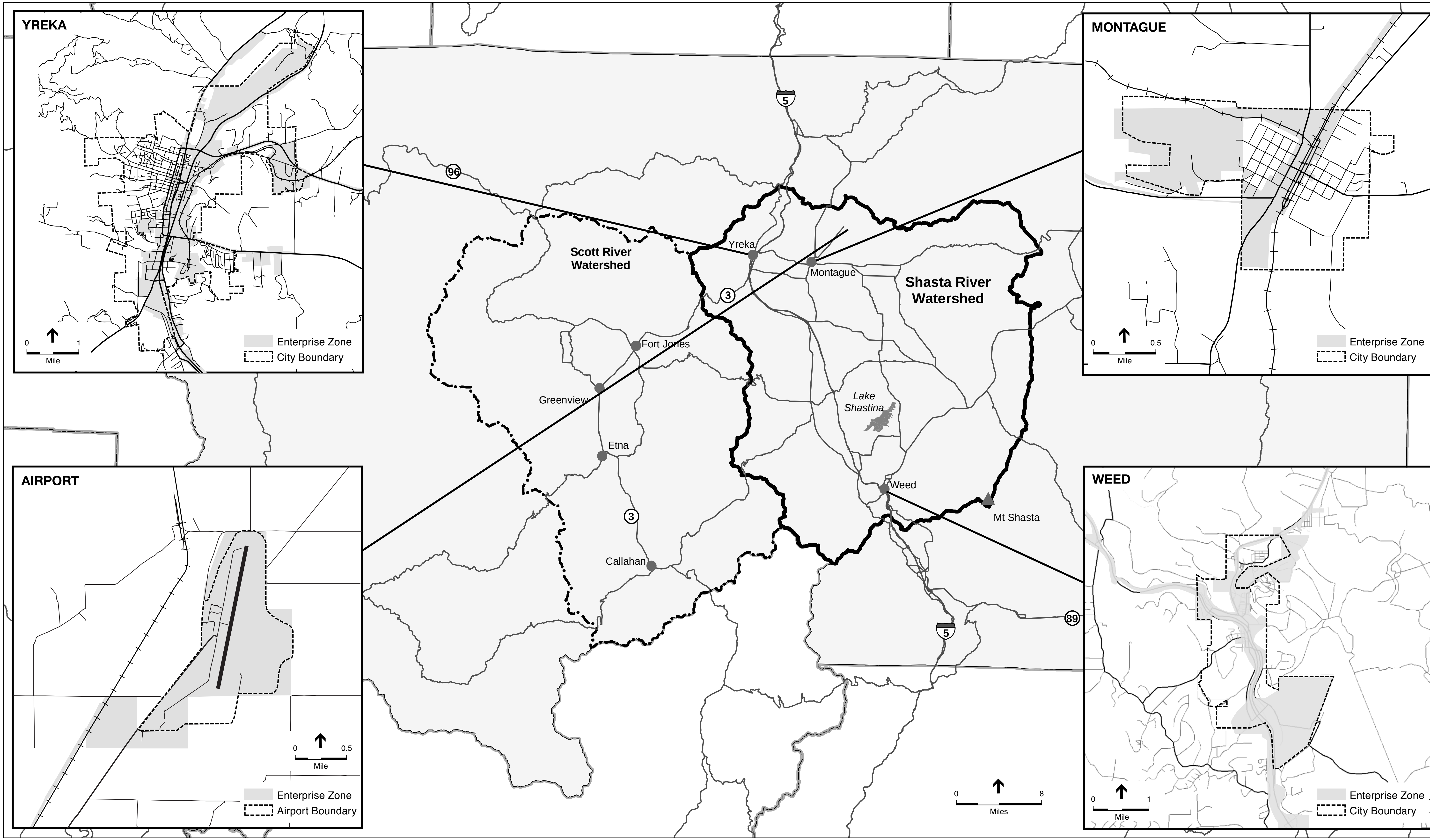
Siskiyou County depends on alfalfa hay production as one of its staple agricultural commodities, as well as Irish potatoes, wheat, nursery plants and livestock (CED, 2006). Various types of seed are sold for the highest prices per ton in the County, while hay and cattle bring in some of the highest total value (CED, 2006).

Field crop farming (consisting primarily of forage crops including pasture land, alfalfa, and other hays or grains for livestock feed) is the primary farming activity in Siskiyou County. In 2006, it yielded approximately $72.55 million worth of agricultural production. Combined with related livestock production activities, these two farming categories together generated approximately $95.15 million, which accounts for 56 percent of Siskiyou County's agricultural revenues.

Table 3.1-1 shows Siskiyou County's estimated value of agricultural production in 2005 and 2006 by major crop types (Siskiyou County Department of Agriculture, 2007). Excluding timber, agricultural activities generated $170 million last year (Siskiyou County, 2007).

Agricultural production affects many areas of a county's economy, including jobs, income and the economic input of related industries (CED, 2006). When agricultural production declines, so do purchases from local businesses (such as fuel, seed, equipment, etc.). Recent analyses of the

[7] The Shasta Valley Enterprise Zone encompasses the City of Weed, the Siskiyou County Airport Industrial Park, as well as most of the commercial and industrial areas within the cities of Yreka and Montague.



SOURCE: ESA

Figure 3.1-2
Shasta Valley Enterprise Zone

TABLE 3.1-1
AGRICULTURAL PRODUCTION IN SISKIYOU COUNTY (2005 & 2006)

	2005 (in Millions [m] of Dollars)	Percentage	2006 (in Millions [m] of Dollars)	Percentage
Field Crops	$61.75 m	41.83%	$72.55 m	42.66%
Seed Crops	$1.55 m	1.05%	$1.13 m	0.66%
Livestock	$24.11 m	16.33%	$22.60 m	13.29%
Vegetable Crops	$11.84 m	8.02%	$11.92 m	7.01%
Milk and Wool	$4.42 m	2.99%	$2.82 m	1.66%
Nursery Crops	$40.46 m	27.41%	$54.83 m	32.24%
Organic	$3.50 m	2.37%	$4.20 m	2.47%
Timber	$47.57 m	~	$47.90 m	~
Total	$195.20 m	~	$217.95 m	~
Total (excluding Timber)	**$147.63 m**	**100%**	**$170.05 m**	**100%**

SOURCE: Siskiyou County Department of Agriculture (2006, 2007)

County's agricultural sector's future performance forecast a sustained decline for future farm crop values in real dollar terms (i.e., adjusting for inflation). A 14 percent decrease in real terms by 2015 is predicted for the County's future farm crop values (Caltrans, 2006).

Agricultural Employment in Siskiyou County

Employment is another key indicator of an industry sector's contribution to the greater economy. In 2006, total employment within Siskiyou County was estimated to be 22,306 of which the County's farm proprietor's[8] employment was 779 (3.4%) and total farm employment[9] was 1,210 (5.4%) (BEA, 2008). Between 1998 and 2005 Siskiyou's agricultural sector employment declined an estimated 35 percent (SCEDC, 2007).

Crop Production in Siskiyou County

While nursery and vegetable crops are another important component of the local agricultural sector, most of this production occurs primarily outside the Program Area. For example, nearly 2,000 acres of strawberry bedding plant production occurs in the Butte Valley and Tule Lake areas of the County, where the colder climate is well suited for growing young strawberry plants. This production, which accounts for most nursery crop sales, is shipped out of the County. Similarly, the majority of the County's vegetable crop acreage is potato farming that occurs

8 Farm self-employment is defined as the number of non-corporate farm operators, consisting of sole proprietors and partners. A farm is defined as an establishment that produces, or normally would be expected to produce, at least $1,000 worth of farm products—crops and livestock—in a typical year.

9 Farm employment is the number of workers engaged in the direct production of agricultural commodities, either livestock or crops; whether as a sole proprietor, partner, or hired laborer.

primarily on leased lands in the Tule Lake Basin. These potato sales typically account for the majority of Siskiyou County's vegetable crop revenues (Thornhill, 2007). Most of the potato production is for fresh market sales.

Siskiyou County's principal field crops, acreages, and yields are shown in **Table 3.1-2** below.[10] Alfalfa hay and irrigated pasture is farmed on nearly 130,000 acres County-wide, and together account for more than 75 percent of the County's field crop value. Nearly all of the alfalfa grown in Siskiyou County is grown under irrigation (Thornhill, 2007). Grain production within the County primarily occurs as part of the crop rotation for irrigated alfalfa which after six or seven years of harvesting is typically rotated out of production.

TABLE 3.1-2
FIELD CROP ACREAGES AND PRODUCTION VALUE IN SISKIYOU COUNTY (2006)

Field Crop Type	Harvested Acreage	Yield per Acre	Price / unit	Value
Alfalfa Hay	58,494 ac	5.5 / Ton	$135 / Ton	$43.43 m
Other Hay	12,928 ac	4.3 / Ton	$110 / Ton	$6.11 m
All Wheat	15,269 ac	2.45 / Ton	$130 / Ton	$5.231 m
Other Grains[a]	15,308 ac	1.0 – 2.3 / Ton	$110 - $120 / Ton	$8.69 m
Misc. Crops[b]	>1,156 ac	N/A	N/A	$1.79 m
Pasture (Irrigated)	75,000 ac	N/A	$125 / ac	$9.38 m
Pasture (Non Irrigated)	145,000 ac	N/A	$12 / ac	$1.74 m
Rangeland Pasture	445,000 ac	N/A	$3 / ac	$1.34 m
Total – Field Crops	**767,055 ac**			**$72.55 m**

[a] Includes Oats, Barley and Rye production
[b] Includes Mint production and an unspecified acreage of stubble pasture, straw and silage.

SOURCE: Siskiyou County Department of Agriculture (2007)

Alfalfa and hay production within Siskiyou County is a primary agricultural activity both as a cash crop sold and transported out of the regions for livestock and for other animal feed. Siskiyou County alfalfa generally commands a premium price due to its typically higher nutrient content, which is a result of the local growing conditions. Although the amount of alfalfa and other feed crops that are sold out of the County is not known, local agricultural experts estimate that approximately 70 percent of the County's production is likely for cash sales (Thornhill, 2007).

Alfalfa and other animal feed crops are also important for local livestock farmers who rely on supplemental feed both for wintering of their herds and fattening of calves before they go to market. As Table 3.1-1 shows, livestock production within Siskiyou County generated revenues of approximately $22.6 million in 2006.

[10] Crop production acreages specific to the Program Area are discussed later in this chapter.

Livestock production within Siskiyou County is predominantly cow-calf operations. In 2006, there were approximately 62,000 head of cattle in the County. Of these, 1,800 were “dairy heifers on feed” and 1,000 were milk cows two years and over. Besides cattle livestock, there is sizable amount of horse ranching (13,000 head), and sheep rearing (4,600 head), but relatively little hog and pig raising (500 head) (Siskiyou County Department of Agriculture, 2007).

Ranching and Farming in Siskiyou County

In 2002, 796 farms were operating within Siskiyou County, which represented a 10 percent decrease from the 883 farms estimated to have been operating in 1997. During this same period, farmland acreage was estimated to have declined countywide by an estimated five percent from 639,819 acres to 610,388 in 2002 (USDA, 2002), and average farm size increased by six percent to 767 acres in 2002. However, due to the wide variance in the acreages of farms within the County, the median farm size reported for Siskiyou County falls within the U.S. Census category of 50 to 179 acres.

Approximately 60 of the farms reported that they were less than 10 acres in size while approximately 210 stated their farms were between 10 to 49 acres in size. Sixty-seven percent of these farms’ principal operators reported that farming was their primary occupation. The average sales per farm in 2002 was approximately $137,000 per farm. The reported average net cash farm income was $29,747 while the average farm production expenses were $107,386 (USDA, 2002).

Recent cost studies for alfalfa farming and discussions with the U.C. Farm Advisor and Agricultural Inspector with the Siskiyou County Agriculture Commissioner’s Office in Siskiyou County show the low profitability of existing local agricultural production (Orloff, 2007; Herman, 2007). The declining viability of small agricultural operations has also increasingly encouraged consolidation of many farmland properties into larger farm operations. In such cases, the farmsteads are often sold separately as residences with small acreages of adjoining farmland. Therefore, many of these properties might be better characterized as rural residential homes. The small farm acreages and incomes reported by the Census of Agriculture may also be reflective of landowners who lease out their farmlands to other local farmers (Orloff, 2007).

In the rural communities of Siskiyou County, many Agricultural Operators accept a very low rate of return on their equity investment in their properties and also take below market rate wages for their labor, management, and operating risk. Similarly, many own their land (either having inherited the land or having acquired it from relatives) and their land costs are minimal. Otherwise, the mortgage payments can be a major cost burden. Many Agricultural Operators may also rely on additional sources of income such as part-time work doing custom farming on other farm owners’ lands or spousal income (Orloff, 2007).

Important Farmland in Siskiyou County

Important Farmland Maps produced by the DOC’s Farmland Mapping and Monitoring Program (FMMP) quantify and characterize Siskiyou County’s regional agricultural land base. Important Farmland Maps show categories of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, Grazing Land, Urban and Built-up Land, Other Land,

and Water. Prime Farmland and Farmland of Statewide Importance Map categories are based on qualifying soil types, as determined by the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS), as well as current land use. Map categories are defined by the FMMP as follows:

> **Prime Farmland:** Land which has the best combination of physical and chemical characteristics for the production of crops. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops when treated and managed, including water management, according to current farming methods.
>
> **Farmland of Statewide Importance:** Land that is similar to *Prime Farmland* but with minor shortcomings, such as greater slopes or less ability to hold and store moisture.
>
> **Unique Farmland:** Land of lesser quality soils used for the production of specific high economic value crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high quality or high yields of a specific crop when treated and managed according to current farming methods. It is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Examples of crops include oranges, olives, avocados, rice, grapes, and cut flowers.
>
> **Farmland of Local Importance:** Land of importance to the local agricultural economy, as determined by each county's board of supervisors and local advisory committees. Examples include dairies, dryland farming, aquaculture, and uncultivated areas with soils qualifying for *Prime Farmland* and *Farmland of Statewide Importance*.
>
> **Grazing Land:** Land on which the existing vegetation, whether grown naturally or through management, is suitable for grazing or browsing of livestock.

Table 3.1-3 shows the acres of agricultural land within Siskiyou County inventoried by DOC under its FMMP program in 2002 and 2004.

Between 2002 and 2004, "important farmland" decreased by 26,047 acres countywide, which is equivalent to approximately a three percent decrease in farmland resources. Between 1996 and 2004, the acreage of "important farmland" decreased by 48,383 acres, which is equivalent to approximately a six percent decrease. During this period (1996-2004), the greatest proportional loss of farmland occurred to the County's prime farmland resources, which decreased by 13.6 percent from the loss of 12,551 acres (DOC, 2006). While these past trends of agricultural land reductions indicate existing land use conversion pressure on the Siskiyou County's agricultural sector, much of the converted acreage in Table 3.1-3 was characterized as being primarily due to wildlife refuge systems additions and documentation of grazing leases.

Regional Real Estate Trends

Demand for "rural residential" properties continues to grow throughout the North Intermountain Region (i.e., Lassen, Modoc, Shasta, and Siskiyou Counties) as a result of the general appreciation in residential real estate market (both from strong urban housing markets and recent low interest rates) and increasing interest among many retirees in rural living opportunities. Currently, demand for rural ranchette properties in Siskiyou County and the Program Area is

TABLE 3.1-3
FARMLAND CONVERSION FROM 2002–2004 IN SISKIYOU COUNTY

Land Use Category	Total Acres Inventoried		2002–2004 Acreage Changes		
	2002	2004	Acres Lost	Acres Gained	Net Change
Prime Farmland	93,046	79,822	-13,351[a,b]	127	-13,224
Farmland of Statewide Importance	31,525	28,747	-2,796[a]	18	-2,778
Unique Farmland	34,691	33,714	-1,143	166	-977
Farmland of Local Importance[c]	626,964	620,164	-8,757[a]	1,957	-6,800
Important Farmland	786,226	762,447	-26,047	2,268	-23,779
Grazing Land	393,253	386,315	-13,123[a]	6,185[b]	-6,938
Agricultural Land	**1,179,479**	**1,148,762**	**-39,170**	**8,453**	**-30,717**

a Conversion to Other Land is characterized by farmland left idle for three or more update cycles, primarily due to additions made to the refuge systems in the Lower Klamath and Tule Lake Wildlife Refuge, Butte Valley, and Shasta Valley Wildlife Area.
b Conversion to Grazing Land was reported primarily due to land left idle for three or more update cycles and documentation of grazing leases within the Lower Klamath Wildlife Refuge, Butte Valley Wildlife Area and Butte Valley Grasslands.
c Overall acreage change in this category showed a significant jump between the years of 1994 and 1996, from 64,532 to 658,134 respectively when the definition for the classification of land of local importance changed.

SOURCE: DOC (2006)

strongest for smaller agricultural properties typified by livestock farms within the lower hillside or upstream watershed areas rather than the larger alfalfa farming properties located within the more centrally located valley areas (Orloff, 2007).

This growing demand for rural residential real estate is resulting in upward price pressure that is influencing the upper end of the price range for all agricultural land categories. In recent years, land prices for smaller rural residential sites have almost doubled (ASFMRA, 2005). In addition, there are ongoing trends of farm consolidation in both the Scott and Shasta Valleys as some of the larger local farm operators increasingly purchase or lease agricultural properties of more marginal farm operators in the area for custom farming (Orloff, 2007). The amount of new sales and lease activity have been relatively stable except for rangeland and dry pasture properties where an increasing amount of new purchases and transactions are occurring (ASFMRA, 2005).

Siskiyou County Rural Residential Land Conversion Trends

Currently, the greatest amount of development in Siskiyou County is occurring in the southern part of the County, particularly in Mt. Shasta and McCloud, and around Lake Shastina in Shasta Valley (DePree, 2007). Most of the agricultural land conversion to residential use is occurring on properties within the areas of lower elevation along the Interstate 5 corridor and near Lake Shastina, although the majority of Lake Shastina development is on existing residential lots (DePree, 2007). Agricultural properties are being converted to rural residential uses especially among the smaller and lower hillside farm properties.

There was a record high of home building in Siskiyou County in 2005 (Diehm, 2007). In 2006, the rate of development slowed but was still much above historical averages. These numbers were attributed to Lake Shastina's building permit applications (117 in 2005, 52 in 2006). Mike Crawford, Chief Building Inspector of Siskiyou County, noted that if these numbers were removed, the County would be demonstrating its historic level of growth, rather than a building boom (Diehm, 2007; DePree, 2007).

While Siskiyou County has begun to see more developers take interest in large-scale subdivision projects in the Shasta and Scott Valleys, no applications have been submitted in either area (DePree, 2007). In the Program Area, the Siskiyou County Plan contains development restrictions, which prevent subdivision of prime agricultural lands (see Local Regulations, below). Minimum parcel size for prime agricultural lands is limited to 80 acres, while minimum parcel size for non-prime agricultural lands is 40 acres. In addition, one-third of the land base in the Scott River watershed is federally-owned, which reduces the available developable lands in the area (DePree, 2007).

Scott River Watershed

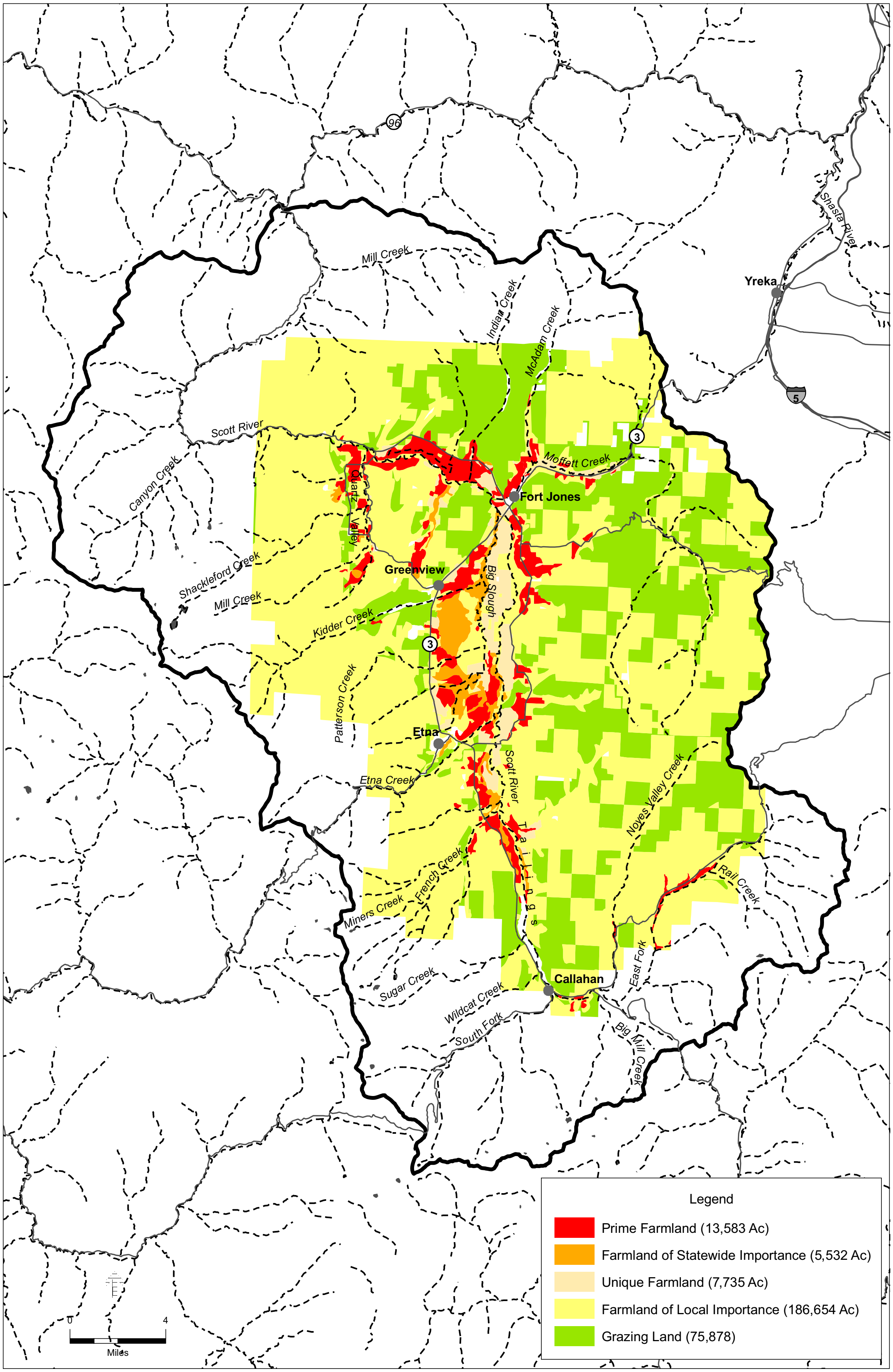
Important Farmland in the Scott River Watershed

Agricultural production within the Scott River Watershed is generally similar to that in the Shasta Valley and Siskiyou County as a whole, except that there is larger proportion of farmers growing irrigated alfalfa for commercial sale. The primary irrigated crops cultivated within the Scott Valley are alfalfa, pasture and small grains. Most of the hay production is sold and transported as feed for users outside Siskiyou County (SRWC, 2006). **Figure 3.1-3** shows the distribution of FMMP-classified "Important Farmlands" in the Scott River Watershed. **Table 3.1-4** shows the acres of agricultural land within Scott River watershed.

TABLE 3.1-4
CURRENT COMPOSITION OF IMPORTANT FARMLAND IN THE SCOTT RIVER WATERSHED

Land Use Category	Total Acres
Prime Farmland	13,583
Farmland of Statewide Importance	5,532
Unique Farmland	7,735
Farmland of Local importance	186,654
Important Farmland Subtotal	**213,504**
Grazing Land	75,878
Agricultural Land Subtotal	**289,382**

SOURCE: California DOC (2003)



SOURCE: California Department of Conservation, 2003

Figure 3.1-3
Composition of Important Farmland in the Scott River Watershed

Williamson Act Farmland in the Scott River Watershed

Williamson Act contracts are a tool used by local governments in California to preserve agricultural and open space lands by discouraging premature and unnecessary conversion to urban uses. The Act creates an arrangement whereby private landowners contract with counties and cities to voluntarily restrict land to agricultural and open space uses. Under the Williamson Act, an agricultural preserve must consist of no less than 100 acres, and any development on the property must be related to the primary use of the land for agricultural purposes and be in compliance with local uniform rules or ordinances.[11] Williamson Act contracts are estimated to save agricultural landowners from 20 to 75 percent in property tax liability each year. Within the Program Area (see **Figure 3.1-4**), there are two categories of farmland under contract: Prime and Non-Prime (see **Table 3.1-5**).

TABLE 3.1-5
FARMLAND UNDER WILLIAMSON ACT CONTRACT IN THE SCOTT RIVER WATERSHED

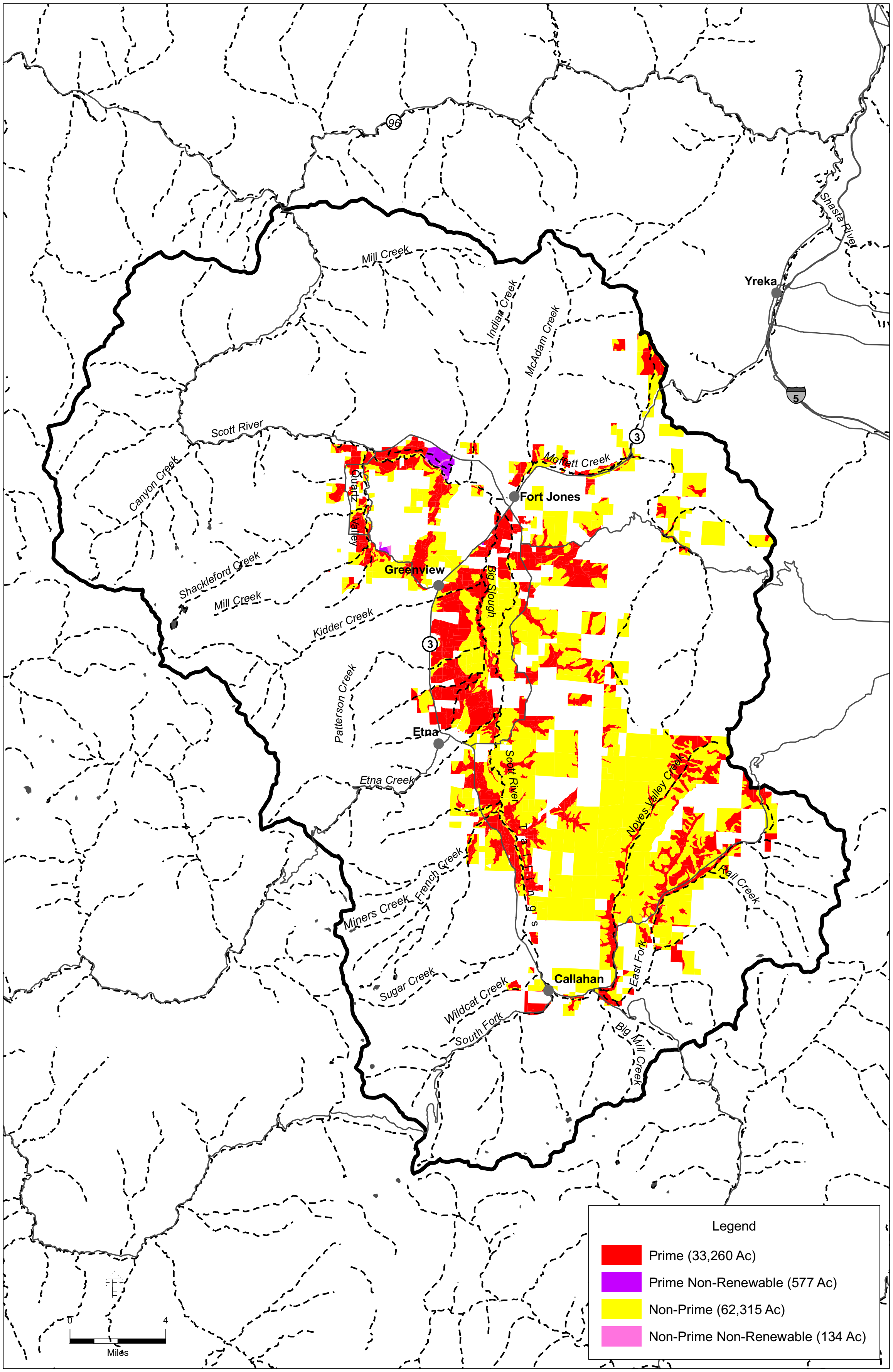
	Applicable Farmland Category			
	Prime	Prime Non-Renewal	Non-Prime	Non-Prime Non-Renewal
Total Acres Inventoried	33,260	577	62,315	134
		Total Acreage Under Contract		96,286
		Lost Acreage at end of 9-Year Contract		711

SOURCE: California DOC (2004)

> **Prime Williamson Act Farmland** is classified as land which is enrolled under California Land Conservation Act contract and meets any of several productivity criteria (as set forth in Government Code, § 51201).[12]
>
> **Non-Prime Williamson Act Farmland** is classified as land which is enrolled under California Land Conservation Act contract and does not meet any of the criteria for classification as Prime Agricultural Land. Non-Prime Land is defined as Open Space Land of Statewide Significance under the California Open Space Subvention Act (see Government Code, § 16143), and may be identified as such in other documents. Most Non-Prime Land is in agricultural uses such as grazing or non-irrigated crops. However, Non-Prime Land may also include other open space uses which are compatible with agriculture and consistent with local general plans.

The vehicle for the Williamson Act agreements is a rolling-term, 10-year contract (i.e., unless either party files a "notice of nonrenewal," the contract is automatically renewed annually for an additional year). In return, restricted parcels are assessed for property tax purposes at a rate consistent with their actual use, rather than potential market value (DOC, 2006). If a "notice of

[11] Two or more parcels may be combined if they are contiguous or in common ownership.
[12] The FMMP and Williamson Act definitions of prime farmland differ. In summary, Williamson Act relates to enrollment and productivity criteria. FMMP pertains to soil characteristics. Williamson Act shows 33,260 acres as Prime, while the FMMP map shows 13,583 acres.



SOURCE: California Department of Conservation, 2004

Figure 3.1-4
Farmland Under Williamson Act Contract in the Scott River Watershed

nonrenewal" is filed by a landowner, a 9-year nonrenewal period commences. Over this period of time, the annual tax assessment gradually increases. At the end of the 9-year nonrenewal period, the contract is terminated. Currently less than one percent of the 96,287 acres under Williamson Act contracts in the Scott River watershed has a notice of nonrenewal filed.

Only the landowner can petition to cancel a Williamson Act contract. To approve a tentative contract cancellation, a county or city must make specific findings that are supported by substantial evidence. The existence of an opportunity for another use of the property is not sufficient reason for cancellation. In addition, the uneconomic character of an existing agricultural use shall not, by itself, be a sufficient reason to cancel a contract (DOC, 2004). If approved, the landowner must pay a cancellation fee equal to 12.5 percent of the unrestricted, current fair market valuation of the property. Legislation from 2004 (A.B. 1492) also allows a local government to levy a monetary penalty for a material breach of contract.[13] These cancellation stipulations serve as barriers to converting agricultural land to non-agricultural usage.

Irrigation in the Scott River Watershed

A 1953 estimate of irrigated acreage showed approximately 15,000 acres irrigated by surface water, 15,000 acres by natural sub-irrigation, and 370 acres by wells, for a total of 30,370 irrigated acres (Mack, 1958). Based on periodic land use surveys, the amount of irrigated farmland in the valley has not changed significantly since 1958 (DWR, 2006). However, the amount of acreage by crop has changed, with grains decreasing from over 3,570 acres in 1958 to less than 2,000 acres in 1991, and alfalfa increasing from approximately 10,000 acres to 14,000 acres in the same period (**Table 3.1-6**). Nearly all grain production is grown as part of the alfalfa-hay production rotation (SQRCD, 2005). Pasture acreage has fluctuated over the years, but is approximately the same today as it was during the 1950s. As shown in **Table 3.1-6**, irrigated pasture accounts for a little more than half of the irrigated agricultural acreage within the Scott River Watershed in the year 2000.

TABLE 3.1-6
IRRIGATED AGRICULTURAL ACREAGE – SCOTT RIVER WATERSHED, 1958 – 2000

Crop	1958	1968	1978	1991	2000
Grain	3,570	5,027	3,681	1,757	2,040
Alfalfa	9,850	9,032	10,405	14,313	13,520
Pasture	16,000	19,292	15,971	16,070	17,049
Other	2,803	444	1,607	303	422
Total	**32,223**	**33,795**	**31,664**	**32,443**	**33,031**

SOURCE: DWR (2006)

[13] Government Code, § 51250(b) defines a material breach on land subject to a Williamson Act contract as a commercial, industrial or residential building(s) exceeding 2,500 square feet that is not permissible under the Williamson Act, contract, local uniform rules or ordinances. A.B. 1492 only applies to structure(s) that have been permitted and constructed after January 1, 2004. Under A.B. 1492, up to 25 percent of the unrestricted fair market value of land rendered incompatible by the breach, plus 25 percent of the value of any incompatible building and related improvements on the contracted land.

Livestock production also occurs within Scott Valley with dryland and rangeland pasture grazing occurring on the steeper and lower quality hillside farmland. The mountain meadows in the Scott, Trinity Alps, Salmon, and Marble ranges are used for summer grazing under U.S. Forest Service leases. DWR also maintains a County-wide GIS database which quantifies crop production by irrigation method and water source. In 2000, alfalfa was almost exclusively produced by sprinkler irrigation, including center pivot, hand move (big gun), and side roll (wheel line), while pasture grasses were typically flood irrigated (**Table 3.1-7**). With respect to water sources, the majority of alfalfa was irrigated by groundwater, while pasture grasses were primarily irrigated by surface diversions. This information is relevant in understanding where future efficiency improvements may be made (see **Figure 3.1-5**). The data also clarifies what areas in the Scott Valley are using groundwater versus surface water diversion (see **Figure 3.1-6**).

TABLE 3.1-7
CROP ACREAGES BY IRRIGATION METHOD AND WATER SOURCE – SCOTT RIVER WATERSHED (2000)

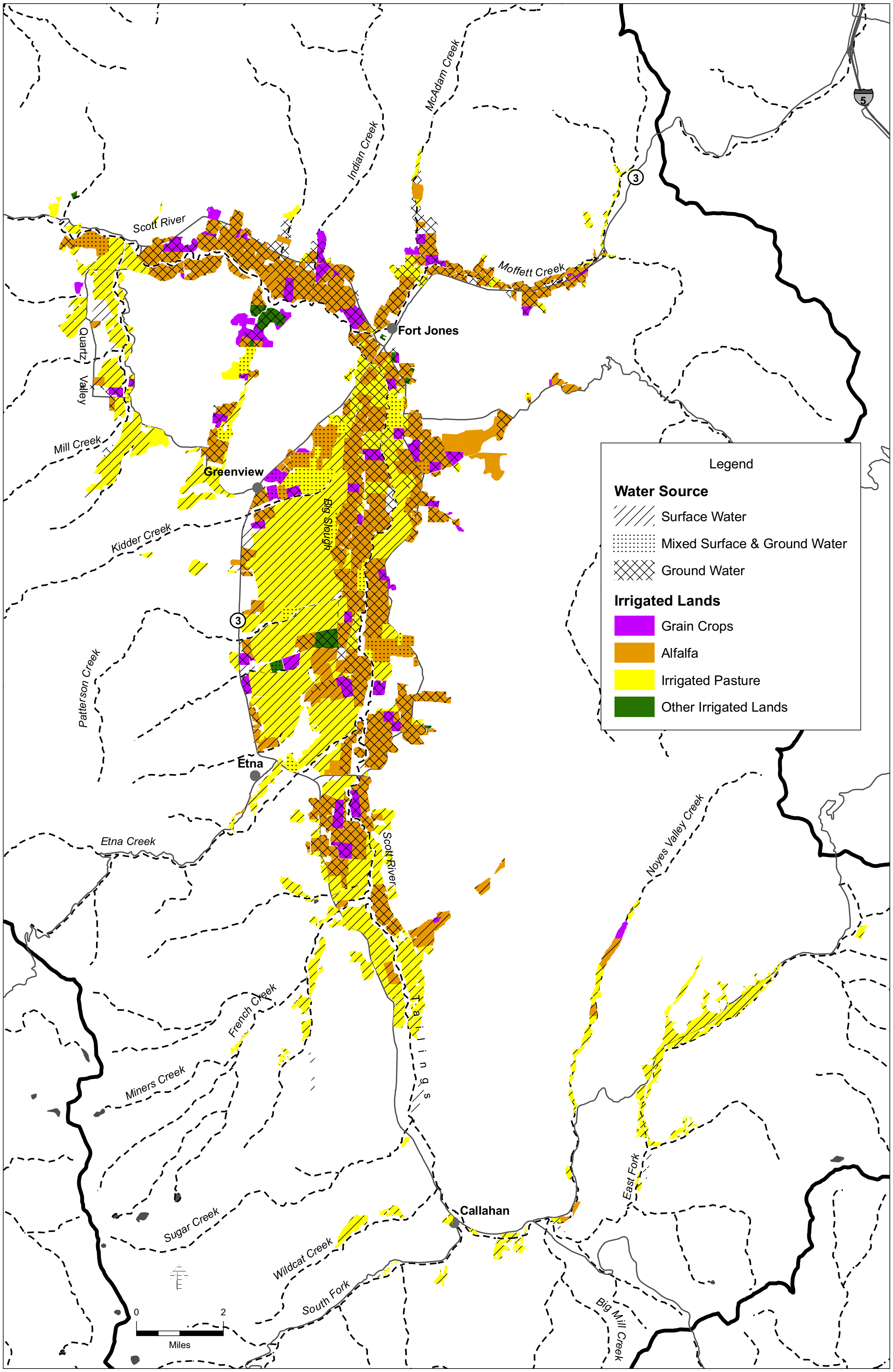
		Irrigation Method		Irrigation Water Source		
Crop	**Total Irrigated Acreage**	**Acreage by Flood Irrigation**	**Acreage by Sprinkler Irrigation**	**Acreage by Groundwater Irrigation**	**Acreage By Surface Water Diversion**	**Acreage By Surface and Groundwater**
Grain	2040	22	2018	1,816	102	122
Alfalfa	13,520	0	13,520	11,147	1,426	947
Pasture	17,050	14,449	2,601	1,405	14,562	1,082
Other	422	373	49	370	10	42
Total	**33,032**	**14,844**	**18,188**	**14,738**	**16,100**	**2,193**

Note: DWR database differs from UC Farm Advisor information. Orloff notes that there is at least one large field near Etna that is surface irrigated (Orloff, 2007).

SOURCE: DWR (2006)

Since the 1950s there has been greater use of groundwater within the Scott Valley for on-farm irrigation. As profitability margins have shrunk for agricultural enterprises over time, farmers have incorporated a third cutting cycle for alfalfa (Black, 2007). Limited surface water availability, particularly in the latter part of the growing season, has encouraged landowners to develop groundwater wells on their properties for irrigation purposes. While specific operating conditions vary between individual farms, most of the wells are approximately 80 to 130 feet in depth and have been in operation for many years (Smith, 2007).

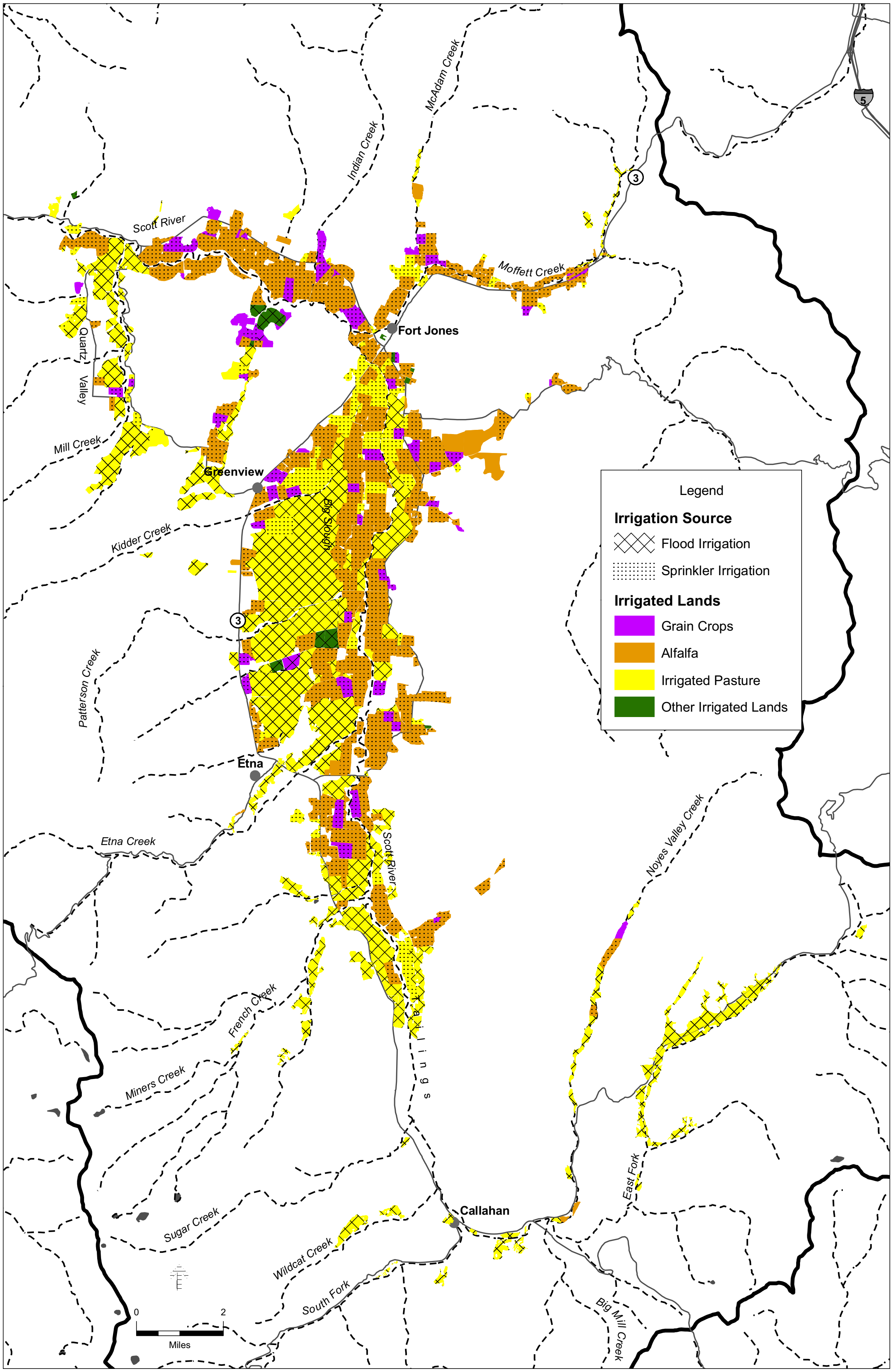
As shown in **Table 3.1-8**, surface water irrigation comprises nearly half of the irrigation water used. Groundwater use within Scott Valley is about the same, at 45 percent of the total. Conjunctive water use combining surface and groundwater sources adds an estimated additional 4,550 acre-feet of water supply per year.



SOURCE: California Department of Fish and Game, 2007

Scott River Watershed-Wide Permitting Program . 206063

Figure 3.1-5
Water Source for Irrigated Crop Lands in the Scott River Watershed



SOURCE: California Department of Fish and Game, 2007

Scott River Watershed-Wide Permitting Program . 206063

Figure 3.1-6
Irrigation Method for Irrigated Crop Lands in the Scott River Watershed

TABLE 3.1-8
AGRICULTURAL WATER USE – SCOTT RIVER WATERSHED (2000)

Water Type	Quantity (Acre-Feet)	Percentage
Surface Water	31,200	48 percent
Groundwater	29,250	45 percent
Conjunctive Use	4,550	7 percent
Total	**65,000**	**100 percent**

SOURCE: Naman (2005), SQRCD (2004)

Annual on-site stock-water use by livestock (i.e., consumptive use) within the Scott Valley is estimated to be 504 acre-feet per year based on an estimated maximum of 30,000 head of livestock within the watershed using on average 15 gallons of water a day (SQRCD, 2004); however, the actual volume of surface water diverted for stock-water use may be much greater than this amount, as some Agricultural Operators may need to divert greater flow volumes to deliver water from the point of diversion to the point of use to accommodate for carriage loss due to varying delivery efficiencies (Black, 2008).

Recent studies by University of California Cooperative Extension (UCCE) researchers demonstrate that there is significant potential for water conservation in irrigated pastures and to a lesser degree in alfalfa fields (Orloff, 1998, 2005). Large-scale field trials were conducted in the Intermountain Region and Sacramento Valley in 2003 through 2005 (for alfalfa only) and in the neighboring Scott Valley in 1995 and 1996 (for both alfalfa and irrigated pasture) to evaluate the effects of early curtailment of irrigation[14] (deficit irrigation) on yield, forage quality, stand persistence, and economics. The 1998 study concluded that irrigation of both alfalfa fields and irrigated pasture in the Scott Valley can cease prior to the end of September with minimal or no effect on production for the soil types studied; nor did irrigation cut-off prior to the end of September adversely affect the following year’s production. Other findings were that spring and early summer alfalfa cuttings are often higher in yield and forage quality than mid-summer cuttings, and that yield per cutting normally trails off in the fall as temperature and day length decline (Orloff, 2005). It was also found that irrigation after the final alfalfa cutting was not necessary at the alfalfa sites studied (Orloff, 1998), but this finding may depend on soil type and the final cutting date (Orloff, 2007).

UCCE researchers also found that, in some cases, substantial water conservation on irrigated pasture as well as alfalfa could be achieved through careful monitoring of soil moisture and irrigating only when necessary, thus reducing the amount applied based on agronomic need (Orloff, 1998; Orloff, 2005).

[14] Early curtailment of irrigation occurs when an irrigator ceases to irrigate land prior to the end of the “irrigation season”.

Regional Land Use Setting

The Scott River watershed, an 812 square mile area, is part of the Klamath Mountain Province, which encompasses land in both Southern Oregon and Northern California. The Scott River watershed is located entirely within Siskiyou County, in the north central part of California. The Scott Valley is flanked on the west, northwest, and southwest by high mountains, including the Marble Mountains, Scott Bar Mountains, Scott Mountains, and Salmon Mountains, all of which have peaks above 8,000 feet. To the east are lower hills collectively known as the Mineral Range. The floor of the Scott Valley covers nearly 60,000 acres. There are two incorporated towns in the Valley: Etna (population 781) and Fort Jones (population 660) both of which have commercial areas and numerous residences (US Census, 2006); smaller communities are Callahan and Greenview. Quartz Valley is near the north end of the Scott Valley, and includes the Quartz Valley Indian Reservation, home to members of the Klamath, Karuk, and Shasta Tribes. The mainstem Scott (approximately 53 percent of the watershed acreage) is predominantly surrounded by farm and rangeland. Upland sub-basins are predominantly privately and federally owned timberlands with approximately 32 percent federally owned (WMC, 1997). State Highway 3 is the main transportation route through the Scott River watershed.

Historic Land Use

Four tribes – including the Iruaitsu band of Shasta – originally occupied the Scott Valley, Shasta Valley, and Klamath River region (Renfro, 1992). Trappers working for the Hudson's Bay Company entered the area in 1826. In the following decades, trails were developed through the Siskiyou County area for cattle drives and general access between the Sacramento Valley and Oregon. During the time of the Gold Rush, these trails were improved into roads and within a matter of months mining camps were developed along the Scott River and neighboring Shasta and Klamath Rivers (Siskiyou County, 1980). Mining activities have occurred throughout the Scott Valley including hydraulic and sluice mining on the South Fork, Quartz Valley, Oro Fino Creek, north Patterson Creek, and lower Scott in the 1880s, and gold excavation using Yuba dredges in the upper Scott below Callahan, Wildcat Creek, and McAdams Creek from 1934 to 1951 (SRWC, 2005). Since 1950, small-scale gold mining has continued to occur in the lower Scott near Scott Bar. Sand and gravel mining in the mainstem Scott and Kidder Creek has also continued at varying intensities over the years (SRWC, 2005).

In the decades following the Gold Rush, settlers, farmers and ranchers, arrived in the Siskiyou County region and actively cultivated the Valley and surrounding hills. Hay cutting and cattle grazing in the Scott Valley supported the increasing numbers of miners in the Scott watershed. Stock was brought to the mountains for summer grazing and dairies were developed in the Greenview area. Farmers tested various crops and settled on alfalfa hay, grain, and pasture as the primary production crops (SRWC, 2005).

Timber was used in the Scott Valley for both mining and construction; logging was prominent near Scott Bar during its peak mining years, and likely around Quartz Valley and other valley mining areas as well (Klamath National Forest, 1994). In 1880, 11 sawmills supported production of 3.5 million board feet per year. In 1953, 13 mills in the valley were producing 75 million board-feet per year (Mack, 1958). However, timber harvest levels have diminished within the last 10-20 years due to changes in forest management policies (SRWC, 2005). Additional regional history information pertaining to historic land uses can be found in Chapter 3.5, Cultural Resources.

Current Land Use

The Scott River drainage is bordered to the west, southwest and northwest by 7,000- to 8,000-foot elevation mountain ranges: the Marble Mountains, Salmon Mountains, Trinity Alps and Scott Bar Mountains, which are all devoid of almost any development; much of the higher land is within federally-designated wilderness areas. The primary land use on the valley floor is agriculture, with some development within and around towns and unincorporated communities. Local agriculture includes pasture, alfalfa, and grain, with limited fruit, vegetable and herb crops. Livestock production also occurs with dryland and rangeland pasture grazing on the steeper and lower quality farmland hillsides. Cattle are raised primarily for meat, although there are some active dairy operations in the valley (SRWC, 2005). The uplands are primarily forested lands that provide wildlife habitat as well as timber and recreation. Public lands also provide an important summer range for local cattle ranchers (Klamath National Forest, 1994).

3.1.2 Regulatory Setting

Local Regulations

The Program Area falls under the sole land use jurisdiction of Siskiyou County. The cities of Fort Jones and Etna, and the towns of Greenview and Callahan are not participants in the Program because under the Program only SQRCD will be implementing coho salmon (*Oncorhynchus kisutch*) restoration projects. Furthermore, because towns do not divert water for agricultural purposes, they also would not be participating as Agricultural Operators in the Program.

Siskiyou County General Plan

The Siskiyou County General Plan is the County's long-range planning document and consists of 11 elements: land use, circulation, housing, open space, conservation, safety, noise, energy, geothermal, scenic highway, and seismic. The General Plan Land Use Element was most recently adopted in 1980 and the Conservation Element was adopted in 1973.

The primary goal of the Land Use/Circulation Element of the Siskiyou County General Plan is to allow the physical environment to determine the appropriate future land use pattern that will develop in Siskiyou County. Its focus is for future development to occur in areas that are easiest to develop without entailing great public service costs, that have the least negative environmental effect, and that do not displace or endanger the County's critical natural resources (Siskiyou County, 1980).

The technique used for the development of the Land Use Element involved preparation of a series of overlay maps identifying development constraint areas. Constraints take the form of both natural, physical barriers or problems and those culturally imposed on the basis of resource protection. The combination of overlay maps provides a visual display of tones representing physical constraints in a particular geographic area in terms of the perceived effect of urban development. In identifying an absence of physical constraints, it also indicates where urban development may proceed without encountering known physical problems (Siskiyou County, 1980).

The Land Use Element has a number of objectives and policies that pertain to prime agricultural lands, including the following, which are applicable to the Program:

> *Policy 35.* The minimum parcel size on prime agricultural land shall be 40 acres. The permitted density will not create erosion or sedimentation problems.[15]
>
> *Policy 36.* In commercial agricultural areas mapped as prime agricultural land but proven not to be prime agricultural land or land clearly committed to urbanization, but not within a city or service district sphere of influence, the minimum parcel size shall be 10-20 acres, depending on distance from major agricultural areas. The permitted density will not create erosion or sedimentation problems. A minimum parcel size of 20 acres is required in areas that are adjacent or in close proximity to major commercial agricultural operations.
>
> *Policy 37.* Only agricultural uses are permitted on prime agricultural land.
>
> *Policy 38.* In commercial agricultural areas mapped as prime agricultural land but proven not to be prime agricultural land, single family residential, light commercial, light industrial, open space, non-profit and non-organization in nature, recreational uses, commercial/recreational uses and public or quasi- public uses may be permitted. The permitted density will not create erosion or sedimentation problems.
>
> *Policy 39.* Proof that the mapped prime agricultural soils are in fact not prime can only be accomplished by providing the following information:
>
> A. A soils test prepared by a California Certified Soil Scientist;
>
> B. Well logs that specifically demonstrate there is not enough water available for irrigation purposes;
>
> C. A letter from the applicable irrigation district stating that they will not and cannot provide water;
>
> D. Any other factual, documented information that the area is not and has not been capable of supplying enough water for irrigation;
>
> E. If an on-site inspection by the Planning Department reveals that the land is not prime agricultural land due to, for example, obvious mapping errors, the data itemized in A, B, C and D above may not be required,; or
>
> F. Past financial records or statements that the agricultural operation is not economically feasible are not in any way considered to be adequate proof that the land is not prime.

[15] The Covered Activities of this Program that meet the General Plan designation are evaluated in Chapter 3.2, Geomorphology, Hydrology and Water Quality, for potential erosion and sedimentation impacts.

> *Policy 40*. All development proposals within an irrigation district shall conform to all rules, regulations, and policies of the applicable irrigation district. The intent of this policy is not to permit district regulation of land use or density – it is intended to prohibit any interference of the district's functions, such as keeping checks and irrigation ditches free and clear of any disturbances.

The General Plan Conservation Element recognizes that prime soil is a "land resource [that is] not…readily renewable…and must be protected for its present and future value to the people of the county and state." The General Plan further states that "...safeguarding of agricultural lands is as essential as the protection afforded other types of land use." The following Conservation Element objective related to agricultural resources would be applicable to the Program:

> Preserve and protect the prime and productive agricultural lands and the agricultural economy of Siskiyou County.

Scott Valley Area Plan

The Program Area also falls under the auspices of the Scott Valley Area Plan (Plan). This is an overarching land use plan for the Scott Valley prepared by a citizens committee appointed by the Siskiyou County Board of Supervisors. The Plan, approved by advisory vote in November 1980, sets development policies that guide and specify where future growth in the watershed will be located. While some of the policies are verbatim from the General Plan, the Plan does establish stricter development policies for prime agricultural land. The primary objectives of these policies are: 1) to only allow land uses that will be compatible with the watershed's primary economy; and 2) to not permit a density that will destroy the land base critical to the agricultural economy (Siskiyou County, 1980). Plan policies (that differ from the General Plan) are as follows:

- Only agricultural and public uses may be permitted on prime agricultural soils;
- The minimum parcel size that is permitted to be created on prime agricultural land is 80 acres;
- On lands mapped as prime agricultural land, but proven not to be prime agricultural land, the minimum parcel size shall be 40 acres. The intent of this policy is to allow a higher density on land that is not capable of being as productive for agriculture as prime agricultural land and at the same time retaining a density in agricultural areas that is compatible with agricultural interests.

Siskiyou County Land Development Manual

In July 2006, Siskiyou County released a public review draft of their Land Development Manual, Improvement Standards and Specifications (Siskiyou County, 2006). The document states the improvement standards and specification "are for the purpose of adopting minimum standards for the development of land in Siskiyou County to protect public health and safety, and to minimize or avoid environmental consequences. They include: design of improvements; type and use of materials; methods of and the preparation of plans for construction; and repair or alteration of roadways, alleys, concrete structures, drainage, sewerage, and water supply facilities." The document also states, "[I]t is not the intent of this manual to apply to agricultural uses that are permitted by right in the agricultural zoning classifications (e.g. plowing of fields and other uses incidental to agricultural operations)."

3.1.3 Impacts and Mitigation Measures

Significance Criteria

For the purpose of this Draft Environmental Impact Report (EIR), and consistent with Appendix G of the California Environmental Quality Act (CEQA) *Guidelines* and California Government Code, § 53091 *et seq*., in the context of Land Use and Agriculture, the Program would have a significant impact if it would be incompatible with existing land uses in the Program vicinity or if it would:

- Physically divide an established community;
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Program (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; and/or
- Conflict with any applicable habitat conservation plan or natural community conservation plan.

As proposed, the Program would be compatible with existing land uses and would not disrupt or divide an established community because it does not cover or otherwise apply to existing or new structures and all Covered Activities are within the realm of typical agricultural operations and restoration and monitoring practices within the existing agricultural landscape. For similar reasons, the Program would not conflict with any applicable land use plan, policy or regulation because the activities will take place on lands designated for agricultural purposes. Given that there are no applicable habitat conservation plans or natural community conservation plans in the Scott River watershed, this criterion is not applicable.

The Program would also have a significant impact if it would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use;
- Conflict with existing zoning for agricultural use or a Williamson Act contract;
- Involve other changes that could result in conversion of farmland to nonagricultural use.

Impact Analysis

Impact 3.1-1: The Program could result in the conversion of agricultural land within the Scott River watershed to non-agricultural uses (Less than Significant).

Under the terms of the Incidental Take Permit (ITP) (Article XIII.E.1.d), Agricultural Operators who are issued sub-permits will be responsible for costs incurred to implement avoidance or minimization measures required under their sub-permits, and SQRCD will be responsible for any costs incurred to implement mitigation and monitoring measures required under the ITP. Avoidance and minimization measures that may result in costs to sub-permittees include installation and maintenance of fish screens, riparian fencing, and bioengineered bank stabilization; improvements to water diversion structures, reductions in irrigation tailwater, and the implementation of other water efficiency and water management improvement measures required under Article XIII.E.2 of the ITP. Increased costs for Agricultural Operators could result in reduced net income for agricultural operations.

While such a reduction in income would constitute an economic impact on Agricultural Operators, it would not in itself constitute a significant effect on the environment for which mitigation would be required to reduce or avoid that effect. Under CEQA, a "significant effect" is limited to adverse changes in *physical* conditions within the area the project affects. However, the reductions in income that could result from participating in the Program could indirectly result in adverse changes to the existing physical conditions in the Program Area. Specifically, a reduction in the financial viability of existing agricultural operations in the Program Area could lead to increased pressure to convert agricultural land to non-agricultural uses. However, whether this would occur and, if so, the number of instances in which this would occur and what the resulting non-agricultural uses would be are speculative. Nonetheless, it is unlikely that the Program would reduce the financial viability of existing agricultural operations to such a level that agricultural lands would be converted to non-agricultural uses for the reasons discussed below.

The Program will Reduce the Costs of Compliance with Fish and Game Code, § 1600 *et seq.* and CESA. Because coho salmon in the Program Area are now listed as a threatened species under CESA, some routine agricultural activities may require incidental take authorization from CDFG in order to comply with CESA. The Program provides an option for Agricultural Operators who want to obtain authorization for take of coho salmon that might occur during the performance of routine agricultural activities, including, for example, the diversion of water. The Program provides Agricultural Operators a means to comply with CESA by obtaining a sub-permit and to comply with Fish and Game Code, § 1600 *et seq.* by obtaining a SAA, at much less expense and in much less time when compared to obtaining incidental take authorization or a SAA through the standard, or individual, permit processes, thereby reducing Agricultural Operators' regulatory compliance costs. However, SQRCD will require a permit fee from Agricultural Operators participating in the Program to offset Program administrative and monitoring costs, which will result in some financial burden on Agricultural Operators.

Water Trust. The ITP proposed under the Program would require SQRCD to establish the Scott River Water Trust for acquisition of water (through purchase or lease) that would otherwise be diverted for agricultural use (ITP Article XIII.E.2(a)(i)). Water obtained through the Water Trust would be left instream to benefit fish and other aquatic species. The Water Trust will provide a market mechanism for Agricultural Operators who voluntarily reduce their surface water diversions to be compensated for at least a portion of any reduced income or increased cost that might result from participating in the Program.

Cost Reductions through Water Efficiency Measures. The ITP proposed under the Program would require SQRCD to improve existing instream flows within critical reaches of the Scott River and its tributaries and at critical life stages of coho salmon by installing water efficiency improvement projects and water management improvement projects on sub-permittees' properties and by changing or adding points of diversion to keep flows instream to point of use (ITP Article XIII.E.2(a)(ii)). Efficiency measures would result in reduction of some costs, such as pumping costs, of some agricultural operations, while some measures, such as lining ditches, could allow a reduction in stream diversion volumes without affecting the extent and productivity of agricultural operations. As discussed in the Setting section above, research conducted by UCCE in the neighboring Shasta Valley demonstrates that water conservation can be achieved without loss of production on both irrigated pasture and alfalfa fields, through soil moisture monitoring to adjust irrigation to agronomic rates, and through early curtailment of irrigation (prior to the end of September). More widespread adoption of these water conservation methods by Agricultural Operators could result in decreased water use without decreased production, and cost savings could be achieved in some cases through reduced pumping costs and reduced labor costs. The UCCE is available as a technical resource to advise on practices that include early curtailment of irrigation for alfalfa fields and use of soil moisture monitors. Water efficiency projects could, however, require a substantial investment. The potential financial impact of water efficiency projects on an individual Agricultural Operator will likely be directly related to the extent to which they must contribute financially to their construction or installation, as discussed below, and the cost savings achieved.

Program Funding. Some of the activities and projects undertaken as part of the Program would be eligible for a variety of public and private financing programs, including grants, cost-shares, and private loans, which would offset some or all of the costs associated with participation in the Program. SQRCD and CDFG anticipate that funding will be available through CDFG and other agencies, including the Natural Resources Conservation Service (NRCS), which would reduce the financial burden of Program participation on Agricultural Operators.

Restrictions on Land Use Changes. Even if Agricultural Operators were to suffer a decline in the financial viability of their agricultural operations as a result of participation in the Program, specific and general restrictions on land use changes would serve as an obstacle to the conversion of agricultural land to non-agricultural uses. As discussed in the Setting section above, non-renewal of a Williamson Act contract is costly and cancellation is difficult. The Siskiyou County General Plan and the Scott Valley Area Plan both have stringent policies and mechanisms that discourage conversion of agricultural land to non-agricultural uses. Zoning and land use changes would be subject to CEQA review by the County. Such laws, regulations, and policies represent substantial hurdles to land use conversion.

The conversion of agricultural land within the Scott River Watershed to non-agricultural uses is an important concern to many parties. This Program was designed by SQRCD and CDFG with extensive consideration to alleviating costs associated with incidental take authorization and Fish and Game Code, § 1602 requirements, and includes as a SQRCD objective assisting

Agricultural Operators participating in the Program in meeting the requirements of CESA and Fish and Game Code, §1602.

Provided that adequate Program funding is available through grants and other cost-sharing programs, it is likely the Program will result in minimal net cost to participating Agricultural Operators. Furthermore, it is expected that Program participation will provide security in the form of incidental take authorization and SAAs that will reduce the major financial risk facing those agricultural operations that otherwise may face liability for future enforcement and compliance requirements. Given that Agricultural Operators will have to comply with CESA and Fish and Game Code, § 1602 with or without the Program, and the reduced cost and other benefits associated with participating in the Program, the potential for the Program to result in conversion of agricultural land is considered less than significant.

Based on the above, while it is conceivable that the Program could indirectly result in the conversion of agricultural land in the Program Area to non-agricultural uses that would not occur if the Program were not implemented, the expected level of such change is less than significant. No mitigation measures required.

Mitigation Measures

This potential impact was determined to be less than significant. No mitigation measures required.

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CHAPTER 3.2

Geomorphology, Hydrology, and Water Quality

This Chapter discusses the existing environment of the Scott River watershed (Program Area); identifies potential impact on geomorphology, hydrology, and water quality in the Scott Valley related to the Scott River Watershed-wide Permitting Program (Program); and proposes mitigation measures for those impacts determined to be significant. Information on the environmental setting in this Chapter was compiled from: field reconnaissance of the Scott River watershed (Program Area); review of various reports and studies provided by the California Department of Fish and Game (CDFG) and the Siskiyou Resource Conservation District (SQRCD); peer-reviewed scientific literature; and federal and state resource agency websites, databases, and reports.

3.2.1 Environmental Setting

Regional Setting – The Klamath River Basin

The Scott River is a sizeable tributary within the larger Klamath River basin. The Klamath River originates in south-central Oregon, east of the Cascade Mountain Range. The 263-mile river flows in a general southwesterly direction through Oregon into California. In California, the Klamath River continues flowing southwesterly before turning northwesterly near its confluence with the Trinity River and continuing to the Pacific Ocean. The Klamath River drains about 15,600 square miles (of which 3,600 square miles are considered non-contributing) in California and Oregon, and is California's second largest river system (Ayres and Associates, 1999; CDFG 2002a in CDFG, 2004).

Much of the natural flow in the Klamath River basin is regulated. Four hydroelectric facilities and two other diversion and regulation dams on the mainstem system, as well as numerous public and private water diversion projects, regulate and alter the flow of the river. In the upper Klamath River basin (upstream of Keno Reservoir), a large volume of water is stored and then diverted for agricultural purposes during the spring-summer growing season by private diverters and the U.S. Bureau of Reclamation's (USBR) Klamath Project (CDFG, 2004). The Klamath Project impounds water at Upper Klamath Lake. Substantial water diversion and water use also occur in other areas of the Klamath River basin. Department of Water Resources (DWR) estimated that current annual agricultural water use in the Program Area totals 71,800 acre-feet (DWR, 1997 in CDFG, 2004). In comparison, average annual irrigation and urban water use above Keno Dam in Oregon totals 503,700 acre-feet (DWR, 1997 in CDFG, 2004).

Scott River Watershed

The Program Area comprises the entire Scott River watershed, which is located in Siskiyou County in central-northern California. The Program Area lies within the Klamath Mountains geomorphic province and it is approximately 812 square miles in extent. Geomorphic provinces are naturally defined geologic regions that display a distinct landscape or landform; eleven provinces are distinguished in California (CGS, 2002) with each region displaying unique, defining features based on geology, faults, topographic relief and climate. Though within a single province, the Scott River watershed is a large area with substantial variation in geology, geomorphology, and climatology (SRWC, 2006).

The Scott River is one of four major tributaries of the Klamath River, entering the Klamath at River Mile (RM) 143 and at an elevation of 1,580 feet above mean sea level (amsl). The Scott River is fed by a number of tributaries, many of which run dry or exhibit sub-surface flow conditions in the summer months. It is estimated that there are over 700 miles of streams within the basin (Deas and Tanaka, 2004). The (mainstem) Scott River is approximately 58 miles long and its primary tributaries and sub-basins include: the East Fork of the Scott River, the South Fork of the Scott River, Wildcat Creek, Sugar Creek, French Creek, Etna Creek, Patterson Creek, Kidder Creek (including Big Slough), Shackleford Creek (including Mill Creek), and Moffett Creek.

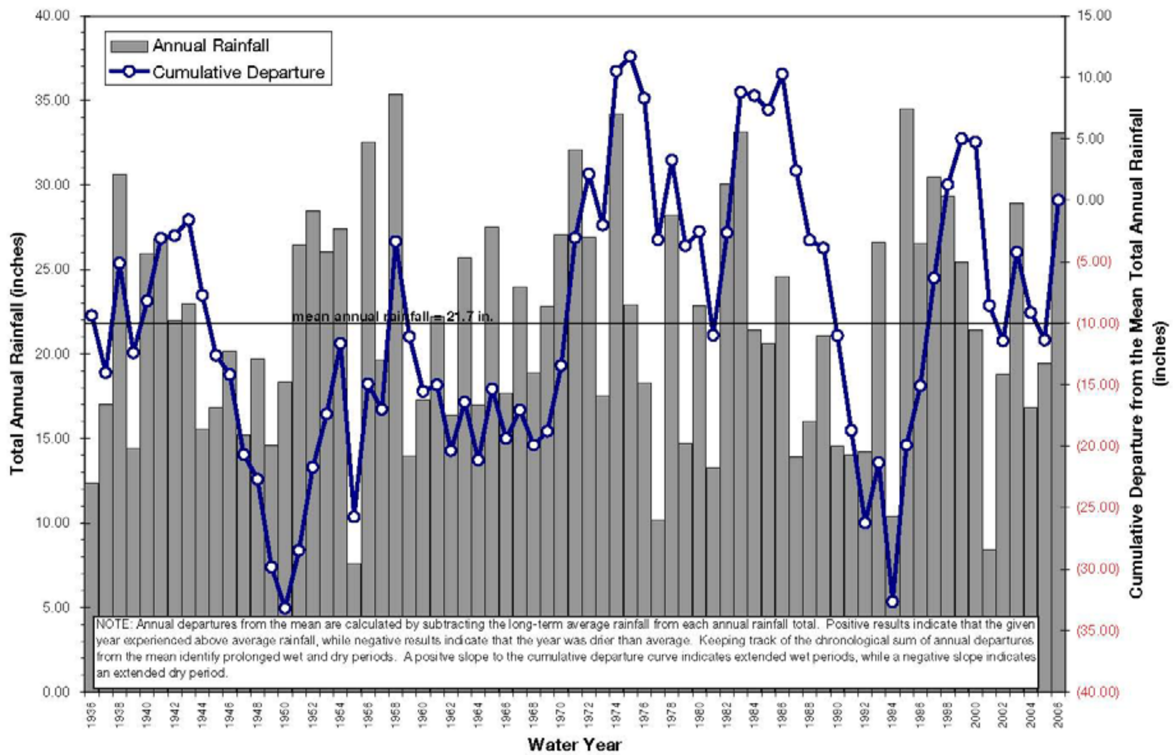
The headwaters of the East Fork of the Scott River rise on China Mountain, about 6.5 miles northeast of Callahan; the source of the South Fork of the Scott River lies in the mountain lakes about 4.5 miles southwest of Callahan. Below their confluence, the Scott River meanders through an open agricultural valley (the Scott Valley) and then descends into a canyon carved along the eastern edge of the Marble Mountains before reaching the Klamath River.

Climate and Precipitation

The Program Area is dominated by a Mediterranean climate characterized by warm, dry summers and cold, wet winters. Precipitation is mainly concentrated in the winter months and falls primarily as rainfall on the Valley floor, while significant snowfall occurs on the surrounding mountain ranges resulting in snowmelt runoff during the early spring months (Deas and Tanaka, 2006). Average annual precipitation for the entire area is about 36 inches, yet annual rainfall, snowfall, and temperature can vary widely from one year to the next and from one part of the watershed to another. The annual rainfall trend recorded at Fort Jones (WRCC, 2006) from water year[1] (WY) 1936 to 2006 is shown in **Figure 3.2-1**.

In large part, the orientation and topography of the Program Area control the influence of precipitation. Most of the precipitation in the Program Area falls on the west side, with snow prevailing above the 5,500 foot level during the winter (SRWC, 2006). The Program Area slopes north-northwestward, draining to the Klamath River. The Valley floor lies between altitudes of 2,700 and 3,000 feet amsl and the mountains to the west, south, southwest and northwest

[1] A Water Year begins on October 1 of the previous year and ends on September 30 of the designated Water Year. For example, Water Year 2004 comprises October 1, 2003 through September 30, 2004.



SOURCE: CDEC (2006); ESA

Scott River Watershed-Wide Permitting Program . D206063

Figure 3.2-1
Annual Precipitation at Fort Jones, CA
(Water Years 1936-2006)

(Marble, Salmon, Trinity Alps and the Scott Bar Mountains) rise noticeably higher than those to the east. From the edge of the Valley, the western mountains rise abruptly to 8,000 to 8,500 feet amsl. These ranges exert a strong orographic effect on incoming storms, which allows the higher elevation mountains (along the west and south), to receive 60 to 80 inches of precipitation annually. In contrast, the rain shadow effect of the mountains to the west reduces the amount of annual precipitation to 12 to 15 inches on the east side of the watershed (SRWC, 2006). About 75 to 80 percent of the precipitation occurs from October through March, with occasional thunderstorms during summer months.

Geology

The geology of the Program Area is a complex of several geologic terranes and many identified formations and rock types (Mack, 1958; USDA, 2000; North Coast Regional Water Quality Control Board (NCRWQCB), 2005). The geologic material and structure underlying various sub-watersheds of the Program Area is a primary factor in determining the nature and magnitude of geomorphic processes and sediment delivery under natural conditions, as well as sediment delivery in response to human activities. In regards to hillslope process and erosion rates, the various geologic bedrock lithologies can be aggregated into four similarly behaving units (NCRWQCB, 2005):

- Granitic Bedrock
- Mafic and Ultramafic Bedrock
- Sedimentary and Metamorphic Bedrock
- Quaternary Age Deposits (1.8 million years ago (Ma) to the present)

A significant portion of the Program Area (10.6 percent) is underlain by various types of granitic bedrock, exposed primarily in the mountains paralleling the west side of the Scott Valley. These bedrock types are largely confined to the western side of the watershed (Sommarstrom, et al., 1990). The suite of granitic rocks ranges in composition from granite to granodiorite (Mack, 1958), is generally fine grained, and weathers to noncohesive and highly erodible soil. Granitic soils produce sediment through a significantly different balance of processes than the other bedrock units. Where weathering is severe, the “decomposed” granitic soils are highly susceptible to dry ravel, rill and gully erosion, debris slides, and debris torrents (Kellogg, 1992). Soil erosion and fluvial transport in disturbed areas (e.g., burned landscapes) are the most common sediment transport and delivery processes in areas of decomposed granitic soils. In addition, disturbance of the surface or an increase in the degree of slope tends to accelerate these processes.

Mafic and ultramafic rocks occur in parts of the Marble Mountains in the northwest part of the watershed, in the Scott Mountains in the southeast, and in a disconnected belt that runs from the south part of the Scott River watershed to the northeast part (NCRWQCB, 2005). Mafic and ultramafic rocks typically consist of serpentine along with minor basalt, peridotite, and gabbro (Jennings, 1977) inclusions. Much of the area underlain by mafic and ultramafic rocks consists of steep mountains where the bedrock is locally sheared. These rocks weather to form soil that is finer-grained and more clay-rich than soil formed on granitic rocks; the result is a lower tendency toward dry ravel, sheetwash, and rillwash (because of its comparative cohesion). Some limited areas of sheared bedrock are vulnerable to landsliding (NCRWQCB, 2005).

Sedimentary and metamorphic bedrock, mostly of Mesozoic age (250 to 65 Ma), underlies more than half of the Program Area. The sedimentary rocks comprise many lithologies. The metamorphic rocks include amphibolite, greenschist, blueschist, and metavolcanics (including some Tertiary age [65 to 1.8 Ma] metavolcanics) (Wagner and Saucedo, 1987). Although these suites of sedimentary and metamorphic rocks vary in geomorphic expression and potential for sediment contribution, in general there is more in common between them in terms of soils formed, structural strength, and slope stability compared to the granitic or mafic rocks.

Quaternary sedimentary deposits consist of unconsolidated gravel, sand, and soil that make up the floor of the Scott Valley and the lower reaches of some tributary valleys, as well as the alluvial and colluvial deposits along the margins of the valleys. Alluvial and colluvial deposits are accumulations of sediment transported from upstream or upslope areas, respectively. Small areas within this unit include glacial deposits in the high valleys of the Scott Mountains and landslide deposits. Erosion processes are typically limited to minor mass wasting of colluvial deposits on steep side slopes or upland areas and fluvial processes (bank erosion and gullying) within valley bottom locations.

The western mountains rising from the Scott River Valley climb more steeply and to higher elevations than do the mountains east of the valley. Geologically recent, high rates of uplift have produced steep mountains that shed abundant sediment to the valley floor. Sediment deposited by streams emanating from the comparatively steep tributaries west of the mainstem Scott River valley has been built up into a series of distinct, steeply sloping coalescing alluvial fans (Mack, 1958). The western slope thus developed is in marked contrast to the more subdued topography characteristic of the Valley floor at the foot of the eastern mountains.

Generally speaking, soils within the Program Area have developed on floodplains, alluvial fans, and mountain slopes. Floodplain soils are very deep, nearly level to gently sloping, and poorly drained to somewhat poorly drained loams. They are formed from medium-textured to moderately fine-textured alluvium derived from mixed rock sources (USDA, 1983). Bank erosion is the most common natural process generating and delivering sediment in the floodplain of the mainstem Scott River and its low gradient tributaries.

Soils formed on alluvial fans are very deep, nearly level to strongly sloping, well drained, gravelly sandy loams and are found along the streams that drain into Scott Valley (USDA, 1983). They have formed in moderately coarse textured to medium textured alluvium derived from the mixed rock sources of their tributary source areas. Alluvial fans are depositional features that form at the base of low order, steep tributary streams that flow onto low gradient alluvial deposits of the mainstem and tributary valleys. Each of the main tributaries then emerges from the mountain front in broad alluvial fans that extend out into the main portion of the Scott River Valley.

Soils that develop on steep slopes of the surrounding Klamath Mountains range from very shallow to very deep and are well drained to excessively-drained with medium textured to moderately coarse textures. Upland soils are typically subject to erosional processes, and their susceptibility to erosion is highly correlated to bedrock composition. Soils developed on coherent metamorphic rocks of the lower watershed are more prone to mass wasting processes (USDA, 2000). In contrast, soils derived from granitic parent material in the western tributaries are noncohesive and usually highly erodible. About 56,900 acres of granitic soils are found in the Scott River watershed, mainly on the south and west sides of Scott Valley (Sommarstrom et al., 1990).

Sediment Supply

Watershed-wide soil erosion, mass wasting, and sediment delivery rates are influenced by climate (precipitation type, magnitude, and intensity), geologic materials, soil characteristics (depth and erodibility), and hillslope gradient. Landsliding is relatively common in the lower northwestern portion of the watershed and comparatively uncommon in eastern tributaries. Surface erosion and bank erosion are dominant erosional processes in areas of highly erodible granitic soils of the western and southwestern watershed. Landsliding occurs episodically in response to large storms and produces large volumes of sediment in single pulses. Intense storms with a return period of 10 to 20 years (or more) can produce huge increments of sediment in a matter of a few hours (USDA, 2000).

Steep mountain terrain that experiences periods of intense rainfall is subject to landsliding and surface erosion. Slope steepness is often correlated with landslide risk. The steepest slopes in the Program Area are predominately located along the western side of the watershed, with the steepest hillslopes in the northwestern part of the basin. The lower half of the Program Area is within the Western Paleozoic and Triassic belt of the Klamath Mountains province. This part of the watershed consists of steep and rugged terrain. The Scott River Canyon cuts through these mountains. Slopes with greater steepness generally have a higher frequency of mass wasting, and this is borne out by mapping of landslides visible on historic aerial photos (**Figure 3.2-2**) (NCRWQCB, 2005).

Granitic terrain of the western portions of the middle and upper watershed typically has fewer landslides than occur in the metamorphic rocks. This geomorphic terrane typically has few large landslide deposits, some small debris slides, and high rates of surface soil erosion. The bedrock geology of the lower watershed consists of metamorphic rocks that have been intruded by granitic and ultramafic rocks. Landslides become increasingly more common in the steeplands of the lower Scott River watershed (USDA, 2000).

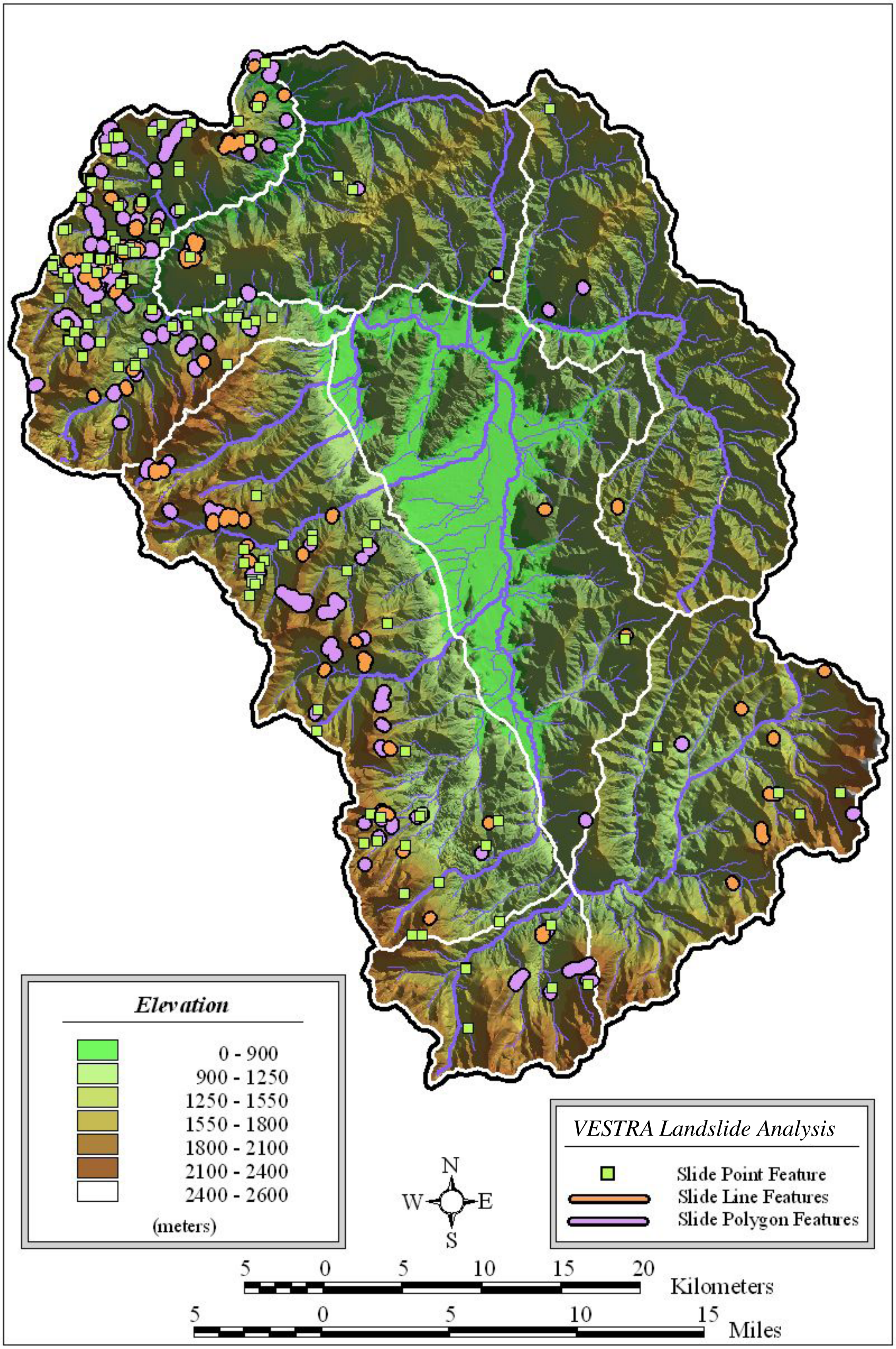
Most mass wasting consists of shallow debris slides and occasional debris flows that are triggered by intense rain or rain-on-snow storm events. Debris flows travel down steep tributary stream channels and have lasting effects on depositional zone channel morphology (SRWC, 2004). Slumps, earthflows, and large rotational slides are not important processes in Scott River granitics or elsewhere in granitic terrain (Megahan, 1974; Baldwin and De la Fuente, 1987; as cited in Sommarstrom et al., 1990). In spite of the occurrence of mass wasting, especially during large storm events, landslides are not a dominant source of sediment in the streams in most of the Scott River watershed (NCRWQCB, 2005).

In the eastern tributary watersheds (including Moffett Creek) fluvial erosion processes, including gullying and bank erosion, predominate (SHN, 2003). Steepland channels deliver sediment to low gradient valley bottoms where long term accumulations typically form alluvial fans along the margins of the valley. Mass wasting is uncommon (NCRWQCB, 2005). The mainstem Scott River in the lower gradient section of the valley is dominated by channel shifting, bank erosion, and downcutting. However, channel straightening, levee construction, bank armoring, and past mining has limited channel changes along many sections of the mainstem (Sommarstrom et al., 1990).

Historic Morphology and Flooding

During the early evolution of the Scott River, it was an actively degrading stream which was downcutting in response to intermittent regional uplift (Sommarstrom et al., 1990). Former ridges in the Valley between the western tributaries were eroded and the morphology of the channels gradually changed. Eventually, the Scott River and its tributaries began to aggrade their courses and the main channel migrated to the east side of the valley

Historic accounts, as far back as the mid 1800s, suggest that the Scott River through the Valley was at one time narrower and deeper, on average, compared to today. In May of 1855, one observer described the Scott River in the Valley as from 30 to 40 yards in width and deep in



SOURCE: NCRWQCB (2005)

Figure 3.2-2
Scott River Watershed Landslides

many places (Metlar, 1856, in Sommarstrom et al., 1990). Today the Scott River is hundreds of feet wide in many of the Valley reaches. This process of channel widening has been influenced by both human actions (described below) and natural processes (such as flooding).

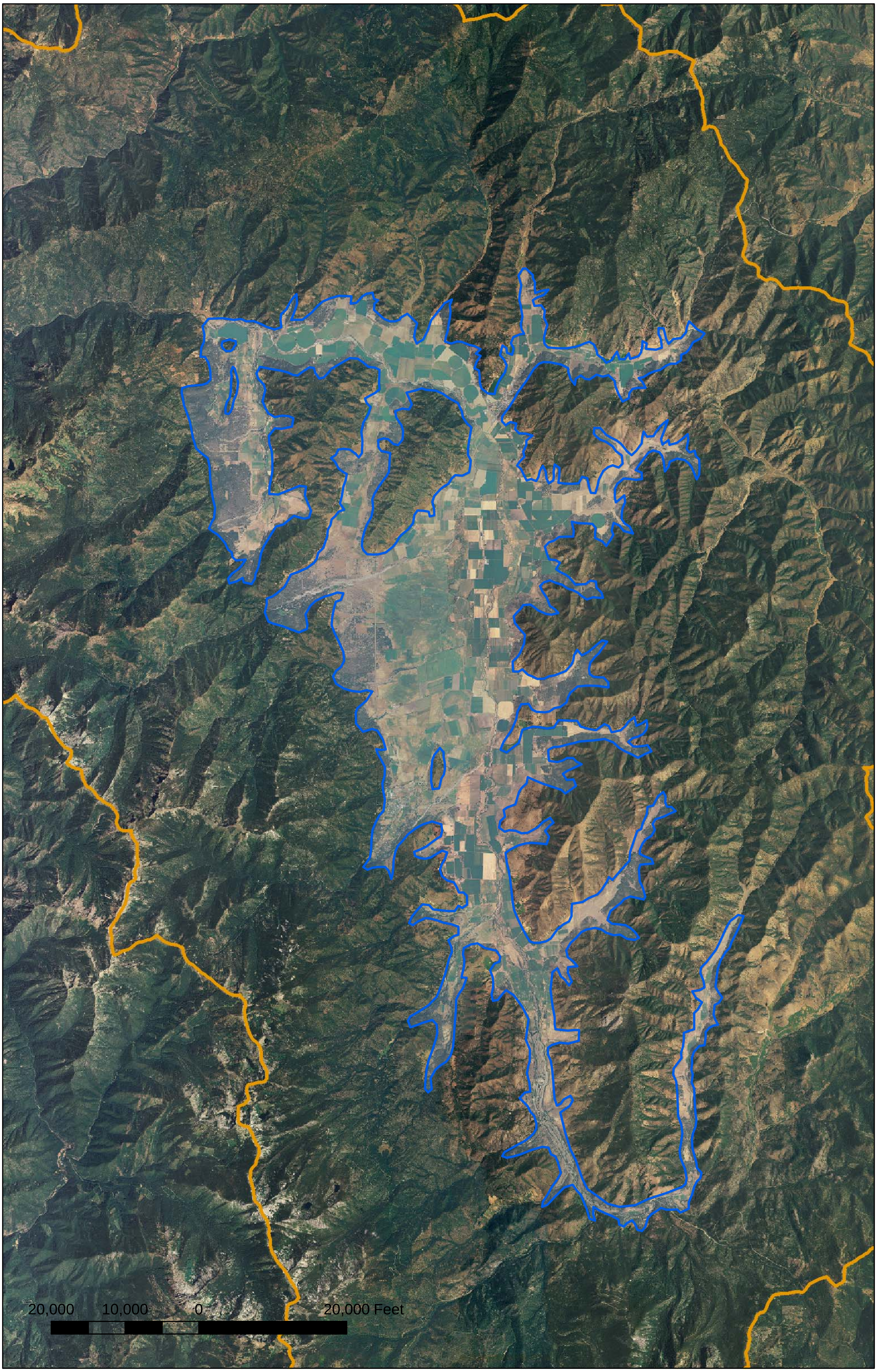
Like many large river basins, major floods have had a profound impact on past and present conditions within the Program Area. Before the turn of the twentieth century, major floods were recorded in 1852-53, 1861, 1864, 1875, and 1880; Wells (1881, in Sommarstrom et al., 1990) noted that these floods swept the rivers clear of mining improvements that existed during that time. Prior to the period of record at the U.S. Geological Survey (USGS) station, the flood of 1861 appears to have been the largest event mentioned in historical accounts. The 1861 flood, in combination with mining debris, caused the upper Scott River to alter its course from the west side to the east side of the Valley downstream of Callahan (Jackson, 1963, in Sommarstrom et al., 1990).

During this past century, large floods also occurred in 1955, 1964, and 1997. The large winter floods of 1955 and 1964 had a profound effect on the morphology and character of the Scott River. Much of the sediment delivered to the Scott River in the 1955 and 1964 floods was eventually deposited on the wide Valley floor; 6,300 and 26,520 acres were inundated in 1955 and 1964, respectively (Sommarstrom et al., 1990). From geological and botanical evidence in the Scott River Canyon, Helley and LaMarche (1973, in Sommarstrom et al., 1990) determined that the 1861 and 1955 floods were of equal magnitude though less severe than the 1964 flood. Sediment deposition during flooding led to aggradation of the streambed in some areas and large amounts of sediment were eroded from banks that offered little resistance due to the lack of stabilizing riparian vegetation. The net result (including the influence of U.S. Army Corps of Engineers [USACE] projects in the 1930s) for the Scott River is now a wide (up to 300 feet), shallow channel with almost no vegetative cover in the Valley (Quigley et al., 2001).

The Federal Emergency Management Agency (FEMA) is responsible for mapping areas subject to flooding during a 100-year flood event (i.e., one percent chance of occurring in a given year). According to FEMA (2004), several lowland areas in the Program Area are located within the 100-year floodplain. The widest area of the 100-year floodplain (about 3.5 to 4 miles) is in the vicinity of Big Slough, and lies mostly to the west of the mainstem Scott River. Other notable FEMA floodplain areas include the lower reaches of Moffett Creek, Etna Creek, and French Creek.

Regional Groundwater Hydrology

The principal groundwater feature in the Program Area is the Scott River Valley Groundwater Basin (Groundwater Basin) (**Figure 3.2-3**). The Groundwater Basin underlies the alluvial floodplain and is approximately 28 miles long, 0.5 to 4 miles wide, and nearly 100 square miles in surface extent (DWR, 2004). Within the Groundwater Basin, Quaternary stream channel, floodplain, and alluvial fan deposits are the primary water-bearing formations. Groundwater storage capacity of the basin (to a depth of 100 feet) is estimated to be 400,000 acre-feet (Mack, 1958). This large aquifer is recharged annually by the Scott River, tributary streams, and by infiltration of precipitation and snow melt.



SOURCE: DWR (2004)

Scott River Watershed-Wide Permitting Program . D206063

Figure 3.2-3
Scott River Valley Groundwater Basin

In the Valley, groundwater exerts strong influence on the volume and quality (i.e., temperature) of Scott River flow. The seasonal fluctuation of the groundwater table locally determines whether portions of the Scott River are being supplied by groundwater ("gaining stream") or are infiltrating surface flow into the groundwater aquifer ("losing stream"). During the winter and spring the aquifer is recharged by the river and percolated precipitation. Once river flow subsides, the river typically changes to a gaining stream as stored groundwater enters the stream channel. In drier years, winter and spring flows are not sufficient to fully recharge the Scott River Valley Groundwater Basin, the water table falls below the elevation of the channel bed, and the river goes dry (NCRWQCB, 2005).

Human Influence on Hydrologic and Geomorphic Processes

Human settlement and land management activities have had a measurable and lasting effect on the natural hydrologic and geomorphic processes within the Program Area. Hence, what is seen today in the Program Area is quite different from 150 years ago. In terms of their effect on watershed processes, these activities can be divided into upland management activities that produce downslope and downstream impacts, and valley bottom and stream channel management activities that more directly affect the geomorphology of the main river system. The most important changes and land management actions include: timber harvesting and road construction, fire suppression, beaver removal, mining and dredging operations, channel modification and flood control, and agricultural practices.

Upland Management

The Scott River, and the Scott River Valley, have been subject to human alteration since the 1800s. Hillslope processes have been altered over the past century by the effects of hydraulic mining, road and skid trail construction, and vegetation removal by fires, fire suppression, grazing, and timber harvest (SRWC, 2004). In the upland areas, the steep mountainous terrain areas are naturally susceptible to landslides, but the size and frequency appears to have increased in certain geologic terranes[2] due to impacts from the combination of locally severe fires, regional flood events, intensive timber harvest, and road construction on steeper slopes (USDA, 2000; NCRWQCB, 2005). Roads were not extensively constructed in the steeper regions until the 1950s by the U.S. Forest Service (USFS), but construction increased rapidly on both private and public lands in the following decades (SRWC, 2004). Upslope forest management has had an effect on downstream channel systems largely through altered hydrology and increased watershed erosion and sedimentation.

Timber Harvesting and Road Construction

Timber was originally needed for settlement and early mining operations in the Scott River Valley. By 1880 there were 11 saw mills operating up and down the Valley (Sommarstrom et al., 1990). Logging increased after World War II and was accompanied by the construction of hundreds of miles of logging roads and skid trails on both private and public lands. Many studies

[2] A terrane, in paleogeography, is a crustal block that preserves a distinct geologic history different from surrounding areas.

on all soil types identify road construction as the largest single source of accelerated erosion and landsliding and resultant stream channel sedimentation in steepland forest environments.

Logging on steep slopes in the Scott River watershed has accelerated landslide activity and sediment delivery to streams (USDA, 2000; NCRWQCB, 2005), particularly in the steeper western and northwestern portions of the watershed. Logging and road construction have also dramatically increased erosion rates and sediment delivery to streams in westside watersheds underlain by highly erodible granitic soils (Sommarstrom et al., 1990; NCRWQCB, 2005). Flood events trigger landslides, and most of the catastrophic landslides during storms of record occurred on steep slopes that had previously been timber harvested and/or burned during the 1987 fires in the lower watershed (USDA, 2000; NCRWQCB, 2005). The 1964 flood event and the more recent January 1997 flood, a 25-year event, had a considerable affect on the lower watershed and in westside tributaries, and it contributed large amounts of sediment to streams due to landslides, plugged culverts, and road failures from poor road design and recent forest fires (De la Fuente and Elder, 1998; USDA, 2000). Overall, mass wasting is estimated to range from 0 to 275 percent over natural rates in the lower Scott River watershed; similarly, surface erosion has been estimated to range from 0 to 790 percent above natural levels in watersheds of the lower Scott River (USDA, 2000).

Roads and severe winter storms often combine to produce large pulses of sediment into the stream channel system of the Program Area. The average overall road density (for all road types) for the lower watershed (including both National Forest and private lands) is 2.9 miles per square mile, excluding Wilderness Areas (USDA, 2000). On private timber lands in the upper watershed, adjacent to the Scott River Valley, road densities are much higher, reaching approximately 8.9 miles per square mile in the Shackleford and Mill Creek watersheds (SHN, 1999).

The watershed's decomposed granitic soils are particularly susceptible to land use disturbances, especially timber harvesting and road construction. By 1989, 66 percent of the private timberlands (since 1974) and 34 percent of the public timberlands (since 1958) on these erodible soils had been harvested in the Scott River watershed (Sommarstrom et al., 1990). The 1990 Scott River Basin Granitic Sediment Study concluded that about 60 percent of the average annual sediment yield from granitic soils in the watershed was due to management activities, with the balance being the natural background level (Sommarstrom et al., 1990).

Land management has greatly accelerated sediment production and delivery from granitic areas (**Table 3.2-1**). The granitic sediment study evaluated the 57,000 acres of granitic soils contributing to the Program Area. It was estimated that sediment was derived from a number of management-related sources, including: road cuts (40 percent), streambanks (23 percent), road fills (21 percent), skid trails (13 percent), and the balance (3 percent) from road surfaces, landslides, and dispersed sources of sheet and rill erosion (Sommarstrom et al., 1990). Overall, road-related sediment sources contributed 63 percent of the total estimated sediment yield. The French Creek watershed was identified as the largest single watershed contributor of fine grain granitic sediment to the Scott River watershed, representing 23 percent of the total yield. Of the average yield of 71,500 tons of decomposed granitic sediment estimated to be delivered to the

TABLE 3.2-1
SCOTT RIVER WATERSHED SEDIMENT SOURCE SUMMARY USED FOR TMDL
(TABLE 3.22; NCRWQCB, 2005)

Sediment Delivery Summary, by Locality	Total Natural Delivery – all sources (tons/sq mi-year)	Total Human-Activity Related Delivery – all sources (tons/sq mi-year)	Total Delivery (tons/sq mi-year)	Percentage Above natural
West Canyon (lower basin)	544	487	1031	90%
East Canyon (lower basin)	511	242	754	47%
Eastside (Moffett Creek)	491	218	709	44%
East Headwaters (East Fork)	377	314	691	83%
West Headwaters (South Fork)	602	343	945	57%
Westside Tributaries	518	269	786	52%
Scott Valley	239	293	533	123%
Watershed Weighted Average	**447**	**299**	**746**	**67%**

Scott River each year, 60 percent of the sediment was attributed to management sources (Sommarstrom, et al., 1990; based on 1989 data). Sand-sized and finer sediment has accumulated in the middle of the Scott River Valley and produced wide, shallow channel conditions with few pools (Sommarstrom et al., 1990).

Increased sediment delivery to streams has impacted channel morphology by filling pools and the interstitial spaces in gravels with fine sediments in streambeds of both the tributaries as well as the mainstem Scott River (SQRCD, 2005). These fine sediments accumulate in low gradient channel reaches until flood flows transport the sediment in large pulses to lower basin areas and the main channel of the Scott River. Channel aggradation then contributes to increased bank erosion in a self-sustaining process. Increased sedimentation on the tributary alluvial fans along the Valley margin has also caused the distributary channels to become wider and shallower. Aggraded tributary channels flood more frequently and low summer flows are less likely to remain hydrologically connected to the river mainstem.

Present day river processes are a combined product of past and present watershed and riverine disturbances, modified streamflow regimes, and an accelerated supply of sand size sediment (0.0625 millimeters (mm) to two mm) from the adjacent tributary watersheds. Most sediment that is delivered to stream channels in the Scott River watershed is derived from episodic small scale erosion features occurring along stream channels (e.g., bank erosion and small slides) (NCRWQCB, 2005). Sixty-five to 70 percent of both natural and man-caused sediment delivery comes from these sediment sources. In contrast, watershed-wide, roads and landslides produce approximately 10 and seven percent of total sediment delivery (NCRWQCB, 2005) (though some of this sediment delivery from roads and landslides is accounted for in the aforementioned 65 to 70 percent). The majority of the past and potential management induced sediment yield to Moffett Creek, the main eastside tributary, is also associated with bank erosion and incision occurring along tributary stream channels. This type of erosion accounts for approximately 95 percent of the total management-induced sediment contribution to Moffett Creek and is followed to a much lesser extent by sheet wash and gully erosion occurring along roads and on upland slopes (SHN, 2003).

In the main Valley section, the Scott River is essentially a low gradient sand bed river. Excessive sand in the river was not noted by CDFG until about 1948 (SRWC, 2004). Unstable granitic soils and past human activities along the western slopes and watersheds of Scott Valley have contributed significantly to the excessive fine sediment found in the Scott River and certain tributaries (Sommarstrom et al., 1990). Periodic floods tend to move sediment into and through the steeper portion of the fluvial system and deposit sediment on the floodplain and in the valley-bottom streambeds of the lower main tributaries and the mainstem. This has resulted in accelerated stream bank erosion in lower gradient channel reaches (SRWC, 2004) and altered channel function. Much of the sediment delivered to the Scott River in the 1955, 1964, and 1997 floods was eventually deposited on the wide Valley floor (Sommarstrom, 1990). Alluvial floodplains can serve as temporary or long-term storage (Beschta, 1987, as cited in Sommarstrom, 1990). These deposits are still being removed. Another important storage area is the "Big Slough," which parallels the Scott River and drains the tributaries north of Etna Creek (Johnson, Crystal, Patterson Creeks) (Sommarstrom, 1990). This is considered a long term storage sink for sediment delivered from the contributing sub-watersheds.

Fire Suppression

Wildfire is one of the triggers for generating high rates of surface erosion in areas with decomposed granitic soils. Throughout the west, decades of fire suppression have increased the susceptibility and potential magnitude of wildfire in forested landscapes. Although large lightning-caused fires are fairly frequent in the Klamath Mountains, extensive fires are not common in the study area as little volatile brush is present on the west side of the Scott Valley (Sommarstrom et al., 1990). By far the largest fire of record was the 1955 Kidder Creek fire, which occurred only a few months before the disastrous December, 1955 flood. The relationship between 1955 flood magnitude, watershed erosion rates, stream channel sedimentation, and the wildfire has not been reported. Intense wildfire over large portions of the lower Scott River watershed in 1987 was followed by severe landsliding during the 1997 flood event (USDA, 2000).

Valley Bottom and Stream Channel Management

The Scott River is not a pristinely functioning geomorphic system. Stream channels in the Program Area, especially in the lower gradient alluvial fan and valley bottom sections, have been modified almost since first occupation of the watershed. Through legacy effects as well as existing practices, activities such as beaver trapping, alluvial gold dredging, river straightening, bank protection, levee construction, streamflow manipulations, and upland land management continue to dominate the geomorphic function of the Scott River and a number of its main tributaries. Channel alterations began in the 1830s with the removal of most of the beaver population in Scott Valley and the East Fork (Sommarstrom et al., 1990). This caused local channel incision and simplification of channel morphology.

Beaver Removal

One of the earliest noted events related to impacts to the natural hydrology of the Program Area was the trapping and removal of beaver, beginning in the 1830s. While not all of the beaver were taken, this major removal likely had a significant effect on the Scott River and its tributaries. Beaver dams add complexity to stream habitat. These dams create ponds that act as sediment traps, gradually filling to create swamp or meadow environments, similar to that described by trappers working in the Scott River Valley in the early 1800s. The stepped profiles of beaver-influenced rivers, with narrow, deep, sinuous reaches above the ponds and shallower reaches of swifter flow below the ponds, maximize the diversity of riparian and aquatic habitats (Wohl, 2005). Beaver dams reduce flow velocities, increase surface water storage, provide slack water habitat, maintain shallow groundwater levels and base streamflow throughout the summer months, increase flooding and floodplain deposition, and increase the interconnectedness of the floodplain with the adjacent stream channel system. Beaver ponds are also known to provide excellent habitat for juvenile coho salmon coho salmon (*Oncorhynchus kisutch*) (Bergstrom, 1985, in Sommarstrom et al., 1990).

With the removal of beavers, beaver dams decayed or were intentionally breached. This probably led to rapid incision into the accumulated fine sediment of the ponded stream reaches, turning them into gullied or entrenched stream channels. Incised channels are characterized by larger, flashier floods, increased sediment yield from unstable and eroding streambeds and banks, and less diverse habitat (Brayton, 1984; Maret et al., 1987, in Wohl, 2005). As occurred along the Colorado Front Range (Wohl, 2005), the net effect of beaver removal along the Scott River was probably a reduction in diversity and stability as low gradient channels locally incised, snowmelt flood peaks increased, flood-related sediment transport increased, and riparian and slow-velocity habitats (as preferred by coho salmon) were lost. Summer baseflows were also probably reduced as a result of the loss of beaver dams and their associated storage capacity and instream flow retention.

Mining and Dredging Operations

The channel changes caused by the removal of beaver may be less substantial and more easily reversed than those associated with changes in regional land use that began with wide-scale placer mining during the 1860s. Gold mining began in the Scott Valley in the 1850s with shallow placer mining occurring in the South Fork, East Fork, Shackleford Creek, Oro Fino Creek, and French Creek (Sommarstrom et al., 1990). Streams were diverted to supply water for placer mining and some of these diversions continue to be used for modern agricultural water supply. Hydraulic mining of the lower Scott River was extensive in the late 1850s. Between 1934 and 1948 large dredge barges operated on about five miles of the mainstem Scott River and in Wildcat Creek. Gold dredging along the Scott River below the town of Callahan from 1934 to 1948 created disruptions of channel processes and surface/subsurface hydrology that persist today (NCRWQCB, 2005). This mining was highly disruptive and its effects have left a strong and continuing legacy of impacts on the Scott River stream system.

Placer and dredge mining have three basic effects on river form and function (Wohl, 2005). First, the disruption of bed and bank sediment renders the sediment more susceptible to being moved by the river flow. This can cause downcutting of the river at the location of the mining or change a meandering river to a braided river (Hilmes and Wohl, 1995). Smaller sediments are preferentially mobilized and winnowed from the disturbed area and accumulate downstream. Downstream accumulation can reduce the river capacity and cause more flooding. The remaining coarse lag is too large to provide spawning gravel for fish whereas the finer sediment carried downstream preferentially fills pools and covers spawning gravel downstream. The river at the mining site remains less stable for decades after mining because the fine-grained bank sediment that once supported stabilizing riparian vegetation is gone (Hilmes and Wohl, 1995). The mining process not only leaves behind windrows of cobble and gravel, as are found along the Scott River, but it also disrupts the stratigraphy of the deposits and greatly increases the permeability of the remaining coarse sediment. This can lead to increased permeability of the river bed and increased subsurface flow, which may then contribute to the loss of surface flow in summer. These persistent geomorphic and hydrologic impacts are all present along the mainstem Scott River and their effects are not easily corrected or mitigated.

Second, toxic heavy metals or mercury used during mining are typically introduced to the stream and retained in valley-bottom sediments. These can have an impact on the biological diversity and productivity of aquatic species in the river system (Wohl, 2005). Finally, placer mining indirectly affects the channel by altering the amounts of water and sediment entering the rivers. These alterations may result from the extensive timber harvest that is required to support large scale mining operations and the settlement that accompanies mining. As with beaver trapping, the net effect of placer mining and associated activities in the Colorado Front Range was to reduce river diversity and stability (Wohl, 2005). Mining and deforestation effects are thought to have greatly exceeded the impacts associated with beaver removal. In the Scott River basin, both actions likely had significant consequences that continue to impact the river system.

Channel Modification and Flood Control

By 1900 the river channel at the northern end of Scott Valley was sinuous and heavily vegetated with cottonwood and willow. The Valley often became a lake during high water (Jackson, 1963; O. Lewis, in Sommarstrom et al., 1990). This type of meandering river is prone to flooding and makes large areas of fertile land unavailable for farming. To improve agricultural opportunities, landowners removed the riparian vegetation and straightened the Scott River channel. In 1938 the Corps of Engineers constructed projects to improve flood control and to channelize the river into a single thread with improved flood flow capacity. They cleared riparian vegetation, straightening the channel in places, and constructed levees in portions of the river from Horn Lane to past Fort Jones (O. Lewis, in Sommarstrom et al., 1990). Aerial photographs of the valley from 1944 reveal large sections of river with little or no riparian vegetation, as well as a very wide channel (600 to 900 feet) near the mouth of Oro Fino Creek. This stream reach has changed little in appearance since that time (Sommarstrom et al., 1990). The middle portions of the river also were altered for flood control. Using pilings, revetments, rock riprap, and sediment excavations, individual landowners have intermittently added to the channel protection measures in order to protect their own lands from channel migration, bank erosion and flooding.

Channel modifications often result in a variety of consequent effects to a stream, and although they may solve one "problem" (e.g., flooding) none of these associated effects lead to a naturally functioning, ecologically healthy aquatic and riparian system. In fact, these flood control projects significantly alter the hydrologic and geomorphic function of the river system at both the landscape and local level (SRWC, 2004). Levee construction confined flood flows to a comparatively narrow channel and increased its erosive power. Rather than spreading out onto the natural floodplain, flood flows caused the channel to incise into the valley alluvium. Straightening a channel increases its gradient, and this increases its power to downcut into the erodible valley sediments; as a result, stream channels often incise and become narrow, deep channels that cause riparian groundwater levels in the adjacent floodplain to drop. This can cause further loss of riparian vegetation and the inability to re-establish a healthy riparian corridor. Additionally, this may limit the long-term recruitment of large woody debris (LWD) which contributes to stream complexity and increases the quality of stream habitat.

Channel straightening, where a meandering channel was once present, also results in accelerated bank erosion. Subsequent bank protection (e.g., rock armoring or sacked concrete) may solve a localized erosion problem, but it often causes increased bank erosion in downstream areas and the resultant need for additional bank protection measures. Bank protection also may remove a local source of gravel recruitment that normally would be delivered to the channel system. Instead, sediment that moves through the confined channel system becomes increasingly fine as it is delivered from distant sediment sources. Further, bank protection tends to result in a simplified channel form and less diverse aquatic habitat by constraining pool and riffle sequences to narrow, confined channels.

Removal of riparian vegetation can also lead to increased rates of bank erosion. Subsequent bank protection efforts then tend to destroy or limit any remaining riparian vegetation and restrict recolonization of the treated sites. Also, pool development by means of scouring (scour pool) is often inhibited along protected cut-banks. Loss of riparian vegetation and scour pool development can lead to increased water temperatures and a reduction in the cool water refugia for aquatic species.

All these effects can be seen along the mainstem Scott River. Channelization has simplified the channel morphology and resulted in greatly reduced aquatic and riparian ecosystem complexity. Rock riprap has been placed for stream bank stabilization by SQRCD and landowners for the past 50 years (SRWC, 2004). The severe flooding that occurred in 1955, 1964, 1974, and 1997 eroded the Scott River's streambanks and the resultant bank erosion, localized channel widening, aggradation, and shallowing further encouraged the construction of additional bank protection measures. Due to problems created by earlier channelization work, extensive revetment (rock and biotechnical), bank armoring, and channel reshaping work has been "required" through the 1950s and 1960s in an effort to further stabilize the river (Ayres and Associates, 1999).

Although significantly smaller in scale relative to the Scott River, several of the larger tributary streams that enter the Scott River have also been affected by similar problems, and have been straightened and channelized (Ayres and Associates, 1999). For example, emergency flood control work was carried out in 1955 and 1964 by the Corps of Engineers to keep Etna Creek in its channel (USDA, 1971). Similarly, Moffett Creek was moved to the east side of its valley to better make room for agriculture on the flat bottom lands (SHN, 2003). Many of the multi-threaded tributary channels on the westside alluvial fans were likely diverted into single channels, and highly sinuous reaches of meandering channels were straightened by cutting off meander bends (Ayres and Associates, 1999). The abandoned reaches resulting from channelization were reclaimed, and cleared of vegetation providing additional acreage for farming. The most recent channel straightening was done in the early 1980s in the lower mile or so of Kidder Creek, just above its confluence with the Scott River (Sommarstrom et al., 1990). Over the years, landowners have put in pilings, revetments and rock riprap to protect the streambanks. Unfortunately, the perceived need for additional stream stabilization work in the future is unlikely to diminish. The natural channel pattern for alluvial fans is a multi-threaded, braided, distributary channel system that is inherently dynamic and prone to change.

Agricultural Practices and Water Management

Farming and ranching have been an important part of the Scott Valley economy since the mid 1800s. Hay cutting and cattle grazing began in 1851 (Wells, 1881, in Sommarstrom et al., 1990) primarily to support the local miners. Eventually, these activities grew into larger operations that exported some of their goods outside of the Program Area.

With the expansion of agriculture came changes to the structure and function of some of the Valley's vegetation and rivers. At the turn of the twentieth century, historic accounts (Jackson, 1963 and O. Lewis, in Sommarstrom et al., 1990) suggest the river channel at the northern end of the Scott Valley was meandering and heavily vegetated with cottonwood and willow; and the valley often became a lake during high water. To bring this land into agricultural production, landowners removed the brush and straightened the channel (Sommarstrom et al., 1990). Native bunch-grass and clover gave way to farmed crops in fertile soil and grazing reduced the amount of perennial grasses and forbs in the uplands over the years (SRWC, 2006; KNF, 2000, in SRWC, 2006).

The diversion and extraction of water from the Scott River watershed and its tributaries also began in the 1850s. Until the late 1960s, agricultural water was mainly derived from surface water diversions from the Scott River and its tributaries; flood irrigation was the primary application method (McCreary-Korestsky, 1967, in SRWC, 2006). Groundwater wells were few at this time and most wells were shallow and only used for domestic and stock supplies.

Agricultural activities have had effects (direct and indirect) on the geomorphology and water quality of the stream system and contributed to the decrease in the productivity of the Scott River's anadromous fisheries (as discussed in Chapter 3.3, Biological Resources: Fisheries and Aquatic Habitat). Most notably, water diversions, primarily for agricultural purposes, have led to decreased surface flows and increased stream temperatures. Further, stream channels have been altered and riparian vegetation removed as a consequence of agricultural activities (by 1944, aerial photographs reveal large sections of the river with little or no riparian vegetation), including land clearing, tillage, and grazing, which in turn has lead to accelerated erosion and increased stream sediment loads.

Grazing. Grazing in the riparian corridor has been acknowledged as contributing to the degradation of aquatic habitat in the Scott River upstream of the Canyon (NRC, 2004). Livestock grazing is a Covered Activity under the Program and, similar to some other Covered Activities, it is not new; rather, it has been occurring in the Program Area for decades. Hence, authorizing livestock grazing as part of the Program will not cause the level of grazing to increase or result in any impacts in addition to those that are already part of baseline conditions in the Program Area. In fact, the Program will likely reduce the impacts of grazing by excluding livestock from some riparian areas by installing and maintaining fencing (see ITP and MLTC Covered Activity 5). Also, where riparian fencing is constructed as part of the Program, any grazing of livestock within the riparian exclusion zone ~~adjacent to the channel or within the bed, bank, or channel~~ of the Scott River or its tributaries may only occur in accordance with a grazing management plan that will result in improved riparian function and enhanced aquatic habitat.

Water Right Adjudications and Diversions. All surface water rights in the Program Area upstream of the USGS gaging station (no. 11519500, approximately 10 miles downstream from Fort Jones) are adjudicated according to one of three decrees: the Shackleford Creek Decree (1950), the French Creek Decree (1958), and the Scott River Decree (1980). The decrees, as explained by Scott River Watershed Council (SRWC) (2006), have defined: 1) the amount of water each user is entitled to divert from surface streams or to pump from the interconnected groundwater supplies near the river; 2) the area where such water may be used; 3) the priority of each water right as it relates to other water rights on the same source; 4) the purpose for which the water is used (e.g., irrigation, municipal, domestic, stock-water); and 5) the diversion season. All appropriative claims prior to 1914 and riparian water rights were included in all of the court adjudicated decrees within the Scott River watershed (SRWC, 2006). The decrees quantified the following allotments of water under the respective adjudications: 894.29 cubic feet per second (cfs) under the Scott River Decree,[3,4] 36.51 cfs under the French Creek Decree, and 69.55 cfs under the Shackleford Creek Decree. According to hydrologic analyses by USGS (2006a), this total allotment is greater than the average monthly flow of the Scott River from June through December, based on 64 years of record. **Tables 3.2-2**, **3.2-3**, and **3.2-4** further detail the diversions and water allotments defined in the decrees (SWRCB, 2008).

Since 1989, Scott River, French Creek, Kidder Creek, Shackleford Creek, and Mill Creek have been considered "fully appropriated" by the State Water Resources Control Board (SWRCB) (SRWC, 2006). The Scott River and most of its tributaries do not have appointed watermasters and, consequently, there is no way to verify whether water diversions are in compliance with existing water rights (DWR, 1991). However, watermaster service is presently used for 102 decreed water rights holders in French Creek, Oro Fino Creek, Shackleford Creek, Sniktaw Creek, and Wildcat Creek (SRWC, 2006).

3 In the Scott River Decree, water use is allocated according to four schedules, Schedules A through D. Schedule A pertains to a limited number of named and unnamed springs, Schedule B pertains to tributaries to the Scott River. Schedule C pertains to the interconnected groundwater zone. Schedule D pertains to the mainstem Scott River. Only allotments in Schedules B and D have been quantified in terms of diversion volumes in cubic feet per second, and the value presented here represents only the total volume quantified in Schedules B and D.

4 In addition there are water rights listed in Schedule C of the Scott River Decree for which no specific quantities of water are identified. These water rights allot the amount of water "that is reasonably required to irrigate the acreages" identified in Schedule C, either by sub-irrigation or pumping from groundwater interconnected with the Scott River.

TABLE 3.2-2
SUMMARY OF ALLOTMENTS FROM SCHEDULES B THROUGH D OF THE SCOTT RIVER DECREE (1980)

Schedule/ Group	Water Body (Primary)	Water Body (Specific Reaches/Designation)	No. of Identified Diversions	Total Allotment (cfs)
Schedule B				
B1	East Fork	Upper Tributaries only	6	6.32
B2	Rail Creek	and Tributaries	7	10.33
B3	East Fork	Middle Tributaries only	14	8.91
B4	East Fork	Lower Tributaries only	18	21.29
B5	East Fork	above Rail Creek	16	35.67
B6	East Fork	Rail Creek to Grouse Creek	11	19.44
B7	East Fork	Grouse Creek to SF Scott River	7	7.77
B8	South Fork	Tributaries only	16	9.58
B9	South Fork		8	8.05
B10	Wildcat Creek	and Tributaries	9	7.49
B11	Sugar Creek	and Tributaries	8	25.58
B12	Messner Gulch, Cedar Gulch, Facey Gulch	and other Tributaries of the Scott River	20	4.70
B13	McConaughy Gulch	and Tributaries	6	3.57
B14	Wolford Slough	and Tributaries	5	6.62
B15	Clark Creek		5	15.06
B16	Etna Creek	Tributaries only	10	2.29
B17	Etna Creek	Upper (including Etna Mill Ditch)	6	13.72
B18	Etna Creek	Lower (downstream of Etna Mill Ditch)	12	36.40
B19	Shell Gulch, Hurds Gulch, Hamlin Gulch	and Tributaries	8	4.19
B20	Johnson Creek	and Tributaries	13	18.70
B21	Crystal Creek		5	11.30
B22	Patterson Creek (West)		7	35.48
B23	Big Slough	and Tributaries	18	37.82
B24	Kidder Creek	Tributaries only	3	6.53
B25	Kidder Creek	Upper	13	91.93
B26	Kidder Creek	Lower	13	53.04
B27	Moffett Creek	Upper, and Tributaries	29	12.10
B28	Duzel Creek	and Tributaries	12	2.76
B29	Moffett Creek	Lower	26	26.26
B30	Soap Creek	and Tributaries	8	1.42
B31	Moffett Creek	Lower, Tributaries only	6	3.36
B32	McAdam Creek	and Tributaries	28	14.68
B33	Indian Creek	and Tributaries	13	12.58
B34	Oro Fino Creek	and Tributaries	16	21.74
B35	Rattlesnake Creek	and Tributaries	9	6.14
B36	Tyler Gulch	and Tributaries	5	0.96
B37	Patterson Creek (North)	and Tributaries	9	2.03
B38	Sniktaw Creek	and Tributaries	18	10.68
B39	Lower Scott River	Tributaries only	11	0.68
B40	Graveyard Gulch, Meamber Creek, and Meamber Gulch		5	2.90
Schedule C	"Interconnected Groundwater"		74	12,975[1]
Schedule D				
D1	Scott River	EF/SF confluence to lower end of Tailings	12	49.25
D2	Scott River	lower end of Tailings to SVID diversion no. 223	19	128.16
D3	Scott River	SVID diversion no. 223 to diversion no. 576	23	71.56
D4	Scott River	diversion no. 576 to USGS gaging station	15	20.58
D5	Scott River	USGS gaging station to Klamath River	20	4.67
TOTALS[2]			**548**	**894.29**

1 Total number of irrigated acres (specific allotments were not identified)
2 The TOTAL in the Total Allotment column is for Schedules B and D only.

SOURCE: Scott River Decree (1980)

TABLE 3.2-3
SUMMARY OF ALLOTMENTS FROM THE FRENCH CREEK JUDGMENT (1958)

Schedule/Group	Water Body	No. of Identified Diversions	Total Allotment (cfs)
Table 1	French Creek (Springs and Unnamed Streams)	10	0.84
Table 2	French Creek (North Fork)	3	7.98
Table 3	Miner's Creek	8	3.20
Table 4	French Creek, Payne Lake Creek, Horse Range Creek, and Duck Lake Creek	27	24.49
Totals		**48**	**36.51**

SOURCE: French Creek Judgment (1958)

TABLE 3.2-4
SUMMARY OF ALLOTMENTS FROM THE SHACKLEFORD CREEK DECREE (1950)

Schedule/Group	Water Body	No. of Identified Diversions	Total Allotment (cfs)
Schedule 3	Shackleford Creek (Upper)	8	28.93
Schedule 4	Shackleford Creek (Lower)	9	25.50
Schedule 5	Mill Creek (Upper)	2	10.62
Schedule 6	Mill Creek (Lower)	6	4.50
Totals		**25**	**69.55**

SOURCE: Shackleford Creek Decree (1950)

Over 200 miles of ditches and canals distribute water from the Scott River and its tributaries to users throughout the watershed. There are no large surface water storage facilities within the Scott Valley, though there are several small local impoundments (Deas and Tanaka, 2004). The largest water storage location in the watershed is the aquifer beneath the alluvial Valley.

Stream Restoration Efforts

In many areas within the Program Area, the impacts of past and present activities have been acknowledged and documented, and measures to restore the geomorphic structure and ecological function of the riverine habitat have been implemented. Watershed-wide evaluation of issues and establishment of restoration priorities came under the purview of the Scott River Coordinated Resource Management Plan (CRMP) in the 1980s and 1990s. The Scott River CRMP evolved into the current SRWC, which has prepared a “Strategic Action Plan” for restoration of the watershed’s fisheries (SRWC, 2006). Restoration projects over the past two decades have included stream bank stabilization and riparian planting projects undertaken cooperatively by farmers, the Natural Resources Conservation Service (NRCS), and SQRCD (SRWC, 2006).

Some of the restoration projects have focused on placing instream structures to improve fish habitat and, in a broader context, the natural geomorphology of the channel. Instream restoration projects have included bank stabilization and modification of existing diversion structures to provide for fish passage (e.g., installation of boulder weirs, instead of traditional dams, to provide for fish passage). Some of the bank stabilization projects have focused on softer, “geomorphically-based” means of stabilization as an alternative to the traditional approach of simply using concrete and rip-rap. SRWC (2006) estimates that over 300 instream projects have been carried out and over 17,000 feet of stream channel enhancement projects have been implemented in the Program Area.

Existing Hydrologic and Geomorphic Conditions

Based on review of Quigley et al. (2001) and SQRCD (2005), and consideration of the Program Area climate, topography, vegetation, channel geomorphology, and hydrology, the Program Area is delineated into nine sub-basins in order to characterize existing conditions: the Scott Valley, the Canyon (lower Scott River), the Eastern Headwaters, the Western Headwaters, Sugar Creek and Wildcat Creek, French Creek (including Miner’s Creek), the Westside Tributaries, Shackleford Creek (including Mill Creek), and the Eastside Tributaries (Moffett Creek). These basins, as well as the principal tributaries within the Program Area are shown in **Figure 3.2-4**; selected longitudinal profiles from these sub-basins, as derived from topographic maps, are presented in **Appendix F**.

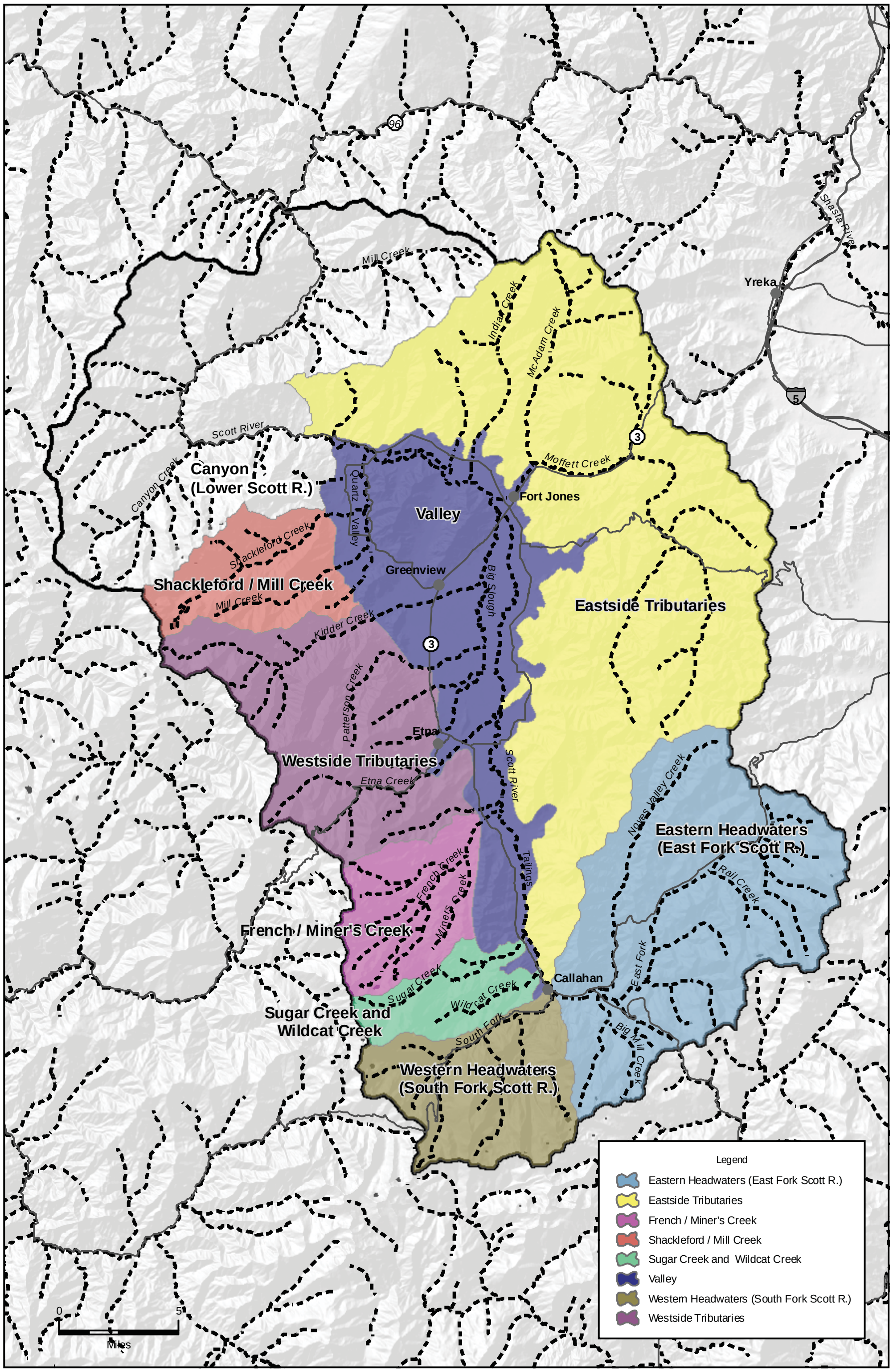
Given the broad scale of the Program and the scope of this Draft Environmental Impact Report (EIR), to the degree that important parameters and/or criteria can be quantified, the discussion here is for the most part limited to the mainstem Scott River upstream of the Canyon area. The overall flow regime, and changes thereto, are described from analysis of the USGS gaging record for the Scott River near Fort Jones (USGS station no. 11519500). Trends from this gaging record are indicative of the hydrologic conditions within the Program Area as a whole.

Scott River Watershed (General) – Scott Valley (Scott River Mainstem)

General Morphology and Sediment Characteristics

The Scott Valley represents a low gradient section between two high gradient areas, the headwaters and the Canyon reach. The Valley portion of the Scott River, from the confluence of the East and South Forks to the head of the Canyon, stretches from south to north for about 30 miles. Elevations in the Valley range from 2,630 to 3,120 feet amsl. The major morphological features of this section include the large alluvial fans deposited by the western tributaries and the alluvial floodplain of the Scott Valley.

The mainstem Valley bottom of the Scott River is low relief with relatively low precipitation. It is underlain by Quaternary age alluvium. The eastern valley side slopes are also characterized by low precipitation, and because significant drainage from much of the eastern hillsides (except Moffett Creek) does not directly reach the Scott River, it is considered a low sediment contribution area (SQRCD, 2005). In contrast, the western mountains are high elevation and contain a number of streams with perennial connection to the Scott River. Drainage areas are large, streamflow is comparatively high, and sediment yields are much greater (especially from west side sub-watersheds underlain by erodible granitic bedrock and soils). The largest west side



SOURCES: California Department of Conservation (2006), CGS (2005), ESA (2007)

Figure 3.2-4
Scott River Subwatersheds

tributaries terminate on the western Valley margin as large, gentle alluvial fans where sediment loads are dropped near the mountain front and braided or anastomosing stream channels shift across the fan surfaces before reaching the mainstem Scott River.

The mainstem Scott River in the Valley can be divided into two sections that exhibit certain common morphological characteristics (SQRCD, 2005). The upper section (Reach 1) includes about 13 miles of the Scott River, which runs south to north through the southern portion of Scott Valley with an elevation change of about 220 feet. Reach 1 begins at the confluence of the East and South Forks and ends at the Scott River's confluence with Etna Creek. Overall channel slope is about 0.3 percent. The upper five miles of this reach are heavily impacted by historical mining and large piles of tailings cover the entire width of the floodplain in this section. The tailings form a barrier between the river and its floodplain and are a source of cobble and gravel that contributes to unstable and aggraded conditions downstream. During summer months, flow through the northern portion of the mine tailings can go subsurface resulting in 1.5 miles of dry river bed.

Reach 1 consists of a wide, flat floodplain and a sinuous channel pattern where bars, islands, and side and/or off-channel habitats are common (SQRCD, 2005); areas of overhanging riparian vegetation are rare. The side channel to the west of the active channel is disconnected. There is no connected floodplain through the tailings segment of Reach 1, and mining has greatly coarsened the bed of the river. In the tailings segment, the channel is wide, shallow, and locally unstable, side channels are few, and lateral scour against the tailings during flood events provides excessive sediment supply to downstream areas. Channel instability and lack of floodplain soils within the tailings area prevent the establishment of riparian vegetation. From the Scott Valley Irrigation District (SVID) diversion site to the Etna Creek channel confluence down-cutting of the mainstem channel is occurring. This makes restoration or establishment of riparian vegetation difficult, though the channel is laterally stable in this segment (SQRCD, 2005).

In the lower reach (Reach 2), the mainstem Scott River from Etna Creek to the Canyon includes about 17 miles of the Scott River which runs south to north turning west near Fort Jones where it drains into the Canyon three miles below the confluence with Shackleford Creek. Elevation ranges from a high of 2,900 feet at Etna Creek to 2,630 feet at the heading of the Canyon area (average slope is 0.4 percent). The river has created a wide, flat floodplain and a sinuous channel pattern where bars, islands, side and/or off-channel habitats are common. A significant reach of the Scott River through Scott Valley is very flat (approximately 0.02 percent slope) and is a sand dominated channel, while the northern and southern ends of this stream reach possess coarser bed materials, including gravels (SQRCD, 2005). Although the low gradient reaches of the river in Scott Valley represent a natural area of sediment deposition, considerable channel alteration of the Scott River over the years has changed its sediment storage and transport capacities. The greatest amount of sand in channel storage is in the reach between Oro Fino Creek and the State Highway 3 bridge near Fort Jones (Sommarstrom, et al, 1990).

Significant portions of the Scott River in Reach 2 have been straightened, banks have been stabilized using riprap to prevent erosion and flood control levees prevent the river from accessing of the floodplain. This reach of the Scott River is entrenched and there is only a narrow band of land where riparian vegetation establishes naturally. The side-channels present in this reach are only active during very high flow events.

Groundwater

Groundwater use in the Scott Valley has increased dramatically over the last few decades. In the year 2000, DWR (as cited in SRWC, 2006) estimated that 45 percent of the irrigated acres in the Scott Valley were using groundwater, compared to 2 percent just over 30 years ago. **Table 3.2-5** compares the composition and volume of water utilized in the Scott River watershed in 1958 and in 2000 (DWR data in SRWC, 2006; Naman, 2005). According to Table 3.2-2, the increase in the volume of water utilized has consisted almost exclusively of groundwater. Unlike some of the surface diversions, in the Scott River watershed there is no regulation, management, or quantification of the extraction of water from wells, other than the minimal regulation that occurs within the “interconnected zone” specified in the Scott River Decree (Naman, 2005).

TABLE 3.2-5
WATER UTILIZATION IN THE SCOTT RIVER WATERSHED, 1958 AND 2000

	1958		2000	
Water Type	**Volume (ac-ft)**	**Percentage**	**Volume (ac-ft)**	**Percentage**
Groundwater	900	2%	29,250	45%
Surface water	38,700	86%	31,200	48%
Mix	5,400	12%	4,550	7%
Total	45,000	100%	65,000	100%

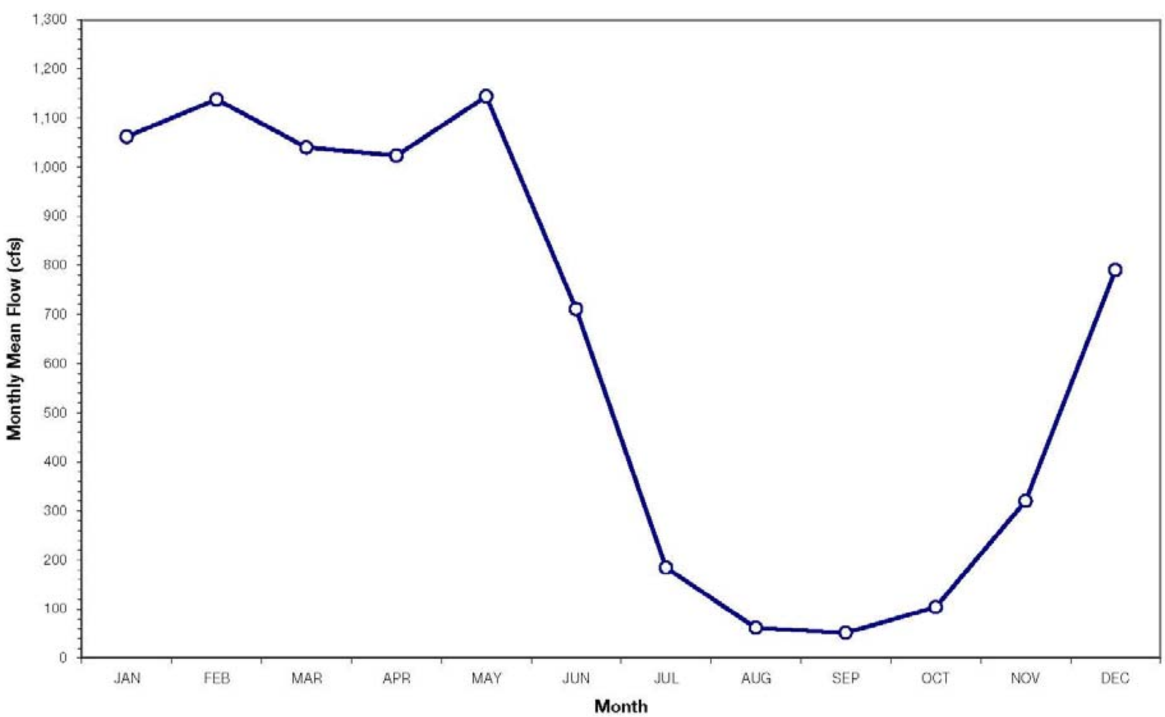
SOURCE: DWR data in SRWC, 2006; Naman, 2005

Limited data on groundwater levels exist for the Scott Valley. DWR collected groundwater data throughout the Scott Valley in August of 1990. While these groundwater data are not conclusive, they do suggest that even in August of a dry year, groundwater still moves toward the river in most of the Scott Valley. During the 1989 and 1990 summers, there was continuous surface flow at all the major bridges on the Scott River. Although surface flows were not continuous at all points along the river, groundwater apparently continued to recharge the river (DWR, 1991). Based on DWR monitoring data collected since 1965 from two monitoring wells near the Scott River and one well one mile from the river, SRWC (2006) concluded that groundwater levels have remained fairly constant over the last 40 years and have recharged for the most part each year. However, review of these same data suggests that the draw-down of the water table in the fall may be getting more pronounced compared to 40 years ago. The difference between a dry stream and a flowing stream may be a matter of only a few feet, and it is not possible to assess the connection between the groundwater and surface flow based upon two measurements per year at a limited number of locations.

Surface Water Hydrology and Flow Regime

Description of the general hydrologic regime of the Scott River through the Valley is derived primarily from 64 years of data (WY 1942 through 2005) from the USGS gaging station (no. 11519500) located downstream of Fort Jones. This is the oldest operating stream gage in the Program Area. Mean monthly discharge for this station over the period of record is summarized in **Figure 3.2-5**. The total annual discharge (and water yield for irrigators) can vary greatly from year to year; variations in flow within the same year can also be substantial. Despite the inherent variability of the Scott River flow regime, the river exhibits a general, seasonal trend (**Figure 3.2-6**) that is consistent in all but the most extreme water years. This general trend is described succinctly by USFS:

> Water discharge levels typically rise in November to late December in response to fall rains; peak discharge in January and February in response to large winter storms; a slight decrease in late March or early April as storms decrease and temperatures remain low; an increase in April to June from snowmelt; and a rapid decrease in discharge in June to August as snowmelt diminishes and storms have ceased. It is also evident that in every year, regardless of whether the winter was wet or dry, summer flow levels decrease to very low in August to September. This is in response to a combination of natural and man-made situations: hot days with no precipitation and intensive use of water for agriculture in Scott Valley. (USFS, 2000b, in NCRWQCB, 2005)



SOURCE: USGS (2006a)

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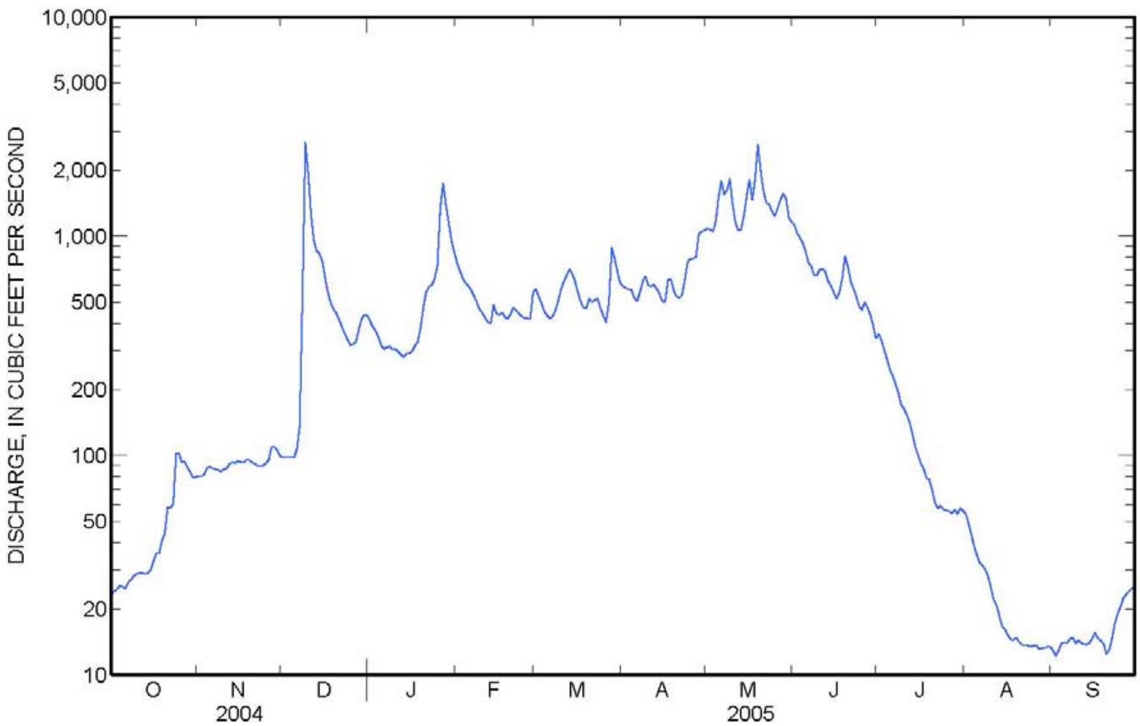
Figure 3.2-5
Mean Monthly Flow of the Scott River, USGS Gage No. 11519500 (WY 1942-2005)



SOURCE: USGS (2006a)

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Figure 3.2-6
Daily Flow of the Scott River for WY 2005
(USGS Gage no. 11519500)

Water availability in the critical months (i.e., later summer and early fall), both for irrigation and for instream fish habitat, is ultimately determined by rainfall and snow amounts and the interaction of these two elements during the previous winter season. Many of the tributaries of the Scott River originate from high-altitude lakes located near the summits of the surrounding mountain ranges; flow in the Scott River is thus extended into the summer dry period by the melting snowpack of the Scott, Salmon, and Marble Mountains (DWR, 1991). Factors such as early season snowmelt or more precipitation as rain instead of snow contribute to lower late summer and fall flows compared to annual precipitation totals (SRWC, 2006).

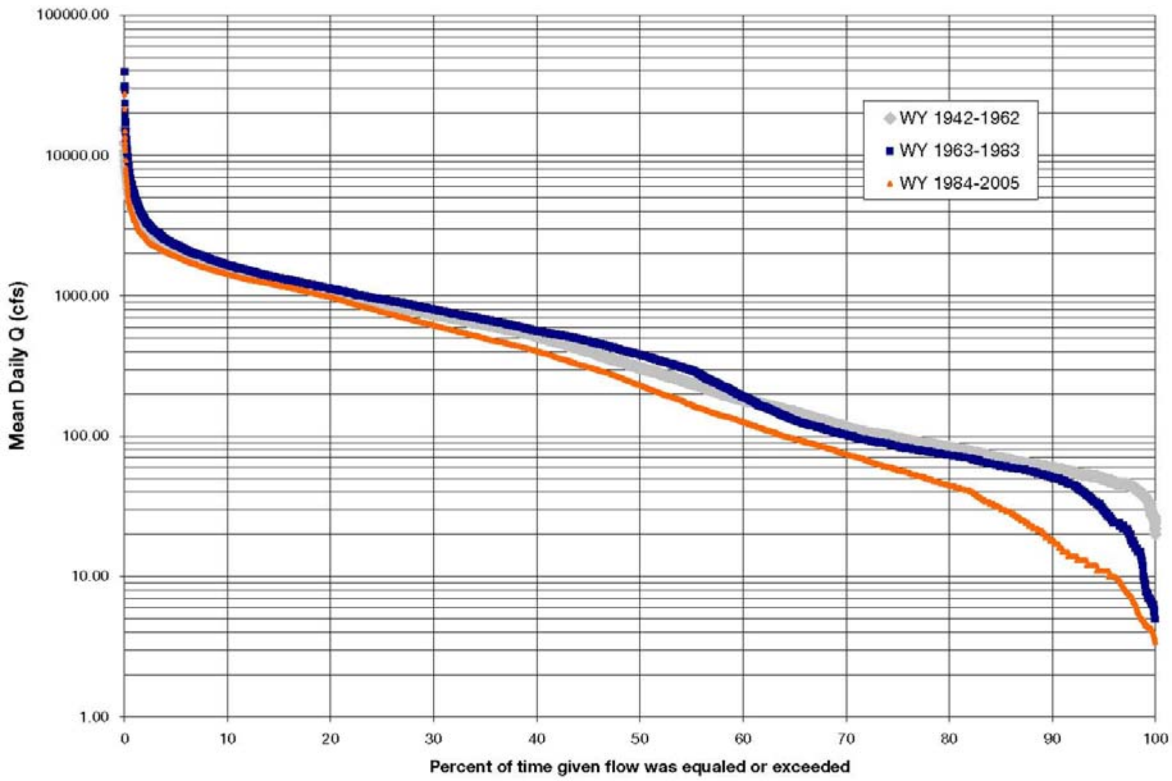
In addition to the natural recession of runoff, stream diversions during the dry months further decrease the volume and duration of baseflows. The demand for irrigation water and the amount of water allocated under the three decrees for the Program Area is typically in excess of surface flow sources during the summer and fall. Consequently, the entirety of late summer and early fall streamflows in the Valley may be – and sometimes are – diverted under water rights defined by the court decrees. Also, during dry years surface diversions often cease in the late summer months because there is little or no surface water available, and diverters subsequently rely exclusively on groundwater for the remainder of the irrigation season.

The west side of the Valley is irrigated mainly by tributaries originating from the Salmon and Marble Mountains, and the east side of the valley is irrigated mainly by stream diversions from the Scott River. Over the past 40 years, many agricultural operations have switched partly or wholly from surface water to groundwater. The principal method of irrigation has also shifted, from flood irrigation to the use of more efficient sprinkler irrigation. A comparison of water utilization and irrigated acres from 1958 to 2000 indicates a substantial increase in the fraction of irrigation withdrawal made up of groundwater (DWR data, in Naman, 2005; Van Kirk and Naman, 2008). Over this same time period, the total number of irrigated acres in the Scott Valley has changed little. Well drilling peaked after the 1976-77 drought, with a smaller increase again occurring in 1992 during another drought period. Irrigation well yields range from 30 to 3,000 gallons per minute (gpm) (DWR, 2004).

Most diversions are not monitored or watermastered, and therefore only gross estimates of water taken from the river can be made based upon adjudicated volumes (or rates) and estimates of applied water use. One estimate of water applied for agricultural use in the Scott Valley is 98,100 acre-feet, while evapotranspiration (ET, the loss of water from the land through transpiration of plants and evaporation from the soil and surface water-bodies) is estimated to be 78,000 acre-feet – the difference is accounted for by losses due to deep percolation, ditch loss and runoff (SRWC, 2006). Another estimate of water utilization in the Scott Valley in the year 2000 was 65,000 acre-feet (DWR data, in Naman, 2005). Most of the irrigation diversions and groundwater extractions in the Scott Valley occur during later spring, summer, and early fall. However, the actual irrigation season may vary depending on weather conditions (e.g., early rains and mild temperatures may offset the need to irrigate into October). Diversions from streams for both stock water and domestic use also occur throughout the year. Many domestic users are scattered throughout the valley and foothills of the Scott River watershed and utilize groundwater from individual wells (SRWC, 2006).

Partly as a result of stream diversions and increased groundwater extraction, the volume and duration of baseflows (i.e., late summer and early fall) in the Scott River has decreased over time and further limited spawning and rearing habitats for fish species. Such conditions normally occur during the months of July through October. **Figure 3.2-7** depicts a series of flow duration curves, each spanning a time frame of about twenty years, over the period of record for the USGS gaging station downstream of Fort Jones. The flow duration curve is one of the simplest means of expressing the time distribution of discharge; the upper end of the curve is primarily determined by regional climate, while the lower end of the curve is primarily determined by geology and topography, under natural conditions. A steeply sloping duration curve is characteristic of a highly variable stream, the flow of which is primarily from direct runoff (Leopold, 1994), while a flat curve typically suggests a pronounced groundwater and/or spring (snowmelt) runoff influence. A sharp drop at the end (right-hand side) of the curve indicates a lack of groundwater input and/or a suppressed baseflow condition.

Over time, a lasting and continual decrease in baseflow volumes and duration can have a substantial effect on the quantity and quality of instream habitat as well as the condition of the riparian corridor. Low flows reduce the amount of instream habitat and generally increase



SOURCE: USGS (2006b); ESA (2007)

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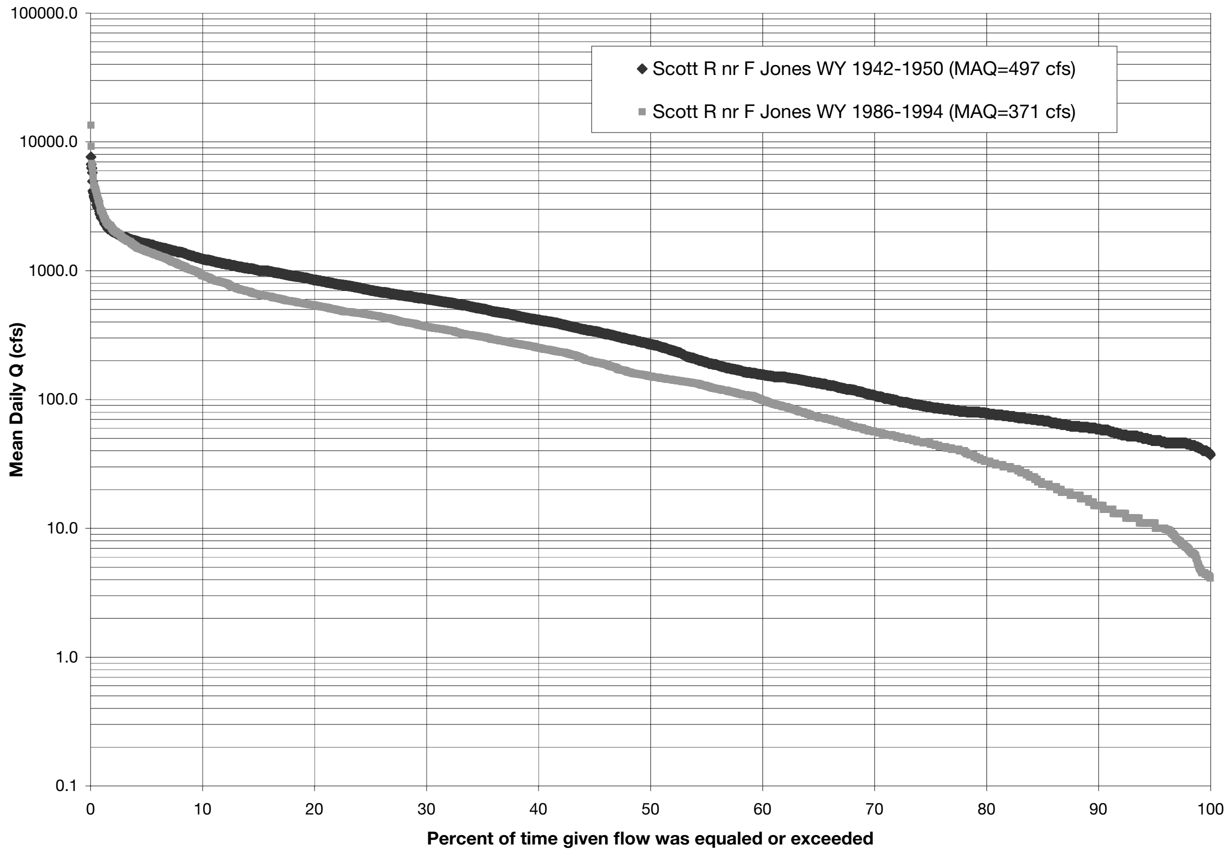
Figure 3.2-7
Scott River Flow Durations
(USGS Gage No. 11519500)

ambient water temperatures. Further, reduction in low flow levels can lower the streamside water table, making it difficult or impossible to maintain a healthy corridor of riparian vegetation. The loss of stabilizing vegetation can subsequently lead to increased rates of bank erosion and channel incision during high flow periods. As well, NCRWQCB (2005) concluded that stream shade, or lack thereof, provided by riparian vegetation has a large effect on ambient stream temperature. All of these processes and effects are evident in the Program Area and, in part, characterize the existing hydrologic and geomorphic condition of the Scott River.

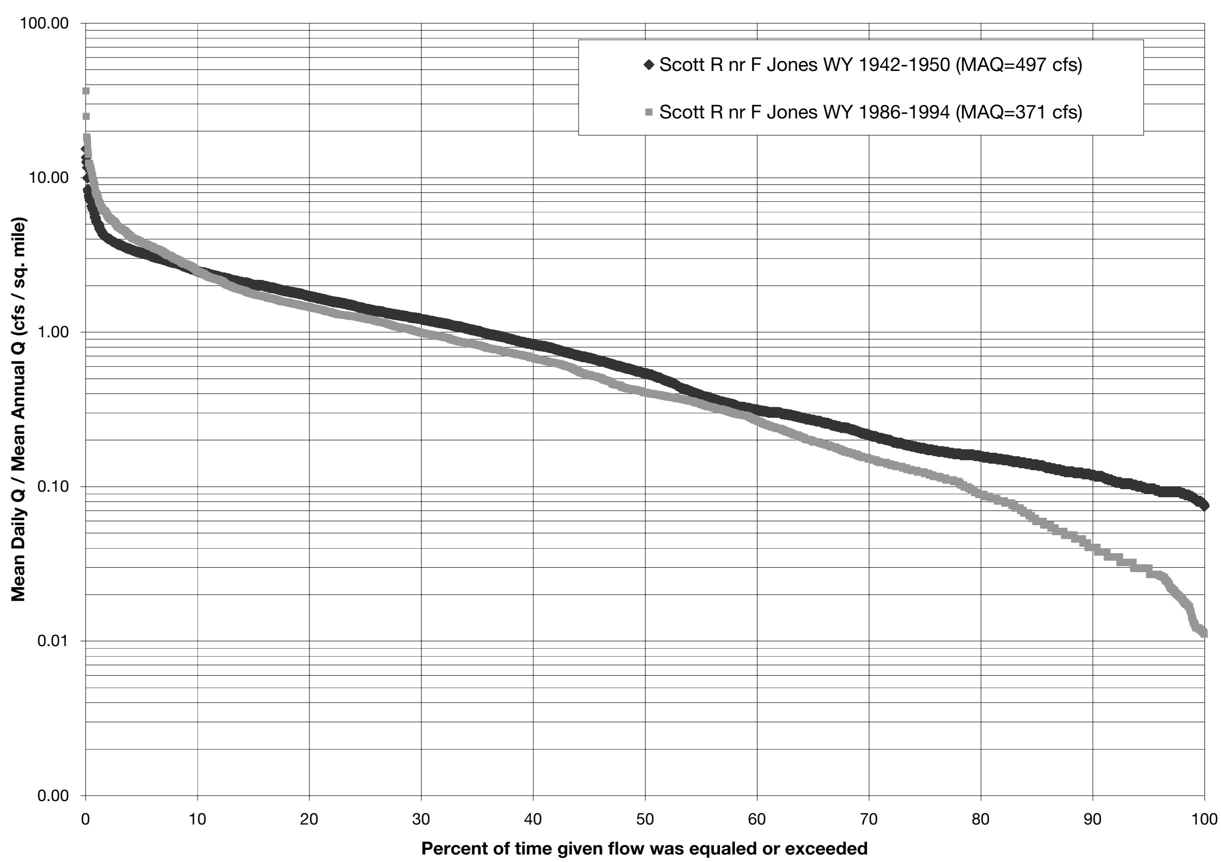
Figures 3.2-8 and **3.2-9** compare flow duration characteristics of the Scott River and the Salmon River (an adjacent watershed to the southwest) for two extended dry periods, WY 1942 to 1950 and WY 1986 to 1994. The curves are normalized for two general parameters: average runoff (to account for precipitation differences between time periods, and differences in relative magnitude of runoff between the two watersheds) and drainage area (to account for the different-sized watersheds of the Scott River and the Salmon River). Figure 3.2-9 is notable in that, when comparing normalized hydrologic parameters, the Scott River from WY 1942 to 1950 exhibits almost the same characteristics as the Salmon River (the Salmon River is unregulated with no significant upstream storage or large diversions). Further, the Scott River from WY 1986 to 1994 exhibits a marked depression in baseflow volumes and duration in comparison to either the Salmon River over the same time period (WY 1986 to 1994) or to the Scott River of 40 years ago.



Scott River Watershed-Wide Permitting Program . D206063

SOURCE: USGS (2006b); ESA (2007)

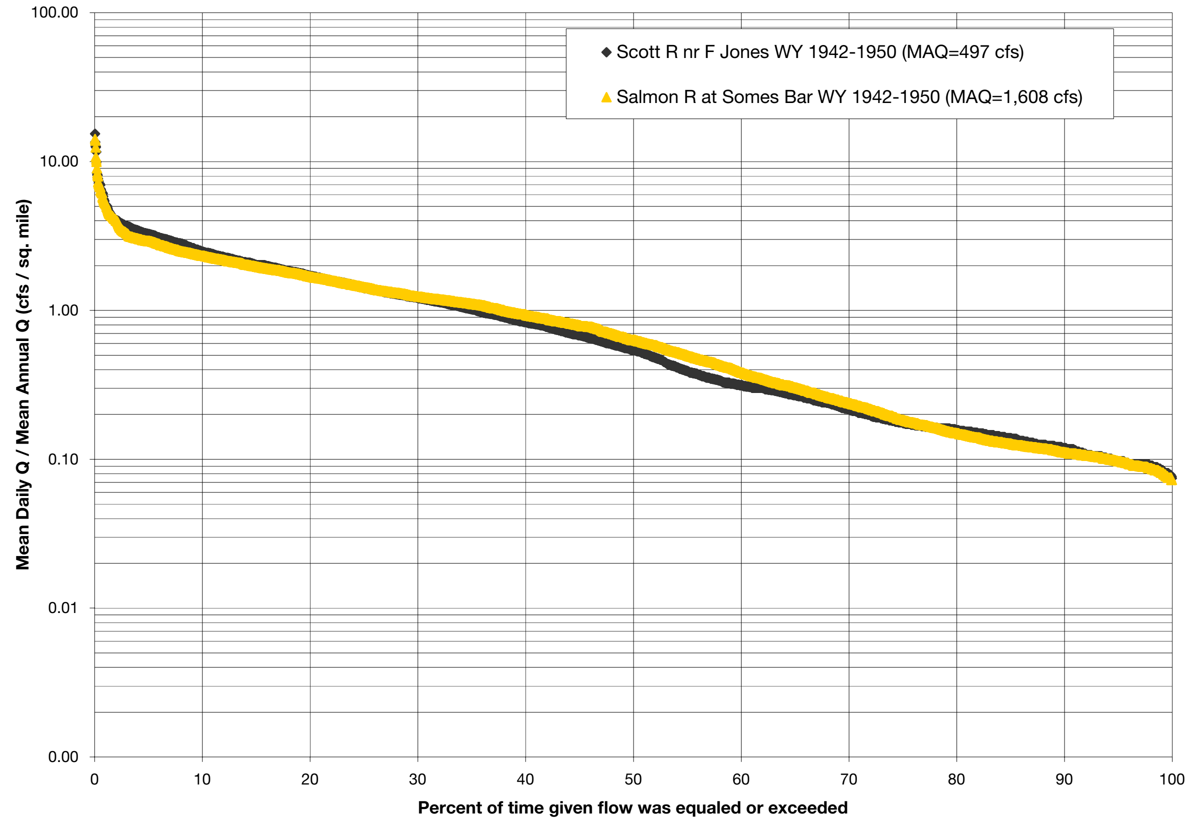
Figure 3.2-8a
Scott River Dry Period Flow Durations



Scott River Watershed-Wide Permitting Program . D206063

SOURCE: USGS (2006b); ESA (2007)

Figure 3.2-8b
Scott River Dry Period Flow Durations (Normalized by Drainage Area and Mean Annual Discharge for the Respective Period)



SOURCE: USGS (2006b); ESA (2007)

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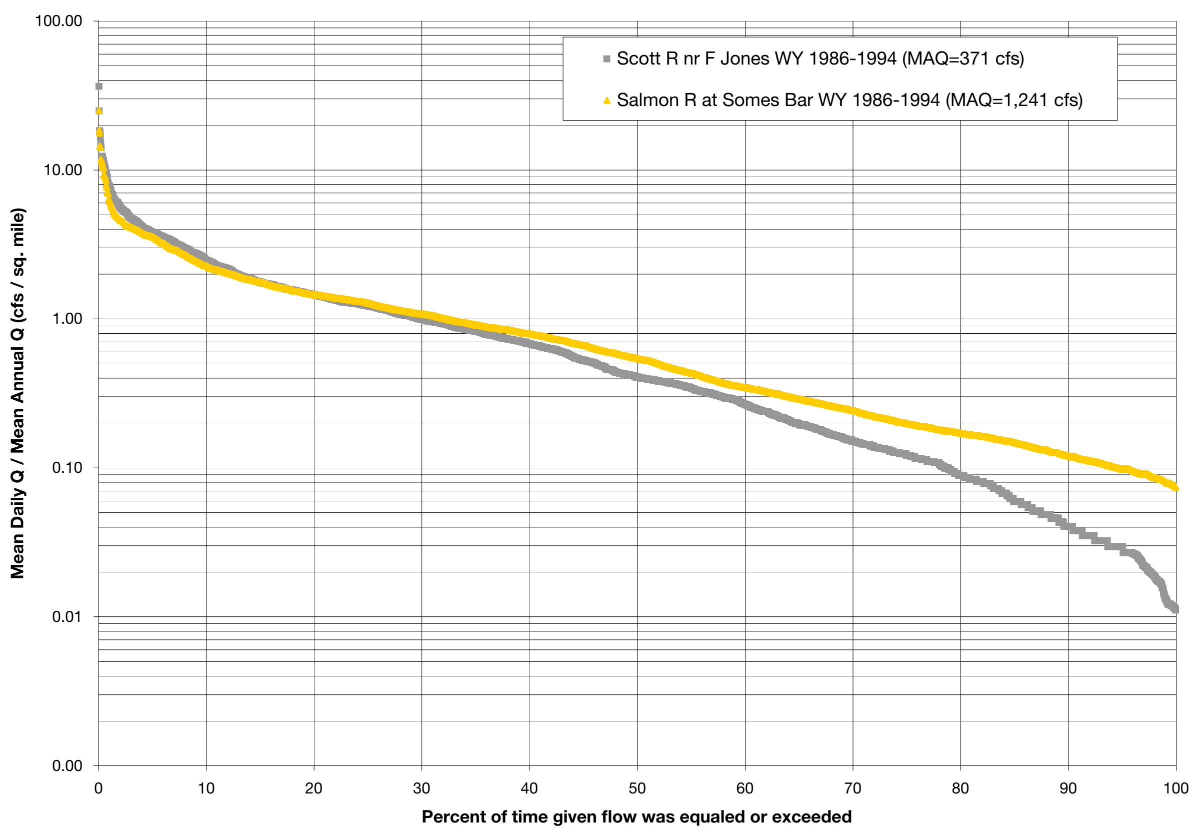
Figure 3.2-9a
Scott and Salmon Rivers Normalized
Dry Period Flow Duration Curves (WY 1942-1950)



SOURCE: USGS (2006b); ESA (2007)

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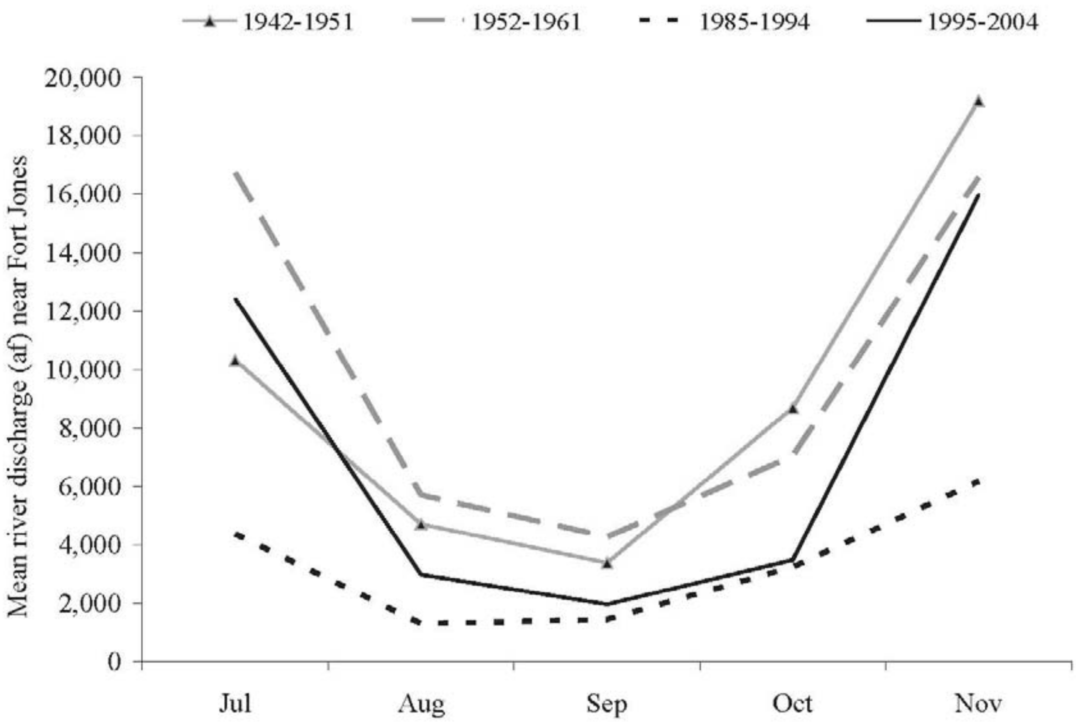
Figure 3.2-9b
Scott and Salmon Rivers Normalized
Dry Period Flow Duration Curves (WY 1986-1994)

The Scott River, over the most recent dry period, exhibits a measurable decrease in the volume and duration of baseflow. Compared to the dry period of WY 1942 to 1950, the dry period of WY 1986 to 1994 had a 10 percent reduction in number of days experiencing a mean daily flow of 100 cfs, and a 20 percent reduction in the number of days experiencing a mean daily flow of at least 35 cfs. Approximately 657 days during the WY 1986 to 1994 period (or, an average of 73 days per year) had a mean daily flow of less than 30 cfs, while the mean daily flow during the entire WY 1942 to 1950 time period never fell below 37 cfs. Maintenance of baseflow is a recognized and important aspect of water quality with regards to salmonid habitat and health (CDFG, 2002; NRC, 2004; SSRT, 2003). In the Scott River Decree, USFS was allotted a water right for instream use for fish and wildlife. During the summer and early fall, the decree allotted USFS 30 to 40 cfs, as measured at the USGS gaging station (no. 115195000) below Fort Jones. These were considered the necessary levels to provide minimum subsistence-level fishery conditions, and can be experienced only in critically dry years without resulting in depletion of the fishery resource (Scott River Decree, 1980); on average, these levels are not currently being met. One fifth of the days during the last extended dry period fell below this subsistence level, and examination of the stream record over the last decade indicates that this is often the case even during average and above average individual rainfall years.

The decline in Scott River baseflow volumes and durations can be attributed, in part, to an increase in overall consumptive water use as well as the amount of water taken from groundwater sources. The period of 1942 to 1950 was prior to the establishment of the first adjudication settlement in the Program Area (i.e., the Shackleford Creek Decree) and the diversion of surface water, which was the dominant (if not exclusive) source at that time, was not regulated by statutory adjudication. As discussed above, groundwater use increased dramatically beginning in the 1990s. In essence, Figures 3.2-8 and 3.2-9 compare a dry period that occurred before much (if any) groundwater was being used to a subsequent dry period during which the use of groundwater played a greater role. The marked decline in baseflow is likely, in part, attributable to the increase in groundwater consumption. Comparing historic (1942-1976) to modern (1977-2005) periods, Van Kirk and Naman (2008) noted a significant decline in Scott River discharge during the low-flow season (approximately July through October); the authors attributed over 60 percent of this observed decline to local factors such as increases in irrigation withdrawal and consumptive use. **Figure 3.2-10** further demonstrates that, regardless of water year-type or extended wet and dry periods, Scott River flows during the late summer and early fall have decreased over time. For example, in Figure 3.2-10 the discharge curve for the more recent, relatively wetter period (1995 to 2004) crosses and falls below the discharge curve for the historic, relatively drier period (1942 to 1951).

Scott River Decree (1980). The Scott River Decree was finalized in January of 1980, and it included decisions on water rights for the Scott River, South Fork Scott River, East Fork Scott River, Wildcat Creek, Oro Fino Creek, Sniktaw Creek, numerous other tributaries (as well as several lakes), and an area of the Groundwater Basin delineated as being interconnected with river flow (see Table 3.2-2). Most of the irrigation diversions on the Scott River operate from April 1 through October 15 pursuant to the decree. Use of groundwater not considered interconnected with the Scott River does not currently require a water rights permit and is not subject to adjudication.



Scott River Watershed-Wide Permitting Program . D206063

SOURCE: Naman (2005)

Figure 3.2-10
Scott River Monthly Discharge Comparison
(July through November), Selected Periods

The two largest diversions (and allotments) on the mainstem Scott River are the Farmers Ditch and the Scott Valley Irrigation District (SVID) ditch. DWR (1991) characterizes these ditches as follows:

- The Farmers Ditch is located within the tailings section of the Scott River, just downstream of the Sugar Creek confluence (within Reach 1, discussed above). The Farmers Ditch Company owns and operates the ditch to supply 10 users and most of the water is applied to irrigated pasture. The Scott River Decree allocates 36.0 cfs to the Farmers Ditch (22.3 cfs for consumptive use and 13.7 cfs for ditch losses). Typically, in August and September the ditch has the right to divert the entire natural flow of the Scott River.

- The SVID ditch diverts flows from the river at Young's Point, about 7,000 feet upstream from Horn Lane. The decree allotted 62.5 cfs to the SVID at this diversion. However, this was later reduced by SWRCB to 43 cfs. Historically and at present, there are significant losses along this ditch.

The Scott River Decree also allots water to USFS for instream use for fish and wildlife within the Klamath National Forest. These water rights are equal in priority to rights allotted other water users from diversion no. 576 to the USGS gaging station (no. 11519500, near Fort Jones). However, USFS water rights are inferior to all rights granted above diversion no. 576, which is most of the Scott Valley and its tributaries. Streamflow records show that in most years USFS does not receive its full allotment of water during the summer and fall months (DWR, 1991).

The Scott River Decree defines a zone of interconnected groundwater; within this zone, water pumped from the ground is considered to be part of the adjudicated water supply (DWR, 1991). However, the interconnected zone was designated with limited available information and does not fully account for the interconnectedness of the Groundwater Basin with river and streamflow. Further, the rights pertaining to groundwater use within the interconnected zone are not quantified: the decree states that the volume of water allotted to each individual is the amount "reasonably required to irrigate the acreage shown opposite their names" (Naman, 2005).

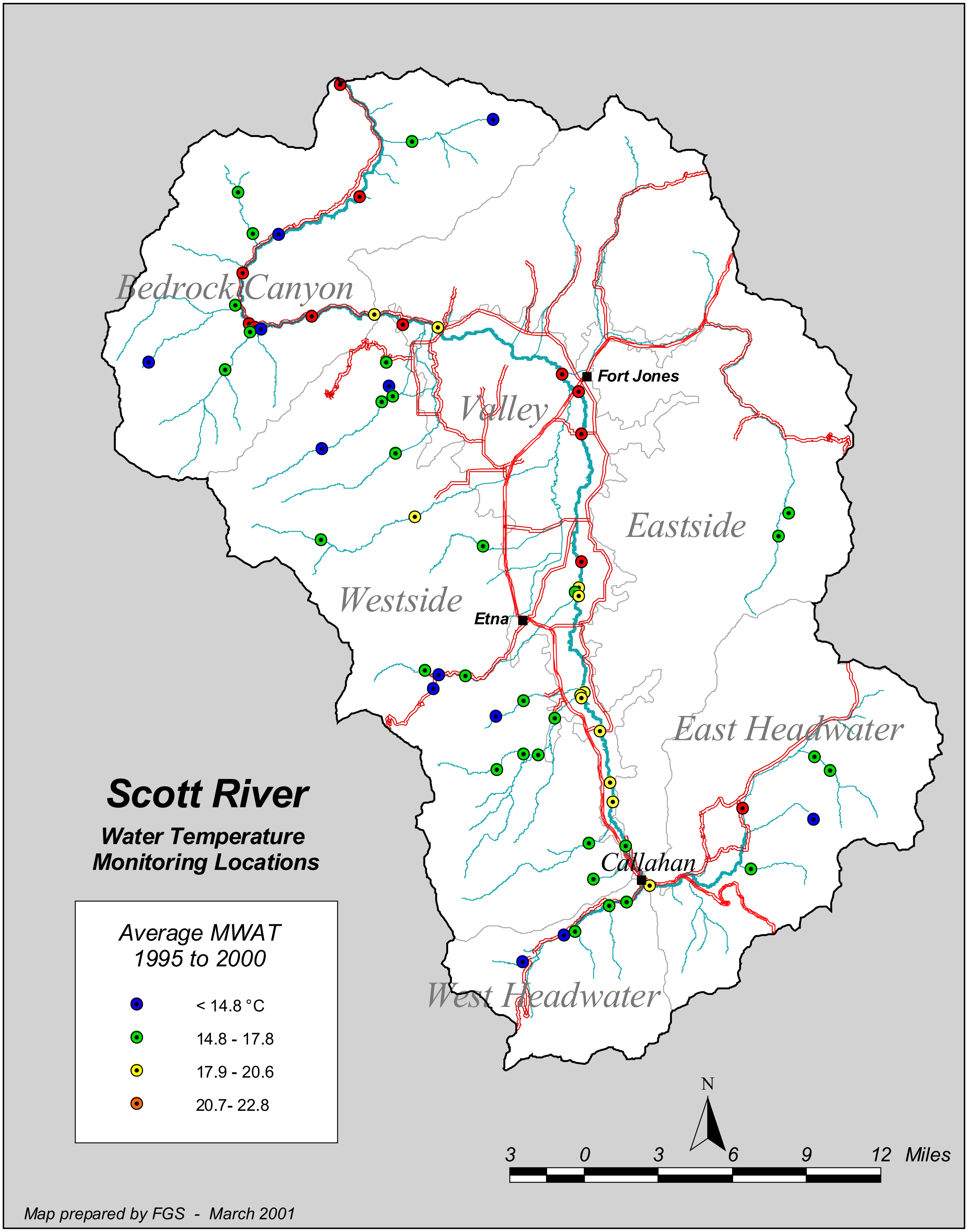
Water Quality

As identified by NCRWQCB (2006a), the principal water quality issues in the Program Area concern temperature and sedimentation. These issues fall under the category of non-point source (NPS) pollution. NPS pollution arises from many sources, including agriculture, timber harvesting, mine drainage, and residential developments, and is usually mobilized by excess precipitation (i.e., rainfall and snowmelt runoff) or irrigation water moving over and through the ground.

Temperature. In 1994, a cooperative effort, involving both public and private entities, was initiated to collect water temperature data in the Program Area. **Figure 3.2-11**, as taken from Quigley et al. (2001), shows the five-year average Maximum Weekly Average Temperatures (MWAT) resulting from this cooperative effort. The mainstem of the Scott River was found to have excessive summer water temperature levels. However, evidence suggests that this may have been true for the past several decades. The MWAT water temperatures recorded between 1997 and 2000 in all geomorphic sub-basins[5] were comparable to the range of temperatures recorded in the Scott River watershed since 1951 (Quigley et al., 2001). However, aside from the range of temperatures, the inability to compare potential differences in the persistence of excessive temperatures throughout the course of a year (or multiple years), tempers the above comparison and precludes any conclusions regarding the similarity of the historic and current stream temperature regime. Regardless, while much of the mainstem Scott River may have historically experienced excessive temperature levels, many of the tributary reaches had temperatures believed by Quigley et al. (2001) to be acceptable for salmonid rearing over the summer.

Sediment. The production and transport of sediment in the Program Area depends in part on natural conditions such as climate, geology and episodic events including fires and floods. In addition, as discussed above, past and present land-use and management practices have increased sediment yield in certain parts of the watershed. Records of sediment-related problems can be traced back to the placer and hydraulic mining era of the late 1800s. Gold dredging near Callahan in the 1930s and 1940s created chronic turbidity and siltation problems (SRWC, 2006). More recently, Sommarstrom et al. (1990) demonstrated that a significant source of sediment is the highly erodible, decomposed granite soils on the western slopes of the Program Area; erosion from these soils has been greatly accelerated by road building.

[5] Quigley et al. (2001) divided the Scott River watershed into six geomorphic sub-basins: East Headwaters, West Headwaters, Eastside, Westside, Valley, and Canyon.



SOURCE: Quigley et al. (2001)

Figure 3.2-11
Scott River Watershed Water Temperatures

Of particular concern are excessive percentages of silt, sand, and fine gravel (i.e., particles less than 0.0625 mm and up to 6.3 mm). Excessive percentages of sediment 6.3 mm and finer cause problems for fish by smothering eggs and aquatic invertebrates, the burial of bottom cover, reductions in the volume and number of pools for rearing, and, through the loss of deep, cool water pools, may result in local increases in ambient stream temperatures. Sediment levels have been measured in spawning gravels in the Scott River in 1989 and 2000, and in French, Etna, and Sugar Creeks in 1982, 1989, and 2000 (Sommarstrom et al., 1990; Sommarstrom, 2001). Lester (1999, in NCRWQCB, 2005) also analyzed sediments in Canyon Creek and Tompkins Creek. Only a few sections of the mainstem Scott River (near Fort Jones) currently have fines above the NMFS recommended level of 12 percent, and these levels have shown a reduction from 1989 to 2000 according to Sommarstrom (2001). Etna Creek and lower French Creek showed reduced levels also, but the upper French Creek and Sugar Creek sites showed a slight increase (SRWC, 2006). Data collected by USFS in cooperation with the French Creek Watershed Advisory Group (WAG) showed a decreasing trend in the level of fine sediment in pools over the 1992 to 2001 time period. Over this time period, the French Creek WAG began to implement a road-related sediment reduction plan and the data suggest the plan has been effective.

In general, most of the sediment data collected indicate improving conditions (from 1989 to 2000) with regards to sediment less than 0.85 mm, but exhibit no clear trend with regard to sediment in the 0.85-6.3 mm size range. The mainstem Scott River appears to be getting coarser in its sediment composition, particularly in the mid-section of the Valley downstream of Highway 3 (SRWC, 2006). This reduction in fine sediment may reflect the readjustment of the river's gradient after the removal of a small diversion dam, and its 30-year accumulation of sediment, near Moffett Creek sometime between 1987 and 1989 (SRWC, 2006). Still, accumulations of sand-sized sediment in some of the lower gradient reaches of the Scott River Valley continue to be elevated above levels that would be suitable for high quality salmonid spawning and rearing habitat.

The Impact of Diversions on Flow Volume and Water Quality

As discussed above, agricultural water diversions have led to decreased surface flows in the spring and summer months, thereby reducing the amount of instream habitat and locally increasing ambient surface water temperatures. As part of the Program, CDFG would authorize the take of coho salmon that might occur incidental to diverting and using water pursuant to and in accordance with a valid water right (ITP Covered Activity 1). All water diversions the Program would cover are existing, ongoing diversions, both active and passive. NCRWQCB (2005) has concluded that elevated temperatures and excessive amounts of sediment contribute to the non-attainment of beneficial uses associated with the cold-water fishery, namely the salmonid fishery. This is the existing condition within the Program Area. Over time, the persistence of low baseflow volumes can exert an effect over an increasingly larger area, such as adversely affecting the condition of the riparian corridor (e.g., lowering the streamside water table, loss of stabilizing vegetation, and subsequent increased rates of bank erosion and channel incision during high-flow periods). These effects can be further exacerbated by an increase in the rate of water diversion or extraction.

Implementation of the Program would not cause Agricultural Operators to increase their surface water diversions or increase the amount of water they are entitled to divert. To the contrary, the Program, by means of a number of required measures, would provide a mechanism to verify, monitor, and control the diversion and use of water within the Program Area to ensure that such diversion and use is based on a valid water right.

Lower Scott River (Canyon Reach)

The mainstem Scott River, in the gorge section between the downstream end of the Scott Valley and the Klamath River, is comparatively steep and high energy. Sediment is only locally stored and riffle forms are common. The shape of the 1914 profile is different from many of the other Klamath River tributaries, containing a concave-up section from the mouth upriver to RM 16 and flattening into its valley about 21 miles upriver (Ayres and Associates, 1999). The slope of the river from the mouth to about RM 7.6 is 36.4 ft/mi (0.0069 ft/ft) and steepens greatly to 60.7 ft/mi (0.0115 ft/ft) from RM 6.6 to about RM 21. A substantial portion of this steepness is accumulated in the steep drop below Boulder Creek (RM 16). The channel slope flattens significantly in Scott Valley. The average channel slope in the valley from RM 21 to RM 32 is about 7.4 ft/mi (0.0014 ft/ft).

Eastern Headwaters (East Fork of Scott River)

The East Fork and South Fork of the Scott River converge at the town of Callahan to form the headwaters of the Scott River mainstem. The East Fork drains out of the Scott Mountains and has a total watershed area of 113.5 square miles (14 percent of the Program Area). Elevations in this drainage range from 2,720 feet amsl at Callahan to 8,540 feet amsl at China Mountain. The steep, rugged mountains of the East Fork Scott River sub-basin are composed of both sedimentary and metamorphic bedrock types, as well as large areas of mafic bedrock and a little granitic bedrock. One upland valley has Quaternary age glacial deposits (SQRCD, 2005). The sub-watershed is generally characterized by a low frequency of landslides (NCRWQCB, 2005).

The headwater tributaries in the East Fork Scott River sub-basin are generally small, steep, high gradient streams. These high gradient streams flow into narrow alluvial channels of low gradient, moderately confined valley bottoms which, in turn, are bordered by discontinuous alluvial floodplains. Grazing and development of levees from bed material and tailings have prevented continuous riparian development. Furthermore, channel confinement due to levee development has caused channel down-cutting. The down-cutting has caused many alders to die as they were separated from streamflow (SQRCD, 2005). Overall, channel geomorphology has been affected by downcutting and straightening, as well as steepening of channel gradient caused by mining and mining tailings (SQRCD, 2005). Levees and the loss of riparian vegetation have also contributed to channel incision and less hydrologic connection to the floodplain. Channel geomorphology has been simplified over native conditions.

Streamflow data in the East Fork drainage was collected by USGS for WY 1960 to 1974 and, more recently, by DWR beginning in 2002. These data show average August and September flows to be approximately 5 cfs and 3 cfs, respectively. Stream temperature data have been collected for the

East Fork and two tributaries since 1996. Summer temperatures in the tributaries have ranged from 12-18°C (53.6-64.4 °F), while temperatures in the East Fork have ranged from 19-22.7 °C (66.2-72.9 °F) (refer to Chapter 3.3 for discussion of salmonid temperature requirements).

Agricultural activity in the East Fork includes mountain range grazing in the summer and fall and pasture production in the alluvial valleys (SQRCD, 2005). Stream diversion is accomplished using both gravel push-up dams and hand stacked rock and cobble diversion structures and most of the irrigated pasture is flood irrigated using water from the East Fork and its tributaries. Allocated diversion volumes for the East Fork are shown in Table 3.2-2; refer to Chapter 3.1 for estimates of existing diversion volumes.

Western Headwaters (South Fork of Scott River)

The South Fork of the Scott River drains out of the Salmon Mountains in the southwest portion of the Scott Valley and has a total watershed area of 39.3 square miles (5 percent of the Program Area). Elevations in this drainage range from 3,120 feet amsl near Callahan to 7,400 feet amsl at the Scott River/Salmon River drainage divide. The South Fork Scott River originates in steep, rugged mountains consisting of largely granitic and mafic bedrock with small amounts of sedimentary and metamorphic bedrock. The South Fork sub-watershed has experienced significant landslide delivery, of which about 60 percent is anthropogenic (NCRWQCB, 2005). The largest anthropogenic contribution is from past mining activity on mafic bedrock along Slide Creek (SQRCD, 2005). Several channels suffer from the legacy effects of hydraulic mining.

As Quigley et al. (2001) describe, the morphological characteristics of this drainage include steep headwater tributaries that are generally small, low-order and high gradient streams. Snow accumulation and runoff significantly influence streamflows, which move quickly through steep reaches to the lower gradient Scott River. Tailings from historic mining activities dominate the narrow valley and have so completely altered channel processes and geomorphic and hydrologic function that recovery of the stream will not occur without human intervention (SQRCD, 2005). Historical mining may also have destroyed historical side channels and backwater areas.

Streamflow data in the South Fork drainage was collected by USGS for WY 1959 and 1960 and, more recently, by DWR beginning in 2002. These data show a wide variation in average summer flows, ranging between 12 cfs and 2 cfs for the months of August and September. Stream temperature data has been collected at two locations since 1996. Summer temperatures in the South Fork range from 15-17 °C (59-63 °F) and temperature conditions are generally favorable for salmonids during the summer (SQRCD, 2005).

Limited agricultural activity in the South Fork includes mountain range grazing in the summer and fall and pasture production (SQRCD, 2005). Stream diversion is accomplished using both gravel push-up dams and hand stacked rock and cobble diversion structures and most of the irrigated pasture is flood irrigated using water from the South Fork and its tributaries. Allocated diversion volumes for the South Fork are shown in Table 3.2-2. There are six active diversions in the South Fork drainage allotted a combined, adjudicated diversion rate near 16 cfs. An estimated maximum of 20 cfs (allowed in the Scott River Decree through utilization of the 30-day average provision) is diverted from these active diversions in the South Fork drainage during the spring; this volume reduces to less than 7 cfs in the late summer (SQRCD, 2005).

Sugar Creek and Wildcat Creek

Sugar Creek and Wildcat Creek are neighboring streams located in the southwestern portion of the Program Area. Both of these streams emerge from the Salmon Mountains and drain relatively small watersheds (Sugar Creek, 13.9 square miles; Wildcat Creek, 7.3 square miles) on the west side of the Valley; they empty into the Scott River a few miles downstream from the confluence of the East and South Forks. Elevations in these drainages range from 3,000 feet amsl at their confluence with the Scott River to over 7,000 feet amsl in their headwater areas. Both of these streams are distinct from many of the other, larger western tributaries in that they tend to remain connected to the Scott River during years of average precipitation and runoff conditions (SQRCD, 2005).

The lower section of both streams is heavily impacted by tailings piles (SQRCD, 2005). There are few side channels and backwater areas in Sugar Creek, and Wildcat Creek has several areas where side channels and backwaters exist but the tailings limit floodplain access and potential side channel development. Sugar Creek shows indications of carrying excessive fine sediments, mostly derived from large watershed areas underlain by decomposed granite. The excessive amount of fine sediment in the channel may originate from erosion caused by historic diversion ditch failures as well as from sediment delivery from abandoned USFS roads higher in the watershed (SQRCD, 2005). The lower two miles of the channel contain adequately sorted gravel bed materials. Above this area, the channel is dominated by bedrock and a mixture of cobbles and boulders (SQRCD, 2005).

Streamflow data for Sugar Creek was collected by USGS for WY 1958 to 1960 and, more recently, by SQRCD beginning in 2002. No current flow data exists for Wildcat Creek. The data for Sugar Creek indicate that summer baseflows range from 1 to 3 cfs; SQRCD (2005) suggests that summer baseflows in Wildcat Creek are likely less than 1 cfs near its mouth. Stream temperatures have been monitored in both creeks since 1998. Summer temperatures in both creeks range from 15-17 °C (59-63 °F) (SQRCD, 2005).

Agricultural activity in both the Sugar Creek and Wildcat Creek drainages is limited to mid- and lower-stream sections. The principal method of stream diversion is to use hand stacked rock and cobble diversion structures. Allocated diversion volumes for Sugar Creek and Wildcat Creek are shown in Table 3.2-2; refer to Chapter 3.1 for estimates of existing diversion volumes.

French Creek (including Miners Creek)

French Creek drains from the eastern slope of the Salmon Mountains in the southwestern part of the Program Area; it has a drainage area of approximately 44.7 square miles (six percent of the Program Area). Elevations in this drainage range from 2,950 feet to 7,400 feet amsl. Unlike many other tributaries in the Program Area (except for Sugar Creek), the French Creek drainage includes a large area underlain by granitic and dioritic rocks, which make up about half of the total area. At the mid- to lower-elevations, soils derived from these rock formations, particularly the granite, tend to be very susceptible to erosion by overland flow. An earlier study (Sommarstrom et al., 1990) showed that over 23 percent of the annual total erosion within the Scott River watershed originated from the French Creek drainage and, of this fraction, almost 60 percent was due to upland land management activities (such as roads and skid trails). However, improvement of upland roads and their drainage systems over the past 15 years has resulted in improved fine sediment levels in French Creek (SQRCD, 2005).

The majority of French Creek and its tributaries are high energy streams that efficiently transport sediment to the lower energy stream reaches further downstream. In spite of the relatively high sediment loads carried by most west side tributaries (Sommarstrom, et al., 1990), their generally steep gradients through the mid- to upper-reaches allow them to transport most or all of the granitic sands supplied to them from both natural and accelerated (human-caused) watershed erosion processes. However, once within the lower gradient valley bottoms, the stream energy decreases and sediment is deposited.

Upper Miners Creek presently flows through a mountain meadow composed of alluvial sediment deposits. Portions of the channel are defined and controlled by exposures of the granitic bedrock. The stream is deeply incised and well confined, and the banks are composed of unconsolidated coarse-to-fine soils. The stream banks are steep and unstable and the channel in this section is thought to be a significant source for fine sediment to downstream areas (Sommarstrom et al., 1990).

Stream temperature data have been collected annually in French Creek since 1997. Temperatures in the upper reaches (above the confluence with Miners Creek) generally do not exceed 16-18 °C (61-64 °F) during the summer, while temperatures downstream of the confluence with Miners Creek can reach as high as 20 °C (68 °F) (SQRCD, 2005).

Agricultural activity in the French Creek and Miners Creek drainages includes summer grazing, irrigated crop, and pasture production, the latter being most prevalent. The principal method of stream diversion is to use bolder ~~vortex~~ weirs and most of the irrigated pasture is flood irrigated.

Allocated diversion volumes for French Creek and Miners Creek are shown in Table 3.2-3; refer to Chapter 3.1 for estimates of existing diversion volumes.

French Creek Decree (1958). Stream diversion from French Creek (including Miners Creek) is defined by the French Creek Decree and administered by the Siskiyou County Superior Court. The decree allots a total of 36.5 cfs from French Creek and its tributaries. The decree is watermastered by DWR and diversion volumes and the history of diversion is better documented in French Creek than any other stream in the Scott River watershed (SQRCD, 2005). The irrigation season, as identified in the decree, begins April 1 and continues to September 30, with reduced diversions during the remainder of the year for domestic, stock water, and other beneficial uses (beneficial uses related to domestic and agricultural water supplies are summarized below, 3.2.3 Regulatory Setting).

Westside Tributaries (Etna Creek, Patterson Creek, Kidder Creek, and Big Slough)

The Marble Mountains, to the west of Scott Valley, are the source of several large, perennial streams, namely Etna Creek, Patterson Creek, and Kidder Creek. These streams are similarly aligned, flowing in a northeasterly direction. Collectively, elevations in these drainages range from 2,800 feet to greater than 7,500 feet amsl. Big Slough is the name given to the sinuous stretch of river from the confluence of Patterson and Johnson Creeks downstream to the confluence with Kidder Creek; the reach extending from the confluence of Big Slough and Kidder Creek downstream to the Scott River is herein designated as Lower Kidder Creek.

Generally, morphological characteristics of this area include steep headwater tributaries that are typically small, low-order, high-gradient streams which drain to lower elevations and lower gradient stream reaches on the valley floor. Stream flows are greatly influenced by snow accumulations and snowmelt runoff, which transports quickly through steep stream reaches and then slows as it reaches the lower gradient valley reaches. Large alluvial fans, comprised mostly of gravels and cobbles, have been deposited by Etna Creek, Patterson Creek, and Kidder Creek in their lower reaches; the most permeable known sediments along the western mountain front are found in the large gravelly fans deposited by West Patterson, Kidder, Etna, and Shackleford Creeks, and in the stream channels, both currently active and abandoned (buried), which radiate downslope from the fanhead areas (Mack, 1958). As a result, in the summer months surface flows typically decrease to the point that they sink into the fans and become subsurface flow. Throughout the summer, these streams are typically dry in their lower reaches near Highway 3.

Aside from the alluvial floodplains of the Scott River, another important storage area for sediments in the valley is in the vicinity of Big Slough. Big Slough parallels the Scott River and drains the tributaries north of Etna Creek, including Johnson, Crystal, and Patterson Creeks. It then combines with Kidder Creek, forming Lower Kidder Creek, before flowing into the Scott River. This narrow, shallow channel becomes very sinuous above the confluence with Patterson Creek and experiences frequent overbank flows and ponding (McCreary Koretsky Engineers, 1967 in Sommarstrom et al., 1990). As a result, this drainage probably deposits much of its annual sediment load over its floodplain (Sommarstrom et al., 1990). Big Slough and Lower Kidder Creek possess slough-like characteristics, including a flat gradient, side channels, high sinuosity, and backwater areas. Big Slough and Lower Kidder Creek stop flowing by early August but pools usually remain (SQRCD, 2005).

Unlike their upstream tributaries, Big Slough and Lower Kidder Creek flow in an almost due north direction. An early study of the Scott Valley described why the tributaries in this area flow north and also provided further evidence of sediment deposition in the valley over geologic time:

> During flood stages, the Scott River has apparently built up broad, low natural levees sloping gently away from the channel banks toward the valley margins. The natural levee along its west side prevents the western tributary streams from entering the Scott River via the shortest distance, directly to the east. The phenomenon of deferred tributary junction has thus resulted, because the combined drainage of the western streams has been forced to flow northward

> parallel to the Scott River for several miles within the confines of the slough between the area of higher fans to the west and the natural levee to the east. (Mack, 1958)

Big Slough marks the widest extent of the Scott River Valley Groundwater Basin mapped by DWR (2004).

Flow data are sporadic for these tributaries and no long-term record exists for any particular stream. Flow data for Etna Creek were collected by USGS for WY 1962 to 1972. The U.S. Fish and Wildlife Service (USFWS) has collected flow data on Kidder Creek since September 2002. Currently, flow data are not collected for Patterson Creek. Based on available data and estimates made by SQRCD (2005), summer baseflows (upstream of all diversions) for these channels ranges from 0.2 to 8 cfs. Flow volumes for Big Slough and Lower Kidder are unknown.

Temperature data have been collected annually since 1997 in reaches above the alluvial sections of Etna, Patterson, and Kidder Creek. Summer stream temperatures in upper Etna Creek range from 14-15 °C (53-59 °F), while temperatures at the mouth range from 18-20 °C (64-68 °F). In Patterson Creek (upstream of Highway 3), summer stream temperatures average 17.4 °C (63 °F). Summer stream temperatures in Kidder Creek (upstream of Greenview) range from 16-19 °C (61-66 °F). There are no temperature data for Big Slough and Lower Kidder Creek, but temperatures in these streams are thought to exceed the tolerance level for salmonids prior to going dry in early August (SQRCD, 2005).

Allocated diversion volumes for the westside tributaries are shown in Table 3.2-2; refer to Chapter 3.1 for estimates of existing diversion volumes. Stream diversion is accomplished using bolder ~~vortex~~ weirs, gravel push-up dams, and hand stacked rock and cobble diversion structures.

Shackleford Creek (including Mill Creek)

Shackleford Creek (including Mill Creek) drains a portion of the Marble Mountains and has a total watershed area of approximately 50 square miles (six percent of the Program Area). Elevations in this drainage range from 2,880 feet amsl in the Quartz Valley to over 8,000 feet amsl in the Marble Mountains.

Morphological characteristics of the Shackleford Creek watershed are comparable to those of other westside tributaries described above. Channels within this watershed include steep headwater tributaries that are generally small, low-order, high gradient streams that drain to lower elevation, lower gradient stream reaches at the valley floor. Shackleford and Mill Creeks have alluvial fans at the base of the Canyon reach where the gradient flattens and channels emerge onto the floor of Quartz Valley and the main Scott River Valley. This scenario is consistent with the alluvial fans of Etna, Patterson and Kidder Creeks (as described above), where winter flows drop most of their coarse sediment load on the upper and middle alluvial fan surface and summer flows go subsurface.

Stream flows from this sub-watershed are greatly influenced by snow accumulations and snowmelt runoff, which transports flow and sediment quickly through steep stream reaches until flows reach the lower gradient valley and alluvial fan surfaces. Before emerging onto the fan apex, the tributary stream channels are bordered by discontinuous alluvial floodplains in their lower valley reaches. Alluvial fans located at the base of the valley floor are large. The alluvial fans of both streams have poor riparian vegetation densities, likely due to the fluctuating water table (a natural phenomenon) (SQRCD, 2005) and the natural tendency for channels dissecting the fan surfaces to maintain a laterally dynamic state. The channel is somewhat unstable, which prevents the development of persistent pools. In the areas at and above the apex of the alluvial fans, Shackleford Creek and Mill Creek possess numerous side-channel and backwater habitats.

Long-term flow records are lacking for the Shackleford Creek watershed. USGS collected flow data from WY 1957 to 1960 for Shackleford Creek near Mugginsville. More recently, flow data have been collected by DWR and USFWS at three stations since 2002. Flow data collected (by USFWS) upstream of diversions indicate that September baseflows in the Shackleford Creek watershed range from 2 to 13 cfs. Stream temperatures have not been monitored long-term in the lower, alluvial reaches of the watershed. However, data collected in 2003 and 2004 indicate that lower Shackleford Creek can reach temperatures as high as 21 °C (70 °F) during peak summer months (SQRCD, 2005).

Agricultural activity in the Shackleford Creek watershed includes livestock production, dry-land grazing, and irrigated crop and pasture production (SQRCD, 2005). Pasture production is the main activity and flood irrigation is the principal method of irrigating. Stream diversion is accomplished using both bolder ~~vortex~~ weirs and hand stacked rock and cobble diversion structures. Allocated diversion volumes for Shackleford Creek and Mill Creek are shown in Table 3.2-4; refer to Chapter 3.1 for estimates of existing diversion volumes.

Shackleford/Mill Creek Decree (1950). Stream diversion from Shackleford Creek is defined by the Shackleford Creek Decree and administered by the Siskiyou County Superior Court. This decree covers Shackleford Creek and all tributaries (including Mill Creek) and springs draining to Shackleford Creek. The decree allots a total of 69.55 cfs from Shackleford Creek and its tributaries. Since 1967, this decree has been watermastered by DWR. Irrigation season under the decree begins on April 1 and continues through October 31.

Eastside Tributaries (Moffett Creek)

The eastside of the Scott Valley is dominated by generally dry foothills extending north from the Scott Mountains (Quigley et al., 2001), and elevations range from 2,700 to over 6,000 feet amsl. Moffett Creek is the largest of the eastside tributary streams, having a watershed area of approximately 233 square miles (28 percent of the Program Area), yet it experiences the lowest annual precipitation. The watershed is underlain by mostly sedimentary and metamorphic bedrock, with a little mafic bedrock in the mountains and extensive fills of Quaternary age in the main stream valley. No significant landslides were mapped or observed on aerial reconnaissance of Moffett Creek watershed (NCRWQCB, 2005). The Moffett Creek watershed can be subdivided into two general sub-watersheds, the Lower Moffett Creek watershed and the Upper Moffett Creek watershed (SHN, 2003).

The Upper Moffett Creek watershed consists of a generally broad, north trending, low gradient valley that is occupied by the mainstem of Moffett Creek (SHN, 2003). Steep ridge and swale topography extend down to the valley floor from ridge crests as high as 3,000 feet amsl. These steep swales contain ephemeral tributaries. Located at the toe of these swales, at the confluence with the principle streams, are alluvial fans that extend into the Moffett Creek valley. These fans appear to have developed as a result of loose, non-cohesive soils being mobilized and deposited by high energy, episodic flow events (debris flows) associated with summer thunderstorms or other flood events (SHN, 2003). There is a distinct stepped pattern in the channel morphology as a result of the development of these naturally occurring alluvial fans (SHN, 2003).

Continuous flow records for Moffett Creek are limited to data collected by USGS from WY 1960 to 1967. Tributary streams within the eastside area are typically short, drain rapidly, and tend to flow seasonally (ephemeral or intermittent). Moffett Creek and some of its upper headwater tributaries are the only streams which usually flow year round (Quigley et al., 2001).

The majority of the watershed is in private ownership except for McAdams Creek, where USFS (Klamath National Forest) is the principal landowner. Timber production with seasonal livestock grazing is the primary land use in the upland areas. Water diversions for irrigation are limited to the period from April 1 to “about” October 15. In the upper reaches where perennial flow persists, gravity diversion dams and pumps can be used to divert water for irrigation, but wells are required in the lower watershed because surface flow subsides early in the summer. Allocated diversion volumes for the Moffett Creek watershed are shown in Table 3.2-2 (schedules B27 through B32).

Conclusions Regarding Hydrologic and Geomorphic Setting for the Scott River Watershed

Past and present human activity and development have substantially altered the hydrologic and geomorphic conditions within the Program Area. The most important, and detrimental, changes and land management actions include: timber harvesting and road construction, fire suppression, beaver removal, mining and dredging operations, channel modification and flood control, and agricultural practices. The principal impacts of these human actions have been an altered channel structure, an altered flow regime, and an increased sediment load. Some of these impacts may be irreversible without aggressive restoration efforts (e.g., the extensive accumulations of cobbles and boulders from dredging and the subsequent implications for natural channel structure and process); others can be partially alleviated or even completely repaired in some cases (e.g., restoration of beaver populations, and repair of upland erosion sources such as old logging roads). Most of the lasting impacts observed today are the collective result of multiple actions and land management decisions, and it is often difficult to tease out the relative influence of any one particular action. Regardless, it is important to understand that historical or continuing practices such as beaver trapping, placer mining, flow regulation, and channel modification can affect contemporary river characteristics for decades, or longer.

3.2.2 Regulatory Setting

Federal and State Water Quality Policies

The statutes that govern the activities under the Program that affect water quality are the federal Clean Water Act (CWA) (33 U.S.C. § 1251) and the Porter-Cologne Water Quality Control Act (Porter-Cologne) (Water Code, § 13000 *et seq*.). These acts provide the basis for water quality regulation in the Program Area.

The California Legislature has assigned the primary responsibility to administer and enforce statutes for the protection and enhancement of water quality to SWRCB and its nine Regional Water Quality Control Boards (RWQCB). SWRCB provides state-level coordination of the water quality control program by establishing statewide policies and plans for the implementation of state and federal regulations. The nine RWQCBs throughout California adopt and implement water quality control plans that recognize the unique characteristics of each region with regard to natural water quality, actual and potential beneficial uses, and water quality problems. The RWQCB adopts and implements a Water Quality Control Plan (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan (California Water Code, §13240-13247).

Corps Permit and Water Quality Certification

CWA, section 404 requires a permit from the United States Army Corps of Engineers (Corps) prior to discharging dredged or fill material into waters of the United States, unless such a discharge is exempt from CWA section 404. The term "waters of the United States" as defined in the Code of Federal Regulations (40 CFR 230.3[s]) includes all navigable waters and their tributaries. In addition, section 401 of the CWA requires that an applicant for any federal permit (e.g., a Corps 404 permit) obtain certification from the state that the discharge will comply with other provisions of the CWA and with state water quality standards. For the Program Area, NCRWQCB or SWRCB (in the case of activities associated with water diversions) must provide the water quality certification required under section 401 of the CWA. It is up to the individual project proponent, in this case the sub-permittees and SQRCD, to contact the federal agency(s) in order to determine whether the federal agency(s) would take jurisdiction on a specific project and require a permit; if a federal permit is required then the project proponent would also be required to obtain water quality certification from NCRWQCB.

Beneficial Use and Clean Water Act, Section 303(d)

NCRWQCB is responsible for the protection of the beneficial uses of waters within Siskiyou County. NCRWQCB uses its planning, permitting, and enforcement authority to meet this responsibility and has adopted the Water Quality Control Plan for the North Coast Region (Basin Plan) to implement plans, policies, and provisions for water quality management. NCRWQCB published the most recent version of the Basin Plan in September 2006 (NCRWQCB, 2006b).

In accordance with state policy for water quality control, NCRWQCB employs a range of beneficial use definitions for surface waters, groundwater basins, marshes, and mudflats that serve as the basis for establishing water quality objectives and discharge conditions and prohibitions. The Basin Plan (NCRWQCB, 2006b) has identified existing and potential beneficial uses supported by the key surface water drainages throughout its jurisdiction. The beneficial uses designated in the Basin Plan for the water bodies relevant to the Program are identified in **Table 3.2-6**. The applicable beneficial use categories are defined in **Table 3.2-7**. The Basin Plan (NCRWQCB, 2006b) also includes water quality objectives that are protective of the identified beneficial uses.

TABLE 3.2-6
BENEFICIAL USES IN THE SCOTT RIVER HYDROLOGIC AREA

Waterbody	MUN[a]	AGR	IND	PRO	GWR	FRSH	NAV	POW	REC 1	REC 2	COMM	COLD	WILD	RARE	MIGR	SPWN	AQUA
Scott Bar Hydrologic Subarea	E	E	E	P	E	E	E	E	E	E	E	E	E	E	E	E	P
Scott Valley Hydrologic Subarea	E	E	E	P	E	E	E	E	E	E	E	E	E	E	E	E	E

E = existing beneficial use
P = potential beneficial use

[a] Refer to Table 3.2-7, below, for definition of abbreviations

SOURCE: NCRWQCB, 2006b

The objective of the federal CWA is “to restore and maintain the chemical, physical, and biological integrity of the nation’s waters.” Under CWA section 303(d), the State of California is required to develop a list of impaired water bodies that do not meet water quality standards and objectives. **Table 3.2-8** provides details of the listing of the Scott River as an impaired water body, as designated by NCRWQCB (2006a), including pollutants and issues of concern. For those water bodies failing to meet standards, states are required to establish total maximum daily loads (TMDL). A TMDL defines how much of a specific pollutant a given water body can tolerate and still meet relevant water quality standards. The Scott River has been listed as impaired because of sediment and temperature levels in excess of water quality standards described in the CWA or in the Basin Plan. The beneficial use most affected by excessive sediment and elevated temperature is the cold-water salmonid fishery (NCRWQCB, 2005).

The *Action Plan for the Scott River Watershed Sediment and Water Temperatures Total Maximum Daily Loads* was published in December 2005 (NCRWQCB, 2005). In general, this document identifies and describes causes of impairment, recommended levels for water temperature and sediment concentration, and an implementation plan.

TABLE 3.2-7
DEFINITIONS OF BENEFICIAL USES OF SURFACE WATERS

Beneficial Use	Description
Municipal and Domestic Supply (MUN)	Uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.
Agricultural Supply (AGR)	Uses of water for farming, horticulture, or ranching including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing.
Industrial Service Supply (IND)	Uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well repressurization.
Industrial Process Supply (PRO)	Uses of water for industrial activities that depend primarily on water quality.
Groundwater Recharge (GWR)	Uses of water for natural or artificial recharge or groundwater for purposes of future extraction, maintenance of water quality, or halting of saltwater intrusion into freshwater aquifers.
Freshwater Replenishment (FRSH)	Uses of water for natural or artificial maintenance of surface water quantity or quality (e.g., salinity).
Navigation (NAV)	Uses of water for shipping, travel, or other transportation by private, military, or commercial vessels.
Hydropower Generation (POW)	Uses of water for hydropower generation.
Water Contact Recreation (REC 1)	Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white-water activities, fishing, or use of natural hot springs.
Non-Contact Water Recreation (REC 2)	Uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.
Commercial and Sport Fishing (COMM)	Uses of water for commercial, recreational (sport) collection of fish, shellfish, or other aquatic organisms including, but not limited to, uses involving organisms intended for human consumption or bait purposes.
Cold Freshwater Habitat (COLD)	Uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
Wildlife Habitat (WILD)	Uses of water that support terrestrial ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.
Rare, Threatened, or Endangered Species (RARE)	Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under State or federal laws as rare, threatened, or endangered.
Migration of Aquatic Organisms (MIGR)	Uses of water that support habitats necessary for migration or other temporary activities by aquatic organisms, such as anadromous fish.
Spawning, Reproduction, and/or Early Development (SPWN)	Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish.
Aquaculture (AQUA)	Uses of water for aquaculture or mariculture operations including, but not limited to, propagation, cultivation, maintenance, or harvesting of aquatic plants and animals for human consumption or bait purposes.

SOURCE: NCRWQCB (2006b)

TABLE 3.2-8
PROPOSED 2006 CWA, SECTION 303(D) LIST OF WATER QUALITY LIMITED SEGMENTS IN THE PROGRAM AREA

Name	Pollutant/Stressor	Source	TMDL Completion Date
Scott River	Sedimentation/Siltation	Irrigated Crop Production Pasture Grazing-Riparian and/or Upland Silviculture Resource Extraction Mill Tailings Natural Sources Nonpoint Source	Staff Report for the Action Plan published on December 7, 2005; USEPA approved TMDL in 2006
	Temperature	Irrigated Crop Production Pasture Grazing-Riparian and/or Upland Agricultural Return Flows Silviculture Flow Regulation/Modification Water Diversions Habitat Modificaton Removal of Riparian Vegetation Streambank Modification/ Destabilization Drainage/Filling of Wetlands Other Nonpoint Source	Staff Report for the Action Plan published on December 7, 2005; USEPA approved TMDL in 2006

SOURCE: NCRWQCB (2006a)

Water quality standards concerning temperature, turbidity, and sediment levels have been identified in the Basin Plan (NCRWQCB, 2006b). The standards stipulate that the natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of RWQCB that such alteration in temperature does not adversely affect beneficial uses, and at no time or place shall the temperature of any "cold" water be increased by more than 2.8°C (5 °F) above the natural receiving water temperature. Turbidity standards state that turbidity shall not increase more than 20 percent above naturally occurring background levels. Criteria for suspended material, settleable material, and sediment are narrative (i.e., standards are not based on numerical goals but, rather, are set to avoid nuisance levels and to maintain the designated beneficial uses of the river).

NPDES Program

The CWA was amended in 1972 to provide that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. The 1987 amendments to the CWA added section 402(p), which establishes a framework for regulating municipal and industrial storm water discharges under the NPDES Program. In November 1990, the U.S. Environmental Protection Agency (USEPA) published final regulations that establish storm water permit application requirements for discharges of storm water to waters of the United States from construction projects that encompass five or more acres of soil disturbance. Regulations (Phase II Rule) that became final on December 8, 1999, expanded the existing NPDES Program to address storm water discharges from construction sites that disturb land equal to or greater than one acre and less than five acres (small construction activity).

While federal regulations allow two permitting options for storm water discharges (individual permits and General Permits), SWRCB has chosen to adopt only one statewide General Permit at this time that would apply to all storm water discharges associated with construction activity.[6] This General Permit requires all dischargers where construction activity disturbs one acre or more, to:

- Develop and implement a Storm Water Pollution Prevention Plan (SWPPP) which specifies Best Management Practices (BMPs) that would prevent all construction pollutants from contacting storm water and with the intent of keeping all products of erosion from moving off site into receiving waters.
- Eliminate or reduce non-storm water discharges to storm sewer systems and other waters of the nation.
- Perform inspections of all BMPs.

This General Permit is implemented and enforced by the nine RWQCBs. NCRWQCB administers the stormwater permitting program in the section of Siskiyou County that includes the Program Area. Dischargers are required to submit a Notice of Intent (NOI) to obtain coverage under this General Permit and annual reports identifying deficiencies of the BMPs and how the deficiencies were corrected. Dischargers are responsible for notifying the relevant RWQCB of violations or incidents of non-compliance.

On August 19, 1999, SWRCB reissued the General Construction Storm Water Permit (Water Quality Order 99-08-DWQ, referred to as "General Permit"). In September 2000, a court decision directed SWRCB to modify the provisions of the General Permit to require permittees to implement specific sampling and analytical procedures to determine whether BMPs implemented on a construction site are: (1) preventing further impairment by sediment in storm waters discharged directly into waters listed as impaired for sediment or silt, and (2) preventing other pollutants, that are known or should be known by permittees to occur on construction sites and that are not visually detectable in storm water discharges, from causing or contributing to exceedances of water quality objectives. The monitoring provisions in the General Permit have been modified pursuant to the court order.

As part of the Program, if a Covered Activity performed at a single project location will disturb a total of one acre or more of land, then SQRCD or the Agricultural Operator performing the activity will be required to submit a NOI to SWRCB and obtain coverage under the General

6 SWRCB Order No. 99-08-DWQ National Pollutant Discharge Elimination System General Permit No. CAS000002.

Permit. The preparation of a SWPPP would be required in accordance with the General Permit. The SWPPP would include, but not be limited to, relevant measures, conditions, and obligations already described as part of the Program which would reduce the impacts of construction activities on stormwater and receiving water quality and quantity.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Act (codified in the California Water Code, §13000 *et seq*.) is the basic water quality control law for California. As mentioned above, it is implemented by SWRCB and the nine RWQCBs. SWRCB establishes statewide policy for water quality control and provides oversight of RWQCBs' operations. RWQCBs have jurisdiction over specific geographic areas that are defined by watersheds. Siskiyou County is under the jurisdiction of NCRWQCB. In addition to other regulatory responsibilities, RWQCBs have the authority to conduct, order, and oversee investigation and cleanup where discharges or threatened discharges of waste to waters of the state[7] could cause pollution or nuisance, including impacts to public health and the environment.

Dredge/Fill Activities and Waste Discharge Requirements

Covered Program Activities that involve or are expected to involve dredge or fill, and discharge of waste, are subject to water quality certification under section 401of the CWA and/or waste discharge requirements under the Porter-Cologne Act. SWRCB's Division of Water Rights processes section 401 water quality certifications on projects that involve water diversions (California Code of Regulations, title 23, § 3855.). Chapter 4, Article 4 of the Porter-Cologne Act (California Water Code, § 13260-13274), states that persons discharging or proposing to discharge waste that could affect the quality of waters of the state (other than into a community sewer system) shall file a Report of Waste Discharge with the applicable RWQCB. For discharges directly to surface water (waters of the United States) an NPDES permit is required, which is issued under both state and federal law; for other types of discharges, such as waste discharges to land (e.g., spoils disposal and storage), erosion from soil disturbance, or discharges to waters of the state (such as isolated wetlands), Waste Discharge Requirements (WDRs) are required and are issued exclusively under state law. The WDR application process is generally the same as for CWA section 401 water quality certification, though in this case it does not matter whether the particular project is subject to federal regulation. The project proponent would contact NCRWQCB, who would determine whether WDRs or a waiver of WDRs is required.

State Regulation and Oversight of Water Rights

SWRCB regulates the diversion and use of water in California, in part by the issuance of permits and licenses. In general, under state law, a person may divert and use water under a riparian or appropriative right. A riparian right entitles the landowner to use a correlative share of the water flowing past his or her property. Riparian rights do not require permits, licenses, or government approval, but they apply only to the water which would naturally flow in the river (or stream or

7 "Waters of the state" are defined in the Porter-Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." (Water Code, § 13050 (e).)

creek), and they may only be exercised on the property adjacent to the stream. Further, riparian rights do not entitle a water user to divert water to storage in a reservoir for use in the dry season or to use water on land outside of the watershed that comprises the diversion location. Riparian rights remain with the property when it changes hands, although parcels severed from the adjacent water source generally lose their right to the water.

An appropriative water right allocates a given rate and/or volume of water to a specific entity or user. In California, appropriative water rights are generally described as pre-1914 and post-1914 rights. For pre-1914 rights, water rights could be acquired simply by taking and beneficially using water, and also (e.g., after 1872) through establishing a priority of right by posting a notice of appropriation at the proposed point of diversion and recording the notice with the respective County Recorder (SWRCB, 1990). Regardless of the amount of water claimed in the original notice of appropriation or at the time diversion and use first began, the amount of water which can now be rightfully claimed under an appropriative right initiated prior to December of 1914 is essentially fixed by that amount which is being put to beneficial use. Persons diverting water under riparian or pre-1914 claims of right, with certain exceptions, are required to file a Statement of Water Diversion and Use with SWRCB (SWRCB, 1990).

For post-1914 appropriative rights, an application for appropriation of water is submitted to SWRCB, and SWRCB issues permits and/or licenses that govern the beneficial use and diversion and/or storage of water from surface streams, other surface bodies of water, or from subterranean streams flowing in known and definite channels. An appropriation of such water requires compliance with the provisions of Division 2, Part 2, of the California Water Code. Under post-1914 appropriation law, anyone intending to divert water from surface waters or subterranean streams, in order to 1) use on land which is not riparian to the source, 2) store in a reservoir for later use on either riparian or non-riparian lands, or 3) make use of water which would not naturally be in the source, must apply with SWRCB for a permit or small domestic use registration. Aside from the requested amount of water, an application, and the subsequent permit or license (if issued), typically specifies the purpose of use (e.g., irrigation, recreation, and fish and wildlife enhancement), the place of use, and the point(s) of diversion. In order for SWRCB to approve an application, unappropriated water must be available to supply the applicant (water in many streams, including the Scott River and its tributaries, has already been fully appropriated during the dry season of the year). Although pre- and post-1914 appropriative rights are similar, post-1914 rights are subject to a much greater degree of scrutiny and regulation by SWRCB. Riparian rights, which usually are inherent in ownership of parcels that border or span streams and rivers, still have a higher priority than appropriative rights. In order for an appropriative or riparian claim to ripen into a prescriptive right, the use must be continuous and uninterrupted for a period of five years (SWRCB, 1990).

In certain cases, use of water does not require an appropriative water right permit or a small domestic use registration. SWRCB does not have permitting authority over the use of groundwater unless it is the underflow of a surface stream, flowing in a subterranean stream with a known and definite channel or otherwise legally (that is, as designated by the California

Legislature or SWRCB) determined to be directly connected to surface streams. [8] Further, a permit is not required for the proper exercise of a riparian right or the diversion of surface water under pre-1914 claims of right. However, as mentioned above, diverters are required to file a Statement of Water Diversion and Use with SWRCB.[9]

In particular circumstances (e.g., when stream systems have a proportionately large amount of diversions, or the system is seemingly over-allocated and the priority of right among diverters is in question or disputed), SWRCB may determine all rights to water in a given stream system whether based upon appropriation, riparian right, or other basis of right. The process is referred to as a statutory adjudication. The process is initiated by one or more claimants (diverters) filing a petition with SWRCB requesting a determination of the rights of the various claimants to the water of a given stream system. SWRCB then determines whether or not such a determination of rights is warranted and, if so, grants the petition, completes its investigations, and prepares a report describing the water supply and abstracting the claim of water right of each claimant. After SWRCB hears any objections to the report, it adopts an order of determination and files it with the court, along with other information. The court then sets a time for hearing, and after the hearing enters a decree that must set forth the priority, amount, season of use, purpose of use, point of diversion, and place of use of the water. Further, with respect to water used for irrigation, the decree must declare the parcels of land to which the water applies.

Water Rights Changes (California Water Code, § 1707). California Water Code, § 1707 authorizes any person entitled to the use of water to petition SWRCB for a change to the person's existing water right for purposes of preserving or enhancing wetlands habitat, fish and wildlife resources, or recreation in or on the water.

Applicable Local/County Regulations

Siskiyou County General Plan

The Conservation Element of the Siskiyou County General Plan (Siskiyou County, 1973) includes some general objectives relating to hydrology, water resources, and water quality. These objectives include:

- To preserve and maintain streams, lakes and forest open space as a means of providing natural habitat for species of wildlife;
- To preserve the quality of existing water supply in Siskiyou County and adequately plan for the expansion and retention of valuable water supplies for future generations and to provide for a comprehensive program for sustained multiple use of watershed lands through reduction of fire hazards, erosion control and type-conversion of vegetation where desirable and feasible.

8 As used in this chapter with respect to the Scott River in Siskiyou County, "stream system" includes groundwater within the "interconnected zone."
9 See California Water Code, § 5101.

3.2.3 Impacts and Mitigation Measures

Significance Criteria

Significance criteria, or thresholds, listed in Appendix G in the California Environmental Quality Act (CEQA) *Guidelines* may be used to determine the significance of a project's potential impacts. Additional (or more specific) criteria and objectives derived from other agencies or documents (e.g., NCRWQCB water quality standards), and determined to be appropriate based on Program-specific considerations, have also been incorporated within the context of Appendix G.

Some of the criteria listed in Appendix G of the CEQA *Guidelines* are not applicable to the Program or otherwise do not merit further discussion. Specifically, the Program is not anticipated to have a potentially significant impact in regard to some of the flood-related criteria in Appendix G. These criteria include exceeding the capacity of stormwater drainage systems, placing housing within a flood hazard area, or exposing people or structures to significant risk of loss, injury, or death involving flooding. Furthermore, the Program Area is not subject to inundation by seiche or tsunami, or mudflow. The significance criteria addressed above are not discussed further in this Draft EIR. The significance criteria in Appendix G that are pertinent to the Program, as well as applicable water quality objectives identified by NCRWQCB (2006b), are listed below. Using these criteria, a project or program would normally result in a significant hydrology- and water quality-related impact if it would:

Water Quality

- Cause or contribute to violations of ambient water quality objectives by substantially 1) increasing turbidity more than 20 percent above naturally occurring background levels and, 2) altering the ambient temperature of receiving waters such that one or more beneficial uses are adversely affected.

- Otherwise substantially degrade water quality or provide substantial additional sources of polluted runoff, including degradation of stream or river characteristics related to cold freshwater habitat.

Groundwater

- Substantially deplete groundwater supplies or interfere with groundwater recharge.

Surface Water Drainages

- Substantially alter erosion and/or sedimentation rates through increases or decreases in flow and/or sediment supply.

Flooding

- Substantially impede or redirect flood flows.

In addition to these considerations, the reader is referred to the discussion of existing conditions, significance criteria, and potential impacts contained in Chapter 3.3, Impact 3.3-1.

Impact Analysis

Impact 3.2-1: Certain construction activities performed under the Program could result in increased erosion and sedimentation and/or pollutant (e.g., fuels and lubricants) loading to surface waterways, which could increase turbidity, suspended solids, settleable solids, or otherwise decrease water quality in surface waterways (Significant).

Construction activities associated with the Program could increase the turbidity or otherwise degrade the water quality of receiving channels and waterways. This is a potentially significant impact. Activities that disturb ground within the floodplain, banks, or bed of a channel could make soils and sediments more susceptible to erosion. Increased erosion rates would likely lead to increased sediment concentrations and turbidity levels in the receiving channel(s) and to the subsequent degradation of aquatic habitats. Also, moderate increases in runoff from construction areas could initiate or exacerbate an erosion and sediment delivery problem. An increase in the runoff rate from the construction area may result from temporarily decreasing the resistance to overland flow (e.g., clearing of native vegetation or on-slope grading), decreasing the infiltration capacity of the soil through compaction, and/or by increasing the velocity of runoff (e.g., concentrating flow into manmade features or into existing rills or gullies). Further, if construction equipment or workers inadvertently release pollutants (e.g., hydraulic fluid or petroleum) on site, these compounds could be entrained by runoff and discharged into receiving channel(s) causing water quality degradation. The extent of erosion or pollution that could occur at any given project site varies depending on soil type, vegetation/cover, and weather conditions.

Most of the Covered Activities and proposed mitigation measures that would require construction involve short-term (i.e., within a single season) construction activities, and thus the associated potential impacts would be temporary in nature. Covered Activities and measures that include notable construction components include maintenance, installation, and removal of water diversion structures; installation and maintenance of fish screens; construction and maintenance of stream crossings; riparian restoration and revegetation; installation, maintenance, and repair of instream structures; and barrier removal projects including fish ladder and boulder weir installations; and channel restoration projects. Specific construction activities referenced under this potential impact include, but are not limited to, use of heavy machinery including loaders and backhoes within and near the channels, shallow excavation within and near the channels, moving bed material within the channels, and establishing and grading staging areas for equipment, machinery, and vehicles.

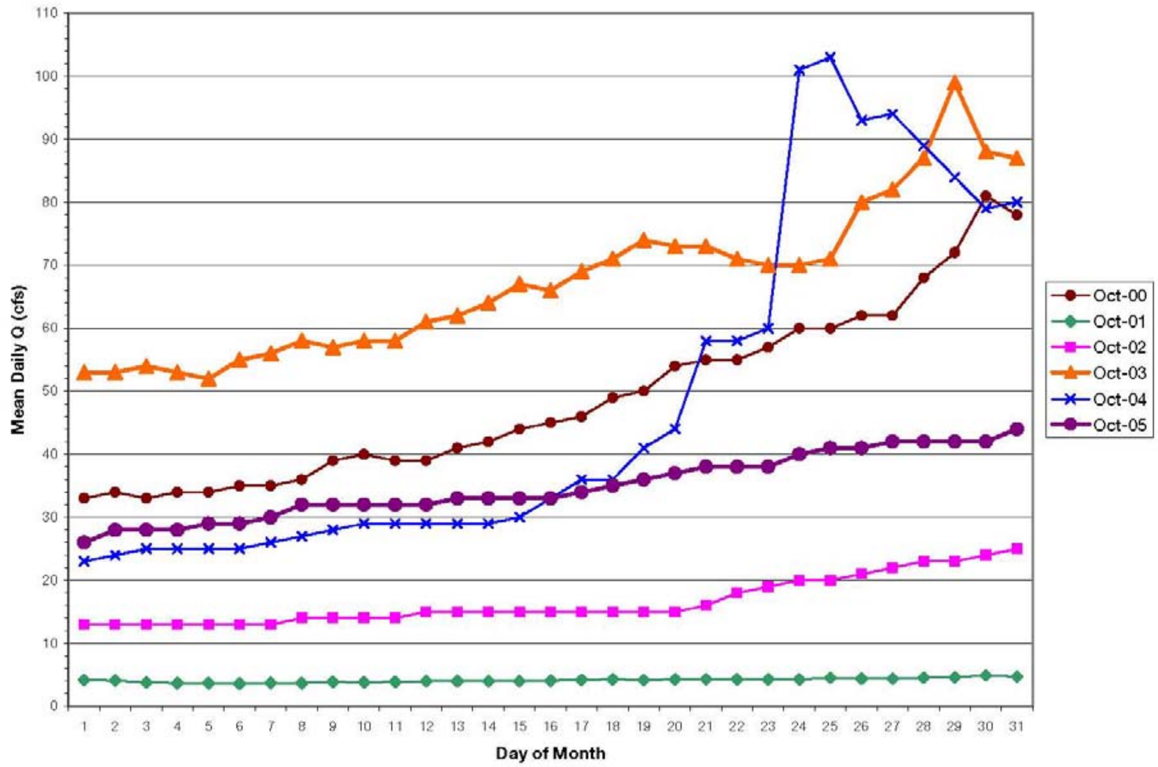
Program measures, as well as adherence to federal and state water quality standards, would help protect water quality during construction activities. As discussed above, if as part of the Program a Covered Activity performed at a single project location will disturb a total of one acre or more of land, SQRCD or the Agricultural Operator performing the project will submit a NOI to SWRCB to obtain coverage for the activity under the General Permit. The preparation of a SWPPP would be required in accordance with the General Permit. The SWPPP would include, but not be limited to, relevant measures, conditions, and obligations already described as part of the Program which would reduce the impacts of construction activities on stormwater and receiving water quality and quantity. However, even for cases where a General Permit would not be required, such as a project which would disturb less than one acre of land, the Program measures, conditions, and obligations that would protect water quality during construction activities would still be implemented.

Covered Activities that involve or are expected to involve dredge or fill, and discharge of waste, are subject to water quality certification under section 401 of the CWA and/or waste discharge requirements under the Porter-Cologne Act. SWRCB's Division of Water Rights processes section 401 water quality certifications on projects that involve water diversions (California Code of Regulations, title 23, § 3855). Chapter 4, Article 4 of the Porter-Cologne Act (California Water Code, § 13260-13274), states that persons discharging or proposing to discharge waste that could affect the quality of waters of the state (other than into a community sewer system) shall file a Report of Waste Discharge with the applicable RWQCB. For discharges directly to surface water (waters of the United States) an NPDES permit is required, which is issued under both state and federal law; for other types of discharges, such as waste discharges to land (e.g., spoils disposal and storage), erosion from soil disturbance, or discharges to waters of the state (such as isolated wetlands), Waste Discharge Requirements (WDRs) are required and are issued exclusively under state law. The WDR application process is generally the same as for CWA section 401 water quality certification, though in this case it does not matter whether the particular project is subject to federal regulation. The project proponent would contact the NCRWQCB, who would determine whether WDRs or a waiver of WDRs is required.

Also, as discussed above, it is up to the individual project proponent (e.g., the Agricultural Operators and SQRCD) to contact the relevant federal agency(s) in order to determine whether that federal agency(s) would take jurisdiction on a specific project and require a permit; if a federal permit is required then the project proponent would be required to also obtain water quality certification from NCRWQCB. In addition, the project proponent would contact NCRWQCB and determine whether an issuance or a waiver of WDRs is required.

However, with respect to controlling erosion and pollutant issues during project construction (and even project operation, in most cases), the conditions and obligations within the Incidental Take Permit (ITP) and Master List of Terms and Conditions (MLTC) are comprehensive and either meet or exceed the provisions normally stipulated in water quality certifications and WDRs. Aside from the seasonal issue discussed below, the Program measures that would protect water quality during construction activities are appropriate and sufficient with respect to federal and state water quality protection standards.

Of particular concern regarding potential erosion and pollutant impacts is the time of year when construction activities would be allowed. The risk of erosion, sediment delivery, and pollutant loading would be of most concern during the winter and spring, when significant rainfall and runoff occurs. To minimize this risk, the season for instream equipment operations and work related to structural restoration projects is limited to the period from July 1 to October 15 ~~31~~, according to ITP General Conditions (g) and (h) (Article XIII.E.1). Much of this season typically experiences little rainfall and runoff. However, summer thunderstorm events and early winter storms could still occur during the period from July 1 to October 15 ~~31~~, and the potential for early storms increases substantially in the second half of October (**Figure 3.2-12**). Therefore, though the Program measures and regulatory requirements would be adequate to control potential construction-related water quality impacts through the early fall, allowing the construction period to continue ~~through the end of~~ after October 15 poses a potentially significant impact to water quality. If work needs to



SOURCE: USGS (2006b)

Scott River Watershed-Wide Permitting Program . D206063

Figure 3.2-12
October Daily Average Flows for the Scott River near Fort Jones
(Water Years 2000-2005)

be completed before July 1 or after October 15, SVRCD is required to request, in writing, a variance from CDFG. If CDFG grants the variance, the work will be completed in accordance with the avoidance, minimization, mitigation, and monitoring measures CDFG specifies in granting the variance.

Mitigation Measures Proposed as Part of the Program

Mitigation Measure 3.2-1a: ITP General Condition (b) (Article XIII.E.1) requires the immediate containment and clean-up of any fuel, lubricants, or other hazardous materials that leak or spill during a Covered Activity.

Mitigation Measure 3.2-1b: ITP Additional SQRCD and Sub-Permittee Avoidance and Minimization Obligation F. – Push-Up Dams and Obligation G. – Other Temporary Diversion Structures (Article XV) requires preparation and adoption of a set of Best Management Practices (BMP) governing the construction, operation, and removal of push-up dams and other temporary diversion structures other than push-up dams.

Mitigation Measure 3.2-1c: The MLTC includes the following conditions which will reduce the potential for construction-related impacts to water quality:

A. Water Diversions: Conditions 33, 36, and 41 ~~31, 34, and 39~~;

C. Instream Structures: Conditions 62, 64-66 ~~58-60~~;
E. Use of Vehicles in Wetted Portions of Streams: Conditions 73-75 ~~65-67~~;
F. Pollution Control: Conditions 76-84 ~~68-75~~;
G. Erosion and Sediment Control: Conditions 85-93 ~~76-84~~;
I. Dewatering: Conditions 98-101, 103, 105-107 ~~89-92, 94, 96-98~~; and
J. Ground-Disturbing Activities: Condition 122 ~~108~~.

Mitigation Measures Identified in this Draft EIR

Mitigation Measure 3.2-1d: The season for instream construction activities and equipment operations shall be limited to the period from July 1 to October 15. If weather conditions permit and the stream is dry or at its lowest flow, instream construction activities and equipment operations may continue after October 15, provided a written request is made to CDFG at least five days before the proposed work period variance. Written approval from CDFG for the proposed work period variance must be received by SQRCD or Agricultural Operator prior to the start or continuation of work after October 15.

If work is performed after October 15 as provided above, SQRCD or Agricultural Operator will do all of the following:

A. Monitor the 72 hour forecast from the National Weather Service. When there is a forecast of more than 30 percent chance of rain, or at the onset of any precipitation, the work shall cease.

B. Stage erosion and sediment control materials at the work site. When there is a forecast of more than 30 percent chance of rain, or at the onset of any precipitation, implement erosion and sediment control measures.

Level of Significance after Mitigation

Implementation of Mitigation Measures 3.2-1a through 3.2-1d would substantially reduce the potential for erosion and pollution from project construction sites and, as a result, construction activity-related impacts on water quality would be reduced to a less-than-significant level.

Impact 3.2-2: Certain instream structures proposed to improve fish habitat as part of the Program would be installed within a flood hazard area and could impede or redirect flood flows (Less than Significant).

Some of the instream structures proposed as part of the Program would be installed within a 100-year flood hazard area as defined by FEMA (2004); these structures include water diversion structures (including weirs), fish screens, fish ladders, stream crossings, and structures related to channel restoration projects. Such structures, placed within the stream channel, could impede or redirect flood flows. However, water diversion structures and fish ladders installed as part of the Program would improve fish passage conditions at currently impassable (or difficult to pass) locations or alleviate existing impediments to flow (e.g., replacing dams with weirs that are lower in elevation). In doing so, they would provide for more natural passage of low to moderate flows.

These structures would be submerged during floods and exert little resistance upon flood flows. Likewise, fish screens, stream crossings, and restoration-related structures would not be expected to impede or redirect flood flows. This impact would therefore be less than significant.

Mitigation Measures

This potential impact was determined to be less than significant. No mitigation measures required.

Impact 3.2-3: Installation and operation of instream structures permitted under the Program could alter channel stability and degrade water quality by increasing turbidity downstream (Significant).

As part of the Program, CDFG would require and permit the installation and operation of instream structures under ITP Covered Activity 4 (Stream Access and Crossings), ITP Covered Activity 7 (Instream Structures), ITP Covered Activity 9 (Barrier Removal and Fish Passage Projects), and ITP Covered Activity 12 (Permit Implementation). These activities and measures are intended to either improve fish passage and habitat within the Program Area or control activities (such as cattle and vehicle crossings) that could damage streambanks or channels. Structures included in this potential impact are: boulder weirs, angular rock, bioengineered habitat structures, LWD, fish ladders, and other channel restoration or protection measures, some of which may span the width of a channel. Although the purpose of such structures is to improve habitat, as discussed below, on a reach-scale such structures have the potential to alter channel stability and influence water quality by altering sedimentation and turbidity downstream. This would be a potentially significant impact.

Instream structures may increase sediment deposition on their upstream side and induce erosion and scour immediately downstream. Lower flows (on the order of one half the bankfull discharge and lower) typically do not transport much sediment or induce channel bed and bank scour in gravel-bed streams, and therefore these flows are not a concern regarding this potential impact. The bankfull flow[10] (or range of intermediate high flows) occurs, on average, once every one to two and a half years and, over the long-term, tends to move the most sediment in a gravel-bed stream (Dunne and Leopold, 1978; Simon and Castro, 2003; Schmidt and Potyondy, 2004). Higher flow events (10-year or 25-year flood) move more sediment in a single event but with much less frequency.

If instream structures are too large or too high, they could impede the sediment transport processes that occur during larger flow events. Depending on the amount of sediment being carried into the reach of interest, these structures could alter the transport capacity of bankfull flows and cause deposition on the upstream side; if this continues to occur and the channel begins

[10] Bankfull flow is hereinafter used in the plural, “bankfull flows” or “bankfull flow conditions,” to emphasize that this term doesn’t invoke a single or static flow rate, but rather a limited range of intermediate high flows at or near the bankfull extent.

to aggrade (i.e., to cause an increase in the overall bed elevation), then this location could serve as an elevation control for the entire reach and ultimately promote further deposition upstream and exacerbate erosion immediately downstream of the structure. If the change in water surface elevation between the upstream and downstream side is great enough, these structures could induce erosion near the base and immediately downstream, as well as dissipate the flow energy to the point that the capacity for bankfull flows to move sediment from the downstream reach is notably decreased.

For structures intended specifically to improve fish habitat and passage, studies have illustrated various problems and various success rates (Frissel and Nawa, 1992; Roper et al., 1998; Niezgoda and Johnson, 2006). Roper et al. (1998) concluded that instream structures are most appropriate when used as short-term tools to improve degraded stream conditions while activities that caused the habitat degradation are simultaneously modified. The stability of instream structures would be of particular concern in the higher-order stream segments within the lowland and valley areas.

Mitigation Measures Proposed as Part of the Program

Mitigation Measure 3.2-3a: ITP Additional SQRCD and Sub-Permittee Avoidance and Minimization Obligation D.4. – Livestock and Vehicle Crossings (Article XV) requires annual monitoring of all livestock and vehicle crossings installed under the Program. If the crossing is exacerbating erosion and contributing fine sediment to the stream, SQRCD shall note that in its Annual Report and the sub-permittee shall be responsible for remediation of the problem.

Mitigation Measure 3.2-3b: MLTC Conditions 37, 43, 47, and 55 ~~35, 41, 45, and 53~~ would ensure that boulder weirs are sized to resist wash-out and do not create lifts in the stream channel that exceed twelve (12) inches, and that instream structures shall be designed and implemented in accordance with CDFG’s Salmonid Stream Habitat Restoration Manual.

Mitigation Measures Identified in this Draft EIR

Mitigation Measure 3.2-3c: CDFG and SQRCD shall establish performance criteria for new and replacement instream structures including boulder weirs, angular rock for bank protection, bioengineered habitat structures, large woody debris, fish ladders, and other channel restoration or protection measures. The performance criteria shall include, but not be limited to, the following:

- Sediment deposition upstream and erosion/scour and subsequent deposition downstream of these instream structures, during bankfull flow conditions, would be avoided to the extent feasible, unless the intent of the particular structure is to facilitate such processes (e.g., gravel trapping);
- Instream structures shall not alter channel hydraulics such that the project reach can no longer move the imposed sediment load (i.e., upstream supply) with the available range of sediment-transporting flows. This criterion shall focus on the transport of bed-material load;

- Instream structures shall not lead to a permanent increase in the downstream transport of sediments that is outside the historical range of sediment flux;
- Instream structures shall be designed to withstand a given range of flows (e.g., some structures are permanent, such as fish ladders, while other structures are "semi-permanent," such as placement of LWD). The range of flows that a particular structure will be designed to handle shall be quantified and rationalized.

Engineered structures such as fish ladders and boulder weirs designed for grade control, or for fish passage in proximity of a water diversion, require design and assessment by a qualified hydrologist, geologist, engineer, or other similarly qualified individual using methods and levels of rigor that have been established in the engineering and scientific community. Based on the assessment, if the proposed structure would fail to meet the performance criteria, then the structure shall not be installed within that particular reach.

The performance criteria shall be included in the SQRCD ITP Monitoring and Adaptive Management Plan (ITP Attachment 3) and their verification and effectiveness shall be included in the Monitoring (ITP Covered Activity 13) or Research (ITP Covered Activity 14) activities of the Program.

Level of Significance after Mitigation

Implementation of Mitigation Measures 3.2-3a through 3.2-3c would reduce the potential channel stability and water quality impacts to a less-than-significant level.

Impact 3.2-4: The Program could result in an increase in the extraction of groundwater, which could contribute to decreased baseflows and increased ambient water temperatures in the Scott River and its tributaries (Less than Significant).

Most of the surface water resources in the Program Area are fully appropriated and have been adjudicated under the Scott River Decree. Hence, an Agricultural Operator who needs additional water for irrigation may find it easier to meet that demand by using groundwater. As discussed above, the Program will not cause an increase in the use of groundwater by Agricultural Operators to *add* to the amount of water they already obtain through their surface water diversions. However, the Program could indirectly result in an increase in the use of groundwater if the measures that apply to surface water diversions included in Streambed Alteration Agreements (SAAs), the ITP, and sub-permits issued under the Program pose regulatory, economic, or other burdens that an Agricultural Operator could avoid by *substituting* all or part of its surface water diversion(s) for groundwater. The extraction of groundwater for irrigation is not a Covered Activity under the Program. However, any need for water by Agricultural Operators in addition to the amount of surface water they are entitled to divert and use would be driven by factors independent of the Program, namely increased development within the watershed and the fluctuation of commodity prices (e.g., lower commodity prices would increase the pressure to produce more or to switch to crops with higher market values but which are potentially more water intensive, such as alfalfa). The Program could also directly result in an increase in the use of groundwater because, under the Program, groundwater supplies may be used as one alternative means to satisfy stock water demands from October through December as a means of enhancing surface flows during dry conditions and during critical times of the year to improve salmonid habitat. (See ITP Mitigation Obligations of SQRCD (a)(v) (Article XIII.E.2).)

Increased use of groundwater during dry conditions in order to curb the consumptive use of surface water, as proposed by the Program, could decrease groundwater discharge into the Scott River and its tributaries. A reduction in groundwater discharge could decrease baseflow volumes and could contribute to increased water temperatures. In general, the aquifer characteristics and the interaction of groundwater and surface water within the Scott Valley are poorly understood. However, there are some general properties and relationships among groundwater and surface water that *are* understood. The permeability of alluvium within the Scott Valley can vary by orders of magnitude, and groundwater moving through these deposits is an important source of recharge to surface channels (Mack, 1958). Further, groundwater inflows are a primary driver of stream temperatures in the Scott Valley and groundwater accretion directly affects stream temperatures by addition of cold water (NCRWQCB, 2005). Utilizing groundwater instead of surface water has the potential to elevate stream temperatures (Naman, 2005). During low flow conditions, if groundwater is pumped in the proximity of a flowing stream or a subsurface channel such that subterranean flow is impacted then that groundwater extraction could result in a decrease in instream flow and, concomitantly, an increase in water temperatures in the nearby stream.

Any increase in groundwater use under the Program is expected to be low for the following reasons: 1) the proposed scale of the alternative stock watering system is small; the Program specifies the installation of two systems per year within the entire Program Area; 2) not all such systems would necessarily use groundwater, as alternative methods are also proposed; 3) groundwater irrigation tends to cost more (for well installation, piping, and power costs); and 4) the availability of groundwater resources in the Scott Valley varies greatly from location to location.

Because it is not likely that the Program would cause a substantial increase in the use of groundwater, the level of any impacts associated with such use would be low. Further, for the season in which the alternative stock watering system is proposed for use, October through December, the volume of streamflow is as much of a concern for salmonid habitat as the temperature of the water. High water temperatures are of principal concern and exert more influence on limiting salmonid habitat in the summer and early fall months. In addition, some Agricultural Operators must divert much more surface water than is needed to satisfy their stock-watering needs, because a higher volume of water is necessary to enable water to flow from the point of diversion to the point of use to accommodate for carriage loss due to varying delivery efficiencies (Black, 2008). Hence, in some cases, substitution of groundwater for surface water would result in a substantial reduction in the amount of water diverted.

As such, with respect to the impact that alternative stock watering systems may have on surface water temperatures, this potential impact is less than significant.

Mitigation Measures

This potential impact was determined to be less than significant. No mitigation measures required.

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CHAPTER 3.3

Biological Resources: Fisheries and Aquatic Habitat

This Chapter discusses the existing environment of the Scott River watershed (Program Area) with regard to fisheries resources and aquatic habitat; identifies potential impacts on fisheries resources and aquatic habitat in the Scott Valley related to the Scott River Watershed-wide Permitting Program (Program); and proposes mitigation measures for those impacts determined to be significant. The Program Area supports one special-status[1] fish species, coho salmon (*Oncorhynchus kisutch*), and six CDFG fish species of special concern[2]: Chinook salmon (*O. tschawytscha*); steelhead (*O. mykiss*); Klamath River lamprey (*Lampetra similis*); river lamprey (*L. ayresi*); Pacific lamprey (*L. tridentata*); and Miller Lake lamprey (*Lampetra minima*).[3] Other native fish species known to occur in the Scott River watershed include Klamath smallscale sucker (*Catostomus rimiculus*), speckled dace (*Rhinichthys osculus*), and marbled sculpins (*Cottus klamathensis*). However, particular attention in this Draft Environmental Impact Report (EIR) is given to coho salmon because: 1) coho salmon in the Program Area are listed as threatened under the California Endangered Species Act (CESA) and the federal Endangered Species Act (ESA); 2) the Program is intended to provide incidental take authorization for coho salmon pursuant to CESA, and to implement key coho salmon recovery projects; and 3) the other fish species identified above are dependent on a similar range of aquatic habitats as coho salmon. Hence, any impacts the Program could have on those aquatic habitats that could affect coho salmon, could also affect those other fish species, although the significance thresholds for those species are much higher.

1 For the purpose of this document a "special-status species" is any species that meets the definition of "endangered, rare or threatened" in CEQA *Guidelines* § 15380 (fully defined in the Glossary). Some CDFG species of special concern are special-status species. Such species are referred to as "special-status species" in this document.

2 "CDFG species of special concern" are those species that CDFG has determined are either declining at a rate that could result in listing or historically occurred in low numbers and known threats to their persistence currently exists (See the Glossary for a complete definition). Some CDFG species of special concern are "special status species" because they meet the definition of "endangered, rare, or threatened" in CEQA *Guidelines* § 15380. For the purpose of this document, CDFG species of special concern that are also special-status species are referred to as "special-status species," while CDFG species of special concern that are *not* also special-status species are referred to as "CDFG species of special concern."

3 Although not officially a CDFG fish species of special concern, the Pacific lamprey and Miller Lake lamprey are treated as such for the purposes of this Draft EIR.

3.3.1 Setting

Regional Setting

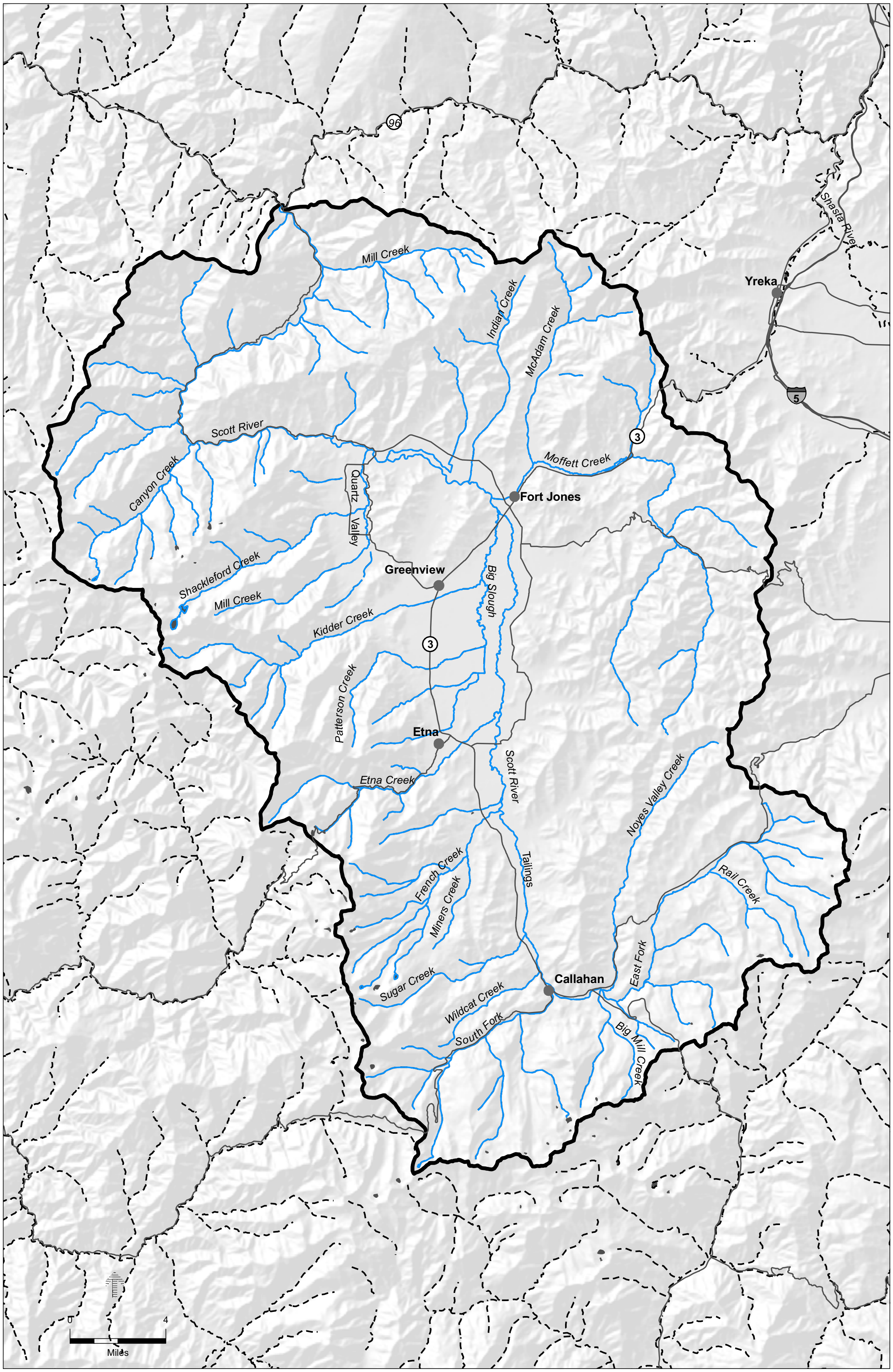
The Scott River, located in Siskiyou County in Northern California, is one of four major tributaries to the Klamath River. The Klamath River is California's second largest river, draining approximately 15,600 square miles (of which 3,600 square miles are considered non-contributing) in California and Oregon with approximately 1,832 miles of waterways (Ayres and Associates, 1999; CDFG, 2004a). Major tributaries include the Trinity, Salmon, Scott, and Shasta Rivers. Numerous other tributaries enter the Klamath River along its length.

Past and ongoing agricultural and hydroelectric development and use of the water resources in the Klamath Basin have degraded water quality of the Klamath River and its tributaries, reduced total annual discharge, and altered the magnitude, timing and duration of flow so that more water runs downstream in the Klamath River during winter months and less during the spring and summer than occurred prior to such development. Problems facing anadromous salmonids, including coho salmon, include an altered hydrograph, high summer water temperatures, reduced and degraded habitat, lack of access to available habitat, erosion and sedimentation, degraded condition of riparian vegetation, depleted large woody debris (LWD), unscreened water diversions, legacy impacts from historical timber operations and mining, and agricultural conversion (CDFG, 2004a). Other water quality conditions, such as low dissolved oxygen concentrations, high nutrient loads, and toxic algae associated with reservoirs have also resulted in aquatic habitat degradation that include the prevalence of fish diseases and parasites.

One outcome of the impaired conditions in the Klamath River was a major adult salmonid mortality event that occurred in the fall of 2002. At least 33,000 adult salmonids died during mid- to late-September 2002 in the lower 36 miles of the river (CDFG, 2004b). Fall-run Chinook salmon were the primary species affected, but coho salmon, steelhead, and other fish species were also lost. The primary cause of the fish-kill was a disease epizootic (CDFG, 2004b). Several factors contributed to stressful conditions for fish, which ultimately led to the epizootic, including low river flow, an above-average number of Chinook salmon entering the Klamath River between the last week in August and the first week of September 2002, and a low volume of water in the fish-kill area. Fish passage may have been impeded by low-flow depths over certain riffles or a lack of cues for fish to migrate upstream. The high density of hosts and warm temperatures created ideal conditions for pathogens ichthyopthirius or "ich" (*Ichthyophthirius multifiliis*) and columnaris (*Flexibacter columnaris*) to infect salmon.

Scott River Watershed

The Scott River enters the Klamath at River Mile (RM) 143 at an elevation of 1,580 feet and drains a watershed area of approximately 520,600 acres (812 square miles). Major tributaries to the 58-mile long Scott River include Shackleford-Mill, Kidder, Etna, French, and Moffett Creeks and the South and East Forks of the Scott River (**Figure 3.3-1**). The Scott River is part of the Klamath Mountain Province, which encompasses land in both Southern Oregon and Northern California.



SOURCE: ESA, 2007

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Figure 3.3-1
Scott River Watershed

The Scott River watershed is bounded in the southwest by the Salmon Mountains, to the west by the Marble Mountains, to the northwest by the Scott Bar Mountains, and to the east by lower hills collectively known as the Mineral Range. The Scott River originates in Scott Mountains to the south. Annual precipitation varies from 18 to 85 inches in the Scott Valley, but in the rain shadow of the Salmon and Marble Mountains rainfall amounts can reach 125 inches. The Scott River is an inland drainage with warm, dry summers and cold, snowy winters. Summer temperatures at Fort Jones peak at about 32°C (90°F) in mid-July and minimum winter temperatures are approximately -7ºC (19ºF).

Further information on the Scott River watershed hydrology, geomorphology, and water quality is provided in Chapter 3.2 of this Draft EIR and reach-specific aquatic habitat conditions are described below under *Aquatic Habitat Conditions and Utilization* in this Chapter.

Special-Status Fish Species and CDFG Fish Species of Special Concern

Aquatic habitats within the Program Area are known to support one special-status species, coho salmon, and six CDFG species of special concern: Chinook salmon; steelhead; river lamprey; Klamath River lamprey; Pacific lamprey; and Miller Lake lamprey.[4] The status, life cycle, habitat requirements, and known population trends of these species are described below with particular emphasis on coho salmon as they are listed as threatened under CESA and ESA and a primary objective of the Program is to conserve and protect coho salmon.

Coho Salmon

Status

Coho salmon in the Klamath River watershed are part of the federally-designated Southern Oregon/Northern California Coast (SONCC) Evolutionarily Significant Unit (ESU), which includes all coho salmon stocks between Cape Blanco in southern Oregon and Punta Gorda in northern California.

Based on its review of the status of coho salmon north of San Francisco, the California Department of Fish and Game (CDFG) (2002) concluded that California coho salmon have experienced a significant decline in the past 40 or 50 years. CDFG also concluded that coho salmon populations have been individually and cumulatively depleted or extirpated and that the natural linkages between individual populations have been fragmented or severed. For the California portion of the SONCC coho salmon ESU, an analysis of presence-by-brood-year data indicated that coho salmon now occupy about 61 percent of the streams that were previously identified by others (e.g., Brown and Moyle, 1991) as historical coho salmon streams (i.e., any stream for which published records of coho salmon presence could be found) (CDFG, 2002). However, these declines appeared to have occurred prior to the late 1980s and data available at the time of the CDFG (2002) analysis did not support a significant decline in distribution between the late 1980s and 2002. The analysis did indicate, however, that some streams in the ESU may

[4] See footnote 3.

have lost one or more brood year[5] lineages. Based on this information, CDFG concluded that coho salmon populations in the California portion of the SONCC ESU are threatened and will likely become endangered in the foreseeable future in the absence of special protection and management efforts required by CESA. In response to these findings, the California Fish and Game Commission (Commission) adopted amendments to § 670.5 in title 14 of the California Code of Regulations on August 5, 2004, adding California coho salmon populations between Punta Gorda and the northern border of California to the list of threatened species under CESA, effective as of March 30, 2005 (Commission, 2004). The Commission had adopted the *Recovery Strategy for California Coho Salmon* (CDFG, 2004a) the previous year.

The National Marine Fisheries Service (NMFS) conducted a similar status review of the SONCC coho salmon populations in 1995 (Weitkamp et al., 1995). NMFS arrived at similar conclusions as CDFG regarding the likelihood that coho salmon in this ESU may become endangered in the foreseeable future if observed declines continue. NMFS listed the ESU as threatened under ESA on May 6, 1997, and designated critical habitat[6] for the ESU on May 5, 1999. The critical habitat designation encompasses accessible reaches of all streams and rivers within the range of SONCC coho salmon, including the Scott River. Two subsequent NMFS status reviews in 2001 and 2005 essentially reaffirmed the prior conclusions (NMFS, 2001a; NMFS, 2005a) and the ESU continues to be listed as threatened (NMFS, 2005b). NMFS recently completed a recovery plan for coho salmon in the Klamath River basin (NMFS, 2007) and is currently preparing a recovery plan for the entire SONCC ESU.

Life Cycle

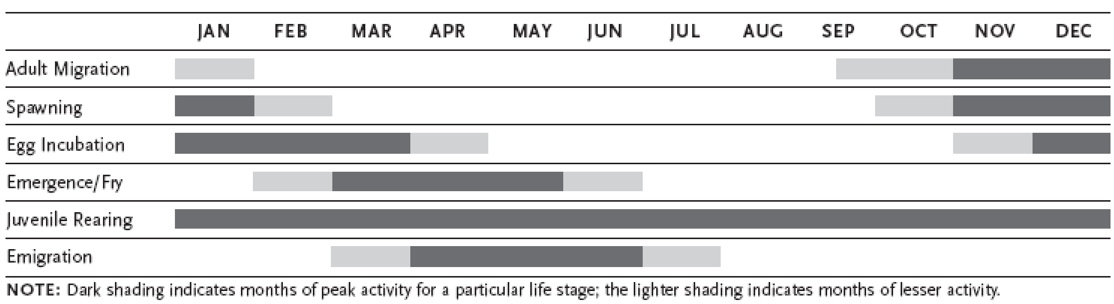
Adult coho salmon enter freshwater from the ocean in the fall in order to spawn. In the Klamath River watershed, coho salmon begin entering in early to mid-September and the migration reaches a peak in late September to early October. Arrival in the upper tributaries such as the Scott River generally peaks in November and December. The majority of the coho salmon spawning activity in this area occurs mainly during these two months. Females usually choose spawning sites near the head of a riffle, just below a pool, where the water changes from a smooth to a turbulent flow. Spawning sites are often located in areas with overhanging vegetation. Medium to small-sized gravel is essential for successful coho salmon spawning. Females dig nests, called "redds," in the gravel and deposit approximately one hundred to several thousand eggs in each (CDFG, 2004a). After fertilization, the eggs are buried by the female digging another redd just upstream, which carries streambed materials a short distance downstream to the previous redd. The flow characteristics of the redd location usually ensure good aeration of eggs and embryos, and the flushing of waste products.

5 A brood year is identified by the year in which spawning begins. For example, offspring of coho that migrated up the Klamath River to spawn in the Scott River in the later part of 2001 or early part of 2002 are identified as "Brood Year 2001."

6 The Endangered Species Act requires the federal government to designate "critical habitat" for any species it lists under the Act. "Critical habitat" is defined as: (1) specific areas within the geographical area occupied by the species at the time of listing, if they contain physical or biological features essential to conservation, and those features may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by the species if the agency determines that the area itself is essential for conservation.

In California, coho salmon eggs generally incubate in the gravels from November through April. However, stream temperatures affect the timing of fry emergence and in the Program Area, incubation may extend into May. After hatching, the hatchlings, called “alevins,” remain within the gravel bed for two to 10 weeks before they emerge as fry into the actively flowing channel between February and June. The fry seek out shallow, low velocity water, usually moving to the stream margins, where they form schools. As the fish feed heavily and grow, the schools generally break up and individual fish set up territories. At this stage, the juvenile fish are called “parr”. As the parr continue to grow and expand their territories, they move progressively into deeper water until July and August, when they inhabit the deepest pools. Rearing areas used by juvenile coho salmon include low-gradient coastal streams, lakes, sloughs, side channels, estuaries, low-gradient tributaries to large rivers, beaver ponds, and large slackwaters. The most productive juvenile habitats are found in smaller streams with low-gradient alluvial channels, containing abundant pools formed by LWD such as fallen trees.

Juvenile coho salmon typically rear in freshwater for an entire year before ocean entry (see **Figure 3.3-2**). This necessitates survival of juvenile coho salmon in streams through the winter months. Inland winter streamflows are characterized by periods of cold low flows interspersed with freshets and possibly floods. Juvenile coho salmon require areas of velocity refuge during periods of high flows. Potential habitats offering velocity refuge during winter include off-channel habitats and beaver ponds.



SOURCE: CDFG, 2004a

Figure 3.3-2
Seasonal Presence of Coho Salmon Life Cycle Stages in California Coastal Watersheds

After spending one year in fresh water, the majority of the juvenile coho salmon hatched during the previous spring begin migrating downstream to the ocean in late March/early April through June. Juvenile salmonids migrating toward the ocean are called “smolts.” Upon entry into the ocean, the immature salmon remain in inshore waters, congregating in schools as they move north along the continental shelf. After two years of growing and sexually maturing in the ocean, coho salmon return to their natal streams as three-year-olds to begin the life cycle again.

This three-year cycle is fairly rigid among coho salmon as they rarely spend less than two years in the ocean.[7] Since all wild female coho salmon are typically three years old when spawning, there are three distinct and separate maternal brood year lineages for each stream. For example, almost all coho salmon produced in 1994 were progeny of females produced three years earlier in 1991, which in turn were progeny of females produced three years earlier in 1988, and so on. The three maternal brood year lineages are:

Brood Year Lineage I:	….1994….1997.…2000….2003….2006….
Brood Year Lineage II:	….1995….1998.…2001….2004….2007….
Brood Year Lineage III:	….1996….1999.…2002….2005….2008….

This life cycle has been cited as a major reason for coho salmon's greater vulnerability to catastrophic events compared to other salmonids (CDFG, 1998). Should a major event, such as El Niño floods or anthropogenic disturbance severely deplete coho salmon stocks during one year, the effects will be noticed three years later when few or no surviving female coho salmon return to continue the brood year lineage.

Habitat Requirements

Suitable aquatic habitat conditions are essential for migrating, spawning, and rearing coho salmon. Important components of productive freshwater habitat for coho salmon include a healthy riparian corridor, presence of LWD in the channel, appropriate substrate type and size, a relatively unimpaired hydrologic regime, low summer water temperatures, and relatively high dissolved oxygen concentrations. The importance of these habitat parameters is further described below, based on a summary provided in CDFG (2004a).

Riparian vegetation provides many essential benefits to stream conditions and habitat. It serves as a buffer from sediment and pollution, influences the geomorphology and streamflow, and provides streambank stability. The riparian buffer is vital to moderating water temperatures that influence spawning and rearing by providing the canopy, which protects the water from direct solar heating, and the buffer, which provides a cooler microclimate and lower ambient temperatures near the stream. The riparian canopy also serves as cover from predators, and supplies both insect prey and organic nutrients to streams, and is a source for LWD.

LWD within the stream channel is an essential component of coho salmon habitat with several ecological functions. It stabilizes substrate, provides cover from predators and shelter from high water velocities, aids in pool and spawning bed establishment and maintenance, and provides habitat for aquatic invertebrate prey.

The channel substrate type and size, and the quantity and distribution of sediment, have essential direct and indirect functions at several life stages of coho salmon. Adults require gravel of appropriate size and shape for spawning (building redds and laying/fertilizing the eggs). Eggs develop and hatch within the substrate, and alevins remain there for some time for protection and shelter. An excess of fine sediment such as sandy and/or silty materials is a significant threat to

7 Some coho return to spawn after spending only one year in the ocean. These fish are referred to as grilse or jacks.

eggs and fry because it can reduce the interstitial flow necessary to regulate water temperature and dissolved oxygen, remove excreted waste, and provide food for fry. Fine sediments may also envelop and suffocate eggs and fry, and reduce available fry habitat. The substrate also functions as habitat for rearing juveniles by providing shelter from faster flowing water and protection from predators. Furthermore, some invertebrate prey inhabit the benthic environment of the stream substrate.

The characteristics of the water and geomorphology of the stream channel are fundamentally essential to all coho salmon life stages. Important characteristics include water velocity, flow volume, water depths, and the seasonal changes and dynamics of each of these (e.g., summer flow, peak flow, and winter freshets). Appropriate water temperature regimes, in particular, are essential throughout the freshwater phases of the coho salmon life cycle. Water temperature affects the rate and success of egg development; fry maturation; juvenile growth, distribution, and survival; smoltification; initiation of adult migration; and survival and success of spawning adults. Water temperature is influenced by many factors including streamflow, riparian vegetation, channel morphology, hydrology, soil-geomorphology interaction, climate, and impacts of human activities. The heat energy contained within the water and the ecological paths through which heat enters and leaves the water are dynamic and complex.

As a general guideline, the appropriate water temperature range for coho salmon is approximately 3-20°C (37-68°F) (Hardy and Addley, 2001), although preferred rearing temperatures are 12-14°C (54-57°F) (Bjornn and Reiser, 1991). Temperatures above 16.5°C (61.7°F) have been documented to result in a 10 percent weight decrease in juvenile coho salmon (Sullivan et al., 2000) and upper lethal temperatures have been reported as 26°C (79°F) (Bjornn and Reiser, 1991; Sullivan et al., 2000). However, water temperature requirements must be considered in relation to the unique physiological phenomena associated with each life stage. Additionally, environmental conditions in specific watersheds may affect the normal range and extreme end-points for any of these temperature conditions for coho salmon within these watersheds. The water temperature requirements for coho salmon are dependent on their metabolism and health, and on available food. These factors need to be considered together when trying to understand the habitat needs of coho salmon in a particular watershed or river system.

An adequate level of dissolved oxygen is necessary for each life stage of coho salmon and is affected by water temperature, instream primary productivity, and streamflow. Fine sediment concentrations in gravel beds can also affect dissolved oxygen levels, impacting eggs and fry. Dissolved oxygen levels in streams and rivers are typically lowest during the summer and early fall, when water temperatures are higher and streamflows lower than during the rest of the year. Dissolved oxygen concentrations of eight mg/L or higher are typically considered ideal for rearing salmonids including coho salmon. Rearing juveniles may be able to survive when concentrations are relatively low (e.g., less than five mg/L), but growth, metabolism, and swimming performance are adversely affected (Bjornn and Reiser, 1991).

Population Trends

According to information cited by the Shasta-Scott Coho Recovery Team (2003), the Scott River sub-basin probably holds the largest number of native coho salmon of the larger Klamath River tributaries. However, only very limited historic information exists on numbers of returning spawners prior to 1982. CDFG estimated the coho salmon population of the Scott River watershed during the early 1960s at 800 (SSRT, 2003).

Between 1982 and 1991, CDFG operated a weir in the Scott River near its confluence with the Klamath River. The primary purpose of the weir was to facilitate development of fall Chinook escapement estimates using mark and recapture methods, and the weir was removed each year prior to the height of the coho salmon migration and spawning period. Thus, only early returning coho salmon were counted while the weir was operating. As a result, the coho salmon counts presented in **Table 3.3-1** should not be understood to represent total run size.

TABLE 3.3-1
YEAR, DATES OF OPERATION, AND COUNTS OF EARLY RETURNING COHO SALMON OBSERVED AT THE SCOTT RIVER WEIR OPERATED BY CDFG

Year	Dates of Operation	Grilse	Adults	Total
1982	9/14 to 10/29	0	5	5
1983	9/14 to 11/3	1	21	22
1984	9/10 to 10/31	12	38	50
1985	9/3 to 11/12	0	1	1
1986	9/11 to 11/19	18	49	67
1987	9/25 to 11/18	12	248	260
1988	9/24 to 11/9		No coho reported	
1989	9/8 to 10/22	1	7	8
1990	9/8 to 10/28	1	6	7
1991	9/10 to 11/5	0	3	3

SOURCE: SSRT (2003)

During the 2007-2008 coho salmon spawning season, CDFG operated a video weir at RM 19.8 to monitor the adult coho salmon run in the Scott River. The weir was operated from October 29 through January 3 with only three non-operational days. Although the results of the study have not been finalized, preliminary results available indicate that a total of 1,342 adult coho salmon migrated upstream during the monitoring period (Knechtle, 2008). CDFG hopes to continue the adult return counts in the future.

The current known and suspected spatial distribution of coho salmon in the Program Area is depicted in **Figure 3.3-3**. Formal coho salmon spawning ground surveys of redds and carcasses were initiated in the Program Area with the 2001-2002 spawning season and have been conducted each year since (e.g., Quigley, 2006a; 2007; Yokel, 2008). The results of the yearly surveys are not directly comparable to later surveys due to differences in survey locations, extent, and conditions. However, standardizing the results to redds observed only in reaches surveyed in 2001-2002 does provide an indication of overall coho salmon population trends within the Program Area. The total and standardized results of the surveys are presented in **Table 3.3-2**.

TABLE 3.3-2
SCOTT RIVER WATERSHED COHO SPAWNER SURVEY RESULTS OF REDD AND CARCASS COUNTS FOR THE 2001-2002 THROUGH 2007-2008 SPAWNING SEASONS

	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006	2006–2007	2007-2008
Redds	206	17	7	960	24	7	259
Carcasses	115	2	7	569	14	6	130
Redds in Reaches Surveyed in 2001-2002	206	5	4	458	30	12	127

SOURCE: SQRCD, 2005; Quigley, 2006b; 2007; Yokel, 2008.

Notwithstanding the inability to make definitive year-to-year comparisons for total escapement due to the increasing scope of the surveys over the past seven years, an examination of the standardized data presented in Table 3.3-2 does allow for an assessment of the trend of the number of spawners. The results appear to support the theory that only one relatively strong brood year lineage (2001…2004….2007) remains within the Scott River watershed and that adult returns even among that lineage may fluctuate widely. To provide perspective, it should be noted that across the range of coho salmon along the California coast, an average decline of 73 percent in returning adults occurred in 2007 compared to the same cohort in 2004 (McFarlane et al., 2008).

Yearly monitoring of juvenile salmonids, including coho salmon, was initiated on several reaches of the French Creek sub-basin in 1992 (CDFG, 2006). French Creek is a western tributary to the Scott River in the southwestern portion of the watershed. The surveys were conducted every year from 1992 through 2005 (except 1998) within the same five reaches with only some minor exceptions (CDFG, 2006). **Figure 3.3-4** depicts the yearly relative abundance of juvenile coho salmon derived from this study. The juvenile monitoring data appear to show the same trends as the spawner surveys discussed above with the same relatively strong brood lineage and two very depressed brood lineages (note that juveniles surveyed in a given year are offspring of the previous brood year).

In addition to spawner surveys and juvenile monitoring in French Creek, CDFG began conducting annual rotary screw trap surveys on the Scott River to monitor outmigrant salmonid juveniles, including coho salmon, in 2003 (Chesney et al., 2007; Chesney, 2008). Population estimates were derived using a mark and recapture method but the low numbers of recaptures during some years (2003 and 2004) and the intentional avoidance of the recapture method to protect the anticipated low numbers of juveniles (2007) did not allow for population estimates. The results of the surveys are summarized in **Table 3.3-3**.

In addition to coho salmon smolts (age 1+ fish) migrating out of the watershed, CDFG has also observed distinct emigrations of age 0+ juveniles from the watershed (Chesney and Yokel, 2003; Chesney et al., 2007) (Table 3.3-3). The observed phenomenon of large numbers of coho salmon leaving the Scott River as young-of the-year (age 0+) is somewhat unusual for the species. The reasons for this premature exit from the watershed is not fully understood, but appears to be correlated to the yearly loss of rearing habitat associated with decreased streamflows and increased water temperatures (Chesney, 2007). Flows during the spring in the Scott River mainstem and tributaries decrease rapidly once the snow pack has melted and the irrigation season begins.

Based on the results of the outmigrant trapping surveys, the 2001-2004 brood lineage appears to be the strongest, as evidenced by the high number of age 1+ fish in 2003 (2001 brood), age 0+ fish in 2005 (2004 brood) and age 1+ fish in 2006 (2004 brood). Although the outmigrant trapping surveys have not been conducted for a long enough period to discern any definitive population trends, the results appear to be consistent with those observed during the surveys for rearing juveniles on French Creek described above.

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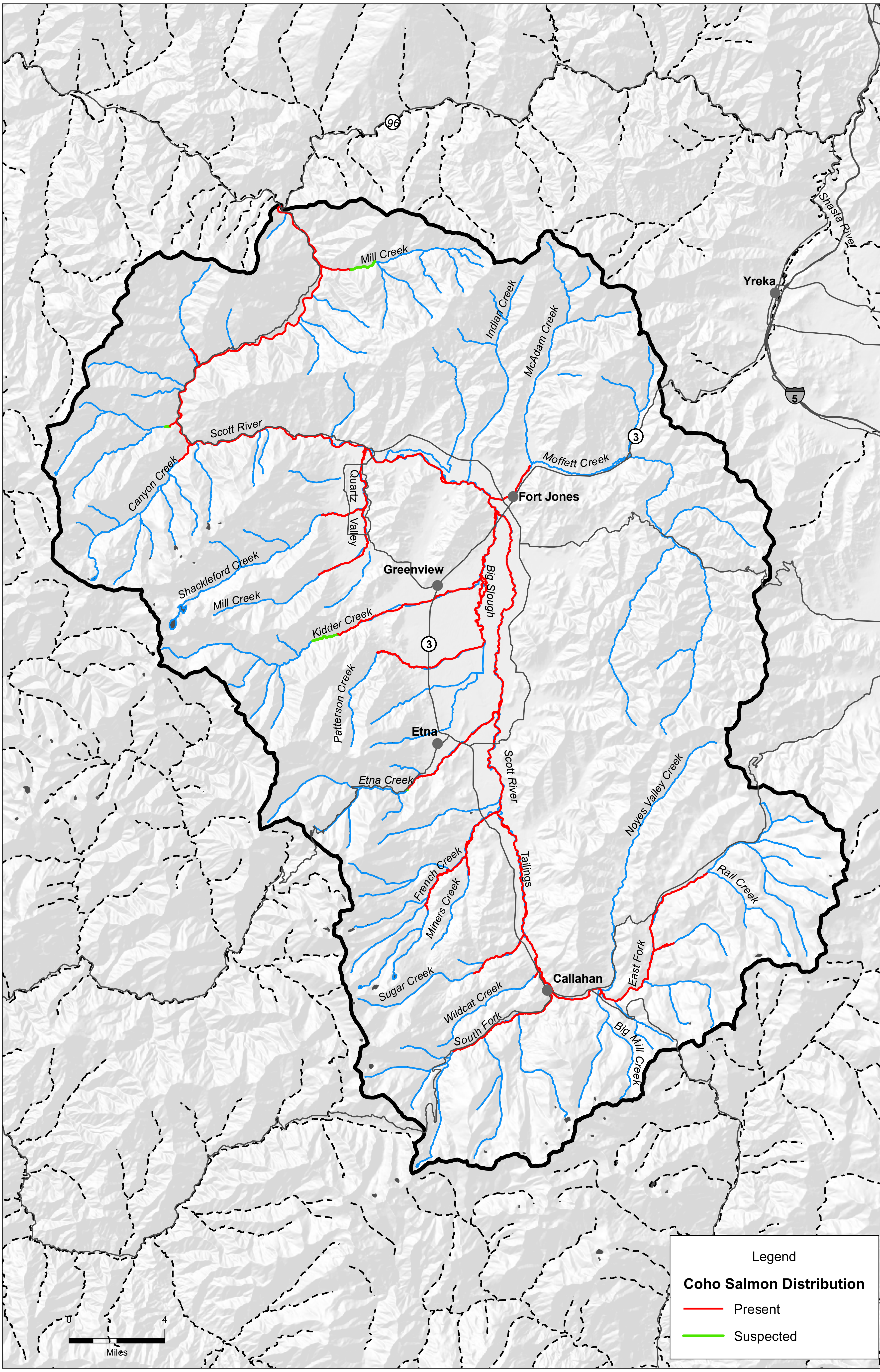
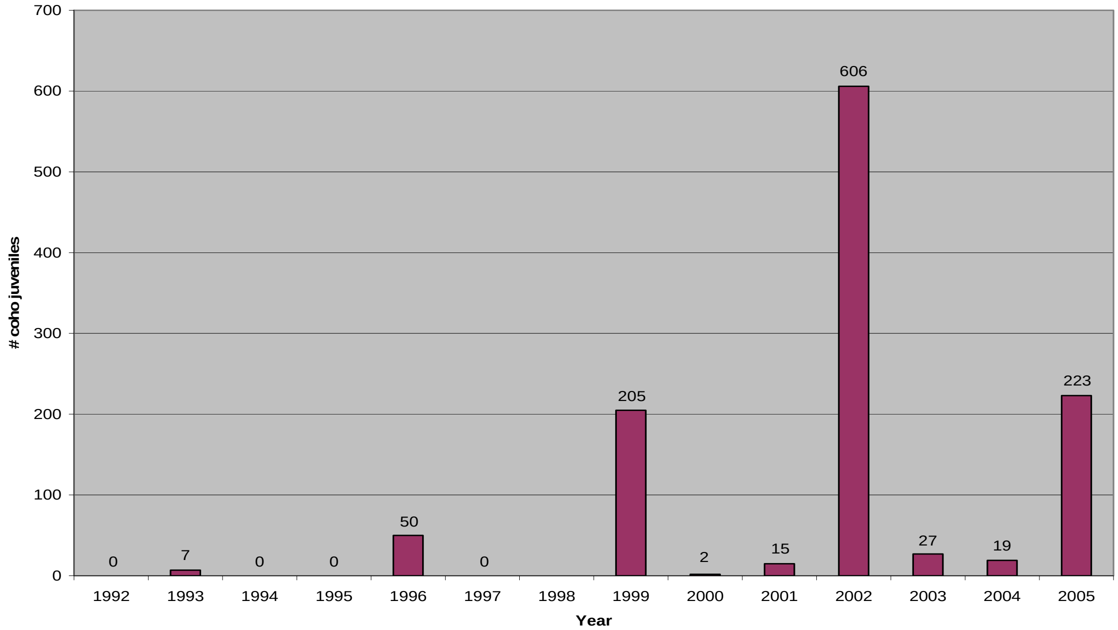


SOURCE: ESA, 2007; CDFG, 2009

Scott River Watershed-Wide Permitting Program . 206063

Figure 3.3-3

Coho Salmon Distribution within the Scott River Watershed



SOURCE: CDFG, 2006

Figure 3.3-4
Relative Abundances of Juvenile Coho Salmon
in French Creek, 1992-2005

TABLE 3.3-3
YEARLY SCOTT RIVER WATERSHED COHO POPULATION ESTIMATES
BASED ON OUTMIGRANT TRAPPING SURVEYS

	2003	2004	2005	2006	2007
Age 0+ coho	282	58	80,498	1,772	1,613
Age 1+ coho	34,149	93	1,160	75,097	352

[a] NOTE: Due to low number of age 0+ recaptures during the 2003 and 2004 seasons, and low numbers of recaptures of 1+ in 2004, population estimates were not possible and the numbers presented are total counts of fish captured.
[b] NOTE: Due to anticipated low numbers of age 1+ coho salmon in 2007, mark/recapture methods to estimate trap efficiency were not used in 2007; instead, efficiency was estimated based on a correlation between trap efficiency data for age 2+ steelhead in 2007 and age 1+ coho salmon in 2004 and 2005.

SOURCE: Chesney et al.,2007, Chesney, 2007; Chesney, 2008.

~~The observed phenomenon of large numbers of coho salmon leaving the Scott River as young-of-the-year (age 0+) is somewhat unusual for the species. The reasons for this premature exit from the watershed is not fully understood, but appears to be correlated to the yearly loss of rearing habitat associated with decreased streamflows and increased water temperatures (Chesney, 2007). Flows during the spring in the Scott River mainstem and tributaries decrease rapidly once the snow pack has melted and the irrigation season begins.~~

SQRCD also conducted an outmigrant trapping study of juvenile coho salmon on several tributaries of the Scott River during the period of October 2005 through June 2006 (Yokel, 2006). This study extended over only one fall/winter/spring season and therefore does not provide an indication of coho salmon population trends. However, results of the study indicate that some juvenile coho salmon migrate out of the tributary streams and into the mainstem of the Scott River in response to high winter flows (Yokel, 2006). These observations are consistent with numerous studies (e.g., Bell, 2001; Bell et al., 2001; Peterson, 1982) that have shown that coho salmon seek low velocity habitats during high flow events.

Chinook Salmon

Status

Chinook salmon in the Scott River watershed are part of the federally-designated Upper Klamath and Trinity Rivers Chinook ESU, which includes all populations upstream of the confluence of these two rivers. NMFS determined on March 9, 1998 that this ESU did not warrant listing under the federal ESA. Spring-run Chinook salmon within this ESU are a CDFG species of special concern.

Life Cycle

The life history patterns of Chinook salmon vary among runs. The Klamath River Basin, including the Scott River, currently supports fall-run and historically supported spring-run Chinook salmon. A third run, the late fall-run, may also have historically existed in the basin, but it is either poorly documented or extinct (Moyle, 2002). The spring-run differs from the fall-run in that the adults enter the river before they are ready to spawn and reside in deep pools for two to four months before they spawn, whereas fall-run adults spawn soon after reaching their spawning destination (Moyle, 2002). In addition, spring-run juveniles may remain in the streams for a year or longer before their seaward migration, whereas fall-run juveniles are generally less than one year old before they migrate to sea.

Adult fall-run Chinook salmon entry into the Klamath River Basin typically peaks in September and continues through late October, with adults arriving at their spawning grounds approximately two to four weeks after freshwater entry (NRC, 2004). As such, adult Chinook salmon typically arrive in the Scott River watershed prior to the peak of coho salmon spawning migration. Chinook salmon tend to spawn in lower gradient reaches than coho salmon, primarily in rivers and larger streams. The timing and distribution of fall-run Chinook salmon spawning within the Scott River watershed has been documented annually during cooperative spawning ground surveys since 1992. Fall Chinook salmon primarily utilize the mainstem Scott River from its confluence with the Klamath River to approximately Faye Lane. Spawning distribution within the mainstem can be limited during periods of low flow as fish are unable to leave the Scott Canyon reach and ascend into the valley areas due to a lack of streamflow (SRWC, 2005). The majority of juvenile fall-run Chinook salmon spend only a few months rearing in freshwater before outmigrating in the spring and early summer. Peak smolt outmigration from the Scott River typically occurs in April through June (SRWC, 2005).

Spring-run Chinook salmon enter rivers as immature fish in spring and early summer. They migrate to their upstream spawning sites where they hold for several months in deep, cool pools prior to spawning in early fall. Juvenile spring-run Chinook salmon rear in freshwater for three to fifteen months with outmigration peaking in winter (January – February) and again in spring (April) (Moyle, 2002).

Habitat Requirements

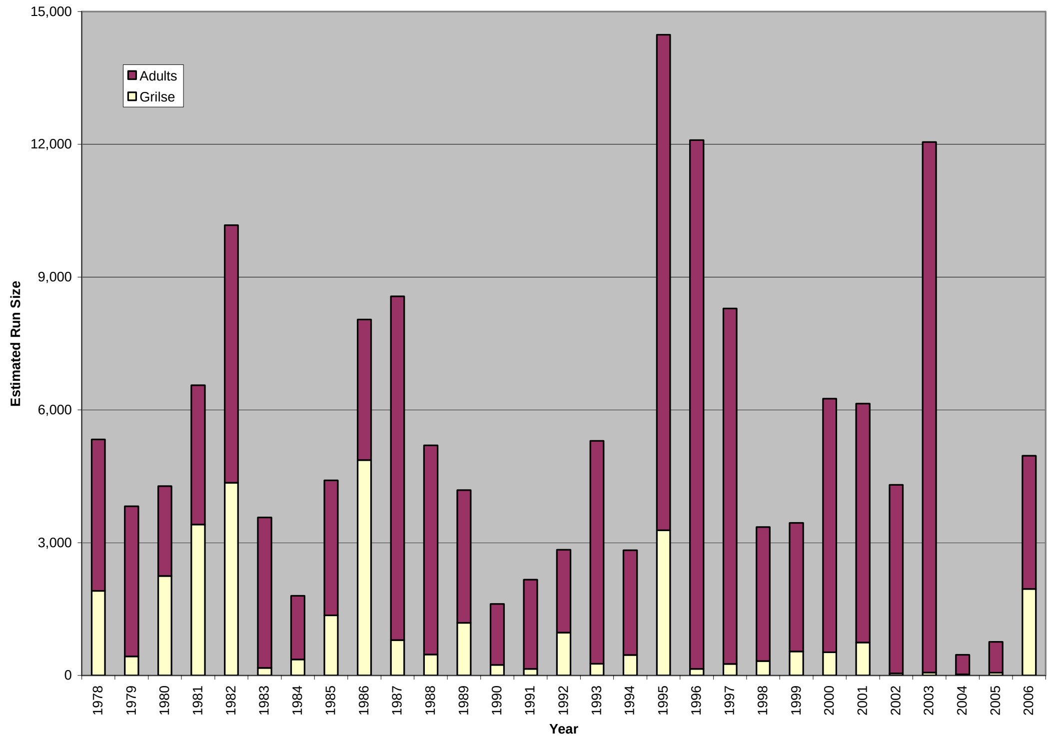
Although the life history patterns of Chinook salmon differ from that of coho salmon, the overall habitat requirements of the two species are fairly similar. Like coho salmon, Chinook salmon require adequate flows, temperatures, water depths and velocities, appropriate spawning and rearing substrates, and availability of instream cover and food. The importance of these habitat parameters are described above for coho salmon.

Adult holding areas, consisting of deep pools with cool water temperatures, are of particular importance to spring-run Chinook which must reside in the freshwater streams and rivers throughout the summer. Adult fall-run Chinook salmon, on the other hand, are particularly dependent on adequate streamflows in the fall, prior to the onset of significant precipitation, to enable successful migration to their spawning sites. Most juvenile Chinook salmon leave their freshwater habitat in the spring and are therefore not as susceptible to the high water temperatures and low streamflows that are common during summer and early fall. The optimal rearing temperature range for juvenile Chinook salmon is approximately 14 to 19ºC (57-66ºF) (Hardey and Addley, 2001), which is somewhat higher than that of coho salmon. The upper lethal temperature for Chinook salmon, however, is similar to that of coho salmon which has been reported as 26°C (79°F) (Bjornn and Reiser, 1991).

Population Trends

No estimates of Chinook salmon population prior to the 1950s are available for the Scott River watershed. In the early 1960s, fall-run Chinook salmon run sizes in the Scott River were estimated at 8,000 to 10,000 (SRWC, 2005). Fall-run Chinook salmon escapement estimates for the Scott River watershed have been made annually since 1978 (**Figure 3.3-5**). Between 1978 and 2006, fall-run Chinook salmon returns averaged 4,335 adults per year with a high of 11,988 in 2003 and a low of 445 the following year (CDFG, 2007).

Spring-run Chinook salmon, once the most abundant Chinook run in the Klamath River basin (Hardy and Addley, 2001), were reportedly present in the Scott River until at least the early 1960's (West, 1991); a remnant population of this run is thought to be confined to the Salmon River watershed (Chesney, 2006). However, in October 2006, CDFG personnel operating a screw trap on the mainstem Shasta River noted that some juvenile male Chinook salmon caught in the trap were sexually mature (Jeffres et al., 2008). Mature male juveniles are very rare in nature and are most often found in spring-run Chinook salmon that hatch earlier than fall-run fish, and thus are able to grow more rapidly and mature at an earlier age (Jeffres et al., 2008). While the potential exists for these early maturing juveniles to be offspring of a vestigial run of spring Chinook salmon in the Shasta River, they may also be the product of early spawning fall-run



SOURCE: CDFG, 2007

Figure 3.3-5
Scott River Fall-Run Chinook Salmon
Run-Size Estimates, 1978-2006

Chinook salmon utilizing spawning gravels in the vicinity of Big Springs Creek in the Shasta River watershed. As this area is influenced by warmer spring flows naturally rich in nutrients, the incubation period is likely reduced and the resultant fry emerge earlier to experience a longer growing period in a highly productive environment. This could also lead to early sexual maturation and precocious behavior. Additional evaluation is needed. Similar mature juveniles have not been observed in the Scott River watershed.

Steelhead

Status

Steelhead within the Scott River basin are part of the federally-designated the Klamath Mountains Province Distinct Population Segment (DPS). Listing of this DPS under ESA was determined not to be warranted by NMFS on April 4, 2001. Summer-run steelhead within this DPS are a CDFG species of special concern.

Life Cycle

Steelhead exhibit one of the most complex life histories of any salmonid species. The resident rainbow trout form spends its entire life in freshwater environments, while the anadromous steelhead form migrates between its natal streams and the ocean. Furthermore, two reproductive forms of steelhead are recognized, the summer-run (stream-maturing) and winter-run (ocean-maturing), which describes the level of sexual development following return to the freshwater environment. Some researchers further divide the winter steelhead into early (fall-run) and late (winter-run) (e.g., Hardy and Addley, 2001), but the two forms have similar life histories (NRC, 2004) and are treated together here as winter-run steelhead. In addition, the Klamath River Basin is distinctive in that it is one of the few basins producing ‘‘half-pounder’’ steelhead. This life history type refers to immature steelhead that return to fresh water after only two to four months in the ocean, generally over-winter in fresh water, then outmigrate again the following spring (NMFS, 2001b).

Unlike salmon, steelhead are iteroparous, meaning they can spawn more than once before they die. In California, females commonly spawn twice before they die. Adult winter-run steelhead typically enter the Klamath River from late August to February before spawning, which extends from January through April, peaking in February and March (NRC, 2004). Summer-run steelhead enter freshwater as immature fish from May to July, migrate upstream to the cool waters of larger tributaries, and hold in deep pools roughly until December, when they spawn (NRC, 2004). Juvenile steelhead rear in freshwater for one to three years (mostly two) before migrating downstream toward the ocean in spring, primarily during the months of March through May. They then typically reside in marine waters one to three years prior to returning to their natal stream to spawn as three- or four-year olds.

Habitat Requirements

As discussed above, the overall habitat requirements of the various salmonid species are fairly similar. Like coho salmon, steelhead require adequate flows, temperatures, water depths and velocities, appropriate spawning and rearing substrates, and availability of instream cover and food. The importance of these habitat parameters are described above for coho salmon.

Notable differences in habitat preferences include the fact that while juvenile coho salmon prefer pools with low average velocities and are not as common in riffles with high current velocities, juvenile steelhead tend to occupy riffles, as well as deep pools with relatively high velocities along the center of the channel (Bisson et al., 1988). Similar to spring-run Chinook salmon, adult holding areas are of particular importance to summer-run steelhead who must reside in the freshwater streams and rivers throughout the summer. The thermal tolerance of steelhead is generally higher than that of most other salmonids. Preferred temperatures in the field are usually 15 to 18°C (59-64°F), but juveniles regularly persist in water where daytime temperatures reach 26 to 27°C (79-81°F) (Moyle, 2002). Long-term exposure to temperatures continuously above 24°C, however, is usually lethal (NRC, 2004; Moyle, 2002).

Population Trends

Population trends of steelhead within the Program Area have not been monitored as closely as those of coho and Chinook salmon. Within the Klamath Basin, historical numbers of winter steelhead are not known, but total run sizes in the 1960s were estimated at about 170,000 for the Klamath River and 50,000 for the Trinity River (NRC, 2004). In the 1970s, Klamath River runs were estimated to average around 129,000 and by the 1980s, they had dropped to around 100,000

(NRC, 2004). In 2001, NMFS estimated the natural escapement for the entire Klamath Mountains Province DPS at 100,000 to 130,000 adults per year, with the California portion of the DPS contributing approximately 30,000 to 50,000 adults (NMFS, 2001b).

Summer-run steelhead once were widely distributed in the Klamath Basin and were present in most headwaters of the larger tributaries (NRC, 2004). In the 1990s, estimated numbers were 1,000 to 1,500 adults across eight populations – less than 10 percent of their former abundance (Moyle, 2002). Numbers presumably are still declining because of loss of habitat, poaching in summer, and reduced access to upstream areas during migration periods as a result of diversions (NRC, 2004). Summer-run steelhead are largely extirpated from the Scott River sub-basin, although small numbers of them may be found occasionally during different water years in a few locations in the Scott River system (USFS, 2000).

Lampreys

Status

Four lamprey species have been observed in the Scott River watershed: river lamprey; Klamath River lamprey; Pacific lamprey; and Miller Lake lamprey (Chesney et al., 2007). The river and Klamath River lampreys are CDFG fish species of special concern. The U.S. Fish and Wildlife Service (USFWS) determined in 2004 that a formal listing of the Pacific lamprey under ESA was not warranted (USFWS, 2004). However, there is reasonable likelihood that the Pacific lamprey may become listed in the foreseeable future and they are also considered a tribal trust species with a high priority for recovery to fishable populations (NRC, 2004). Therefore, Pacific lampreys are treated as a CDFG fish species of special concern for the purposes of this Draft EIR.

The Miller Lake lamprey was thought to have been extinct since 1958 as a result of a deliberate chemical treatment of Miller Lake (the only known location at the time). However, since 1992, the species has been observed in the Williamson River and Miller Creek. Subsequent surveys in the summers of 1997 - 1999 reconfirmed the species extinction in Miller Lake but lead to the discovery of several subpopulations of *L. minima* within and outside the Miller Lake sub-basin (Hilton-Taylor, 2007). The 2006 discovery of the species in the Scott River (Chesney et al., 2007) presumably further extended its known distribution rage. The Miller Lake lamprey currently has no official listing status and the International Union for Conservation of Nature (IUCN) currently lists the species as “data deficient” (Hilton-Taylor, 2004). However, due to their apparently limited distribution and abundance, Miller Lake lampreys are treated as a CDFG fish species of special concern for the purposes of this Draft EIR.

Life History

Lampreys are anadromous. Like salmon and steelhead, they hatch in freshwater streams, migrate out to the ocean, and return to fresh water as mature adults to spawn. Landlocked forms that do not migrate to the ocean are also known, including from the Upper Klamath Basin (Moyle, 2002). The life history of the Klamath River lamprey has not been documented and the biology of river lampreys has only been studied in British Columbia where the timing of life history events may or may not be the same as in California (Moyle, 2002). Thus, the following description focuses largely on Pacific lampreys.

Most adult Pacific lampreys enter freshwater from January through March to spawn from March to June, although movement has also been observed in most other months (Moyle, 2002). Most spawning appears to take place in the mainstem or larger tributaries. Like salmon, lampreys construct redds for spawning in gravel riffles. Once they emerge, larvae (ammocoetes) are carried downstream by streamflows and burrow into sand or mud substrates at the edge of the river. The larvae live in burrows for probably five to seven years, during which time they move about frequently and are commonly captured in salmon outmigrant traps (NRC, 2004). Once the ammocoetes transform into adults, they migrate to the sea. Downstream migration usually is coincidental with high flows in the spring, but movement has also been observed during summer and fall (NRC, 2004). In the ocean and estuary, they prey on salmonids and other fish for one to two years before returning to spawn.

Habitat Requirements

While in freshwater, lampreys are often found to coexist with steelhead and salmon, indicating that these species share similar habitat requirements. Juveniles require muddy bottoms, backwater areas, and low gradient areas, and it is therefore likely that rapid or frequent drops in flow deprive them of habitat and force them to move into open water, where they are vulnerable to predation (NRC, 2004). Due to the migratory behavior of the species, lamprey distribution within watersheds is also affected by barriers. They do not, however, appear to be limited by water temperatures (NRC, 2004).

Population Trends

Lampreys once were so abundant in the coastal rivers of California that they inspired the name Eel River for the third largest river in the state (NRC, 2004). Today, their numbers are low and declining (NRC, 2004; Moyle, 2002).

Other Fisheries Resources

In addition to coho salmon and the CDFG species of special concern described above, the Program Area supports other native, non-listed fish species such Klamath smallscale sucker (*Catostomus rimiculus*), speckled dace (*Rhinichthys osculus*), and marbled sculpin (*Cottus klamathensis*) (Chesney et al., 2007). Although the life cycles and habitat requirements of these species may differ somewhat from those of coho salmon and CDFG fish species of special concern, all native fisheries within the Scott River have co-evolved and are similarly affected by aquatic habitat disturbances. Furthermore, populations of these species have received little attention and population trends are not available. Thus, due to their non-special status, similar preference for undisturbed aquatic habitat conditions, and lack of adequate population data, these species are not further discussed in this Draft EIR.

A number of non-native fish species are also known to be present in the Scott River watershed. The most abundant of these appear to be brook stickleback (*Culaea inconstans*) and fathead minnow (*Pimephales promelas*), while species such as green sunfish (*Lepomis cyanellus*), golden shiner (*Notemigonus crysoleucas*), and largemouth bass (*Micropterus salmoides*) appear to be rare (Chesney et al., 2007). To the extent the Program will adversely affect non-native fish species (e.g., direct mortality resulting from instream construction activities, potential decreases in habitat suitability resulting from decreases in water temperatures), the impacts will be less than significant because when present in streams or rivers, non-native fish species typically compete with, or prey on, native species, and therefore any reduction in non-native fish species will benefit native fish. In that regard, any reduction in the abundance or distribution of non-native fish species will only serve to further one of the primary the objectives of the Program to protect and preserve coho salmon. Thus, non-native fish species are not further discussed in this Draft EIR.

Aquatic Habitat Conditions and Utilization

This section describes the existing aquatic habitat conditions and utilization by coho salmon and CDFG fish species of special concern within the Scott River watershed, with primary attention given to coho salmon and other salmonids. For clarity, the watershed has been divided into various sub-watershed areas based on similarities in geomorphologic and biologic conditions. Due to the large geographic scope of the Program Area, aquatic habitat conditions are described on the sub-watershed scale (e.g., adequate spawning habitat and poor rearing habitat) rather than detailed reach-by-reach accounts of existing habitat features (e.g., pool complexity and percent cover). Such detailed descriptions can be found in Quigley (2006c) and available CDFG *Stream Inventory Reports*, which are included by reference. The descriptions of the sub-watersheds are largely based on summaries provided by SQRCD (2005). Figure 3.3-1 depicts the Scott River watershed, including significant tributary streams.

East Fork Scott River

The East and South Fork of the Scott River meet at the town of Callahan and form the headwaters of the Scott River mainstem. The East Fork drains the Scott Mountains flowing in a southwesterly direction. Elevations of this drainage range from 3,120 feet at Callahan to 8,540 feet at China Mountain. The East Fork drains a total of 72,650 acres, equivalent to 14 percent of the total Program Area. The headwater tributaries in this sub-basin are generally small, steep, high gradient streams. These high gradient streams flow into alluvial channels of low gradient, moderately confined valley bottoms. These low gradient valley channels are bordered by discontinuous alluvial floodplains. Land use consists of a mix of federal and commercial forestland, rangeland and irrigated agricultural land.

Agricultural activity in the East Fork includes mountain range grazing in the summer and fall, and pasture production in the alluvial valleys. Areas under pasture production are next to the streams and riparian fencing/riparian protection is minimal. Nearly all irrigated pasture is flood irrigated from the East Fork and its tributaries. Livestock are watered through surface water diversions as well. The primary method used to divert water from the stream and into irrigation ditches is the construction of seasonal gravel push-up dams and hand stacked rock and cobble diversion structures. Water diversions on the East Fork Scott River are permitted to occur during the irrigation season, defined as April 1 through October 15 in the Scott River Decree (No. 30662, 1980). Stock water diversion is permitted throughout the year.

An estimated maximum of 76 cubic feet per second (cfs) are diverted from 16 active diversions in the East Fork system in the spring. By the early fall, as flows throughout the watershed decrease, the volume of water that is actually diverted is typically less then 10 cfs. Stock water diversion volume is less than 5 cfs. Diversions occur on the East Fork and all its tributaries except Mule Creek. Thirteen of the 16 active diversions are known or presumed to be located within reaches utilized by coho salmon and have been screened with fish screens meeting CDFG/NMFS standards (D. Yokel, 2006). The other three active diversions are located upstream of the currently known range of coho salmon and are not screened.

Riparian conditions in the East Fork sub-watershed are generally poor, particularly along the mainstem East Fork. Riparian areas are usually not contiguous and are limited to single rows of trees, with many being mature to decadent. Grazing and the presence of levees have prevented riparian regeneration.[8] Furthermore, the use of levees has limited channel access to the floodplain and has resulted in channel down-cutting, which in turn has lowered the creek bed to levels where the roots of existing riparian trees may no longer obtain water during low flow periods.

Although generally in poor condition, the presence of certain components of the riparian zone, such as adequate seed stocks, suggest that improvements may be possible in many areas. A small fencing/planting project near lower Masterson Road in 2000-2001 improved conditions for both planted riparian species and native propagation when channel manipulation and grazing was limited. As of March 2005, riparian planting and fencing efforts had only been conducted on less than 5,000 feet of channels within the East Fork sub-watershed.

Summer stream temperature data have been collected by SQRCD in the East Fork, Rail Creek, and Kangaroo Creek annually since 1996 and at various sites by the NCRWQCB (2005). Data collected during May through October indicate Maximum Weekly Average Temperature (MWAT) values of 19-23°C (66-73°F) in the East Fork and 12-18°C (54-64°F) in Rail and Kangaroo Creeks. It should be noted that maximum temperatures are typically recorded in the late afternoon and the stream water may cool by 2-6°C during the course of the night (Quigley et al., 2001). Stream flow data collected by the United States Geological Survey (USGS) on the East Fork just below the town of Callahan (1960 to 1974) and by the California Department of Water Resources (DWR) show the average August and September flows to be 5 and 3 cfs, respectively.

Coho salmon and steelhead are currently known to use the East Fork watershed. Only one coho salmon brood year lineage (2001…2004) was previously presumed to utilize the East Fork for spawning, but one redd was observed near the town of Callahan in 2005 (Quigley, 2006a). The range of coho salmon use within the East Fork is unknown. Based on stream gradient and existing

8 As discussed in Chapter 3.2, livestock grazing is a Covered Activity under the Program, but similar to some other Covered Activities it is not new; rather, it has been occurring in the Program Area for decades. Hence, authorizing livestock grazing as part of the Program will not cause the level of grazing to increase or result in any impacts in addition to those that are already part of baseline conditions in the Program Area. In fact, the Program will reduce the impacts of grazing by excluding livestock from some riparian areas by installing and maintaining fencing (see ITP and MLTC Covered Activity 5). Also, where riparian fencing is constructed as part of the Program, any grazing of livestock <u>within the riparian exclusion zone</u> ~~adjacent to the channel or within the bed, bank, or channel~~ of the Shasta River or its tributaries may only occur in accordance with a grazing management plan that will result in improved riparian function and enhanced aquatic habitat.

migration barriers, coho salmon could potentially access up to 10 miles of the East Fork, two miles of Kangaroo Creek, several hundred yards of Mule Creek, four miles of Noyes Valley Creek, several hundred yards of Big Mill Creek (i.e., below the current Highway 3 migration barrier), several hundred yards of Rail Creek (irrigation pond barrier), half a mile of Houston Creek, and 0.8 mile of Grouse Creek. Coho salmon have been observed as high as 0.3 mile on Rail Creek and 0.2 mile on Kangaroo Creeks (Quigley, 2006a). No surveys have been conducted on other tributaries.

Current Habitat Function and Primary Limiting Factors

Streamflows in the East Fork of the Scott River are usually adequate to allow adult coho salmon and steelhead to enter the drainage and spawn even if precipitation has not been significant in the fall. The limiting factor for salmonids reaching spawning areas in the East Fork is the low flow barrier created by the aggraded channel associated with mining tailings in the upper portion of the mainstem Scott River (see discussion below). Coho salmon may begin entering the East Fork as early as late November and begin spawning shortly thereafter. Adequate spawning gravels are limited in some reaches of the East Fork as the tail-outs of pools and riffles are dominated with oversized cobble.

Excessive summer water temperatures in the East Fork may be a primary limiting factor with regard to juvenile salmonid rearing habitat, although cold water springs in the reach may provide local thermal refugia. Water temperatures at monitoring sites routinely exceed 19°C (62°F) and lethal temperatures (24-26°C; 75-79°F) are often approached by the first week of August. High summer water temperatures in the East Fork are partially related to the geography of the drainage, but are also affected by numerous management factors including upland management, historical mining activities that occurred primarily prior to the 1950’s, channelization resulting in downcutting, infrequent meander pattern, riparian degradation, water diversion and tailwater return, and debris flows. Many of the cold water tributaries that juveniles may have utilized historically are now inaccessible or difficult to access due to human-caused migration barriers (Rail and Mill Creeks are completely inaccessible above barriers, while Kangaroo and Grouse Creeks may have low flow barriers).

Many of the tributaries to the Scott River, including the East Fork, contain very cold water in the winter, ranging from one to two degrees C (34-36°F) during the coldest periods and four to five degrees C (39-41°F) during most winter months. To avoid these extreme temperatures, over-wintering juveniles may seek warmer, calmer water in side channels and back waters. Just as fish are assumed to move upstream in the summer in search of cooler water, juveniles may move downstream in search of warmer water in the winter. Many of the backwater side channel habitats in the East Fork lack cover and complexity or have been disconnected from the active channel.

The majority of the coho salmon and steelhead smolt out-migration in the mainstem Scott River typically occurs between April and early June (Chesney et al., 2004; Chesney et al., 2007). However, a tributary outmigrant trapping study conducted by SQRCD in 2005-2006 suggests that coho salmon may migrate from tributary streams, including the East Fork, earlier in the season (Yokel, 2006). Out-migration from the East Fork prior to June is rarely adversely affected.

South Fork Scott River

The South Fork of the Scott River drains the Salmon Mountains in the southwest portion of the Scott Valley and flows in a northeast direction towards its confluence with the East Fork at the town of Callahan where the two forks meet to form the mainstem of the Scott River. Elevations in the South Fork sub-watershed range from a low of 3,120 feet at Callahan to 7,400 feet at the Scott-Salmon divide. The South Fork drains 25,133 acres, which represents 4.8 percent of the Program Area. The morphological characteristics of this sub-basin include small, low-order, steep headwater tributaries which are significantly influenced by snow accumulations and runoff which transport quickly through steep stream reaches to the lower gradient Scott River. This sub-basin is comprised primarily of commercial forestland and wilderness areas with scattered rural residences along the South Fork.

Agricultural activity in the South Fork drainage includes mountain range grazing in the summer and fall and pasture production. The areas of the South Fork under agricultural production are limited and not contiguous. Nearly all irrigated pasture is flood irrigated from the South Fork and its tributaries. Livestock is watered through surface diversions or direct stream access. Methods to divert water from the stream consist primarily of seasonal gravel push-up dams and hand stacked rock and cobble diversion structures directing a portion of the streamflow into diversion ditches. Irrigation usually begins by early May and continues through the irrigation season (defined as April 1 through October 15 in the Scott River Decree) while stock water diversion continues throughout the winter in reduced volumes.

There are six active diversions with a combined adjudicated diversion volume of approximately 16 cfs.[9] The estimated volume of water diverted is less then 7 cfs during the late summer at baseflows. Livestock water diversion volume is estimated at 1 to 3 cfs in December. Diversions occur on the South Fork, and all the tributaries (Jackson, Grizzly, and Boulder Creek) except Fox Creek. Of the six diversions, five are within the known or presumed range of coho salmon and are screened according to CDFG/NMFS standards. One of these, the Boulder Creek diversion point, is likely outside of coho salmon use but is nevertheless screened. The remaining diversion (Jackson Creek) is believed to be upstream of coho salmon accessibility due to the steep gradient and a potential migration barrier.

The riparian conditions of the South Fork sub-watershed are generally poor. Mining tailings dominate the narrow alluvial valley and fines are often not present. There appear to be adequate seed stock of alder, black cottonwood, and some willows and conifers, but areas suitable for regeneration are scattered. Existing riparian areas are usually not contiguous, limited to single rows of tress, or set back from the active channel. The South Fork has limited access to its flood plain due to the constricting effect of the tailing piles, preventing deposition of fines and recovery of the riparian area. Summer grazing may limit some riparian regeneration between Boulder and Fox Creeks.

9 A 30-day averaging provision included in the Scott River Decree allows for an estimated maximum diversion of approximately 20 cfs from these diversions.

Stream temperature data have been collected at two locations on the South Fork and its tributaries since 1996. Summer water temperatures in the South Fork range between 15-17°C (59-63°F). Temperature conditions are generally favorable during the summer. Streamflow data were collected by the USGS on the South Fork at South Fork Road, approximately one mile upstream of Callahan, for only two years (1958 - 1960). The daily average flow during this two year period was 8 to 9 cfs in August and September. A streamflow gage operated by DWR at the same location since 2002 shows a wide variation in summer baseflows, ranging from 12 cfs in 2003 (wet year) to as low as 2 to 4 cfs in 2002 and 2004 (dry years).

The South Fork of the Scott River is known to support coho salmon and steelhead. To the best of SQRCD's knowledge, coho salmon are known to be present in the South Fork one out of three brood years (2001…2004….2007) (Quigley, 2006a). The full extent of the coho salmon range within the South Fork is unknown, although adult surveys have found adult coho salmon as high as upstream of the Fox Creek confluence (SQRCD, 2005; Yokel, 2008). Coho salmon have been found spawning in the lowest quarter mile of Boulder Creek, but the gradient is likely too steep above this point.

Current Habitat Function and Primary Limiting Factors

Streamflows in the South Fork are usually sufficient to permit adult coho salmon access during the spawning migration, although stock water diversions reduce flows somewhat in December. Similar to migration conditions for the East Fork discussed above, the limiting factor for coho salmon reaching spawning areas in South Fork appears to be the low flow conditions formed by the mining tailings in the mainstem of the Scott River. Coho salmon may begin entering the South Fork as early as late November and have been observed spawning as early as mid-December. Adequate spawning gravels are limited in some reaches of the South Fork as the tail-outs of pools and riffles are dominated with oversized cobble. This is likely a result of steep gradient and heavy historical mining activity (see Chapter 3.2 Geomorphology, Hydrology and Water Quality) that prevents access to the flood plain, limiting deposition of spawning gravels. Coho salmon were noted spawning in sub-optimal gravel material and conditions in December of 2001 as suitable spawning gravel was lacking (Maurer, 2002).

Over-summering habitat in the South Fork of the Scott River appears to be adequate, although pools, woody debris, and cover availability are limited. Water temperatures reach levels of concern in the lower reach, but are not considered lethal. The cold water tributaries to the South Fork sub-watershed typically have a relatively steep gradient and anadromy appears to be limited to the lowest reaches. The lowest reaches of both Boulder and Fox Creeks appear to contain adequate pools and instream cover, although woody debris is lacking.

Winter water temperatures in the South Fork typically range between 1 to 4°C (34-39°F). As discussed above for the East Fork, over wintering juveniles may seek warmer, calmer water in side and back channels or may exit the sub-watershed searching for warmer conditions. There are few side channels and backwater areas in the South Fork and spring snow melt conditions (i.e., high velocities created by steep grade and constricted channels) can be severe for 0+ and 1+ fish. Lack of cover and complexity in the South Fork likely exacerbates this situation. Impacts of past mining activities on the morphology and hydrology of the alluvial areas likely influenced the current lack of side channels and backwater habitats.

Out-migration of coho salmon and steelhead smolts from the South Fork to the mainstem Scott River is rarely adversely affected by low flows.

Wildcat Creek and Sugar Creek

Wildcat Creek and Sugar Creek are neighboring streams located in the southwestern portion of Scott Valley. Wildcat Creek's confluence with the Scott River is one mile below the confluence of the East and South Forks (Callahan) at RM 52. Sugar Creek's confluence with the Scott River is two miles further downstream (RM 50). Sugar Creek and Wildcat Creek are combined in this description due to their similar location and geomorphology. The lower section of both streams is heavily impacted by piles of tailings, and agricultural activity along the streams is similar. Wildcat Creek has a smaller drainage (4,700 acres) than Sugar Creek (8,914 acres). Elevations range from over 7,000 feet at the headwaters to 3,000 at the confluences with the Scott River.

Agricultural activity is limited to the mid-section of Wildcat Creek and the mid- and lower sections of Sugar Creek. There are some indications that tail water re-enters Wildcat Creek at several locations, which may affect summer water temperatures. Most water diverted from the Sugar Creek drainage is utilized for pasture production. Livestock is watered through surface diversions in both streams but winter diversions for stock water purposes are limited to a small diversion on Wildcat Creek. Diversion structures typically consist of seasonal hand stacked rock and cobble diversion structures. The diversion season identified in the Scott River Decree extends from April 1 through October 15, but actual diversions typically begin in early May.

An estimated maximum of 10 cfs is currently diverted in the Wildcat Creek watershed from three active diversions during the spring. This volume is reduced to approximately 2 cfs by early fall. The two lower active diversions are located within known or presumed coho salmon habitat but all three are screened. In the Sugar Creek watershed, an estimated maximum of 12 cfs is currently diverted from two active diversions in the system in the spring, which is reduced to approximately 2 cfs in the early fall. Both diversions are known to be within coho salmon habitat and are screened.

Riparian conditions on both streams appear to be fairly good except for areas affected by historical gold mining. Summer grazing occurs in the mid-section of Wildcat Creek. On Sugar Creek, livestock is excluded from the riparian corridor. There appears to be adequate seed stock of alder, black cottonwood, willows and conifers throughout both watersheds.

Water temperatures on both creeks have been monitored since 1998 and range between 15-17°C (59-63°F), typically peaking in early August. Both streams remain connected to the Scott River during most years. No current streamflow data exists for Wildcat Creek, but summer baseflows at the Highway 3 crossing are estimated to be less than 1 cfs. SQRCD has monitored streamflow in Sugar Creek since 2001. Summer baseflow (August – September) has varied between 1 to 3 cfs, depending on water year type. This agrees with data collected by the USGS between 1957 and

1959. Sugar Creek shows indications of carrying excess fine sediments, mostly decomposed granite, that appear to originate from upstream sources.

Both Wildcat Creek and Sugar Creek are known to support coho salmon and steelhead. Coho salmon spawning activity has been detected in Wildcat Creek in 2004-2005 and 2007-2008 (juveniles were also found in the summer of 2002) and in Sugar Creek primarily in 2001-2002 and 2004-2005, but also in 2005-2006 and 2007-2008 (Quigley, 2006a; Yokel, 2008).

Current Habitat Function and Primary Limiting Factors

As is the case with all of the upper tributaries to the Scott River, coho salmon spawning access to Wildcat and Sugar Creeks is limited by the low flow barrier created by the mine tailings in the mainstem of the Scott River. Streamflows in Wildcat Creek are likely sufficient to allow adult coho salmon to enter the lower reaches of the system by mid-December. The stock water diversion of less than 1 cfs slightly reduces winter streamflows in Wildcat Creek. Adequate spawning gravels are available through the lower two miles of the stream. Flows in Sugar Creek usually allow adult coho salmon and steelhead to enter the lower reach of the system (below Highway 3) to spawn by early December. Adequate spawning gravels are limited to the reach just above Highway 3 down to the confluence with the Scott River. Above this reach, there are only a few areas that possess adequate spawning gravel. In the spawning season of 2004, coho salmon were observed spawning in imported leach rock used to construct temporary stream crossings.

As noted above, summer water temperatures in both streams are suitable for juvenile coho salmon rearing. Riparian cover is present in most reaches, but LWD appears to be limited. SQRCD (2005) suggests that while more pools and instream cover would likely benefit rearing conditions, volumes of summer baseflows are likely a more important limiting factor for coho salmon production in these two creeks. The recent installation of diversion piping, a CDFG-funded project, has resulted in improved summer baseflows in Sugar Creek, but no such efforts have been made on Wildcat Creek.

As is the case in many Scott River tributaries, water temperatures in lower Sugar Creek range between 1 to 4°C (34-39°F) during the winter months. Over-wintering juveniles may be seeking warmer, calmer water in side and back channels or may be leaving the system in search of warmer water. There are few side channels and backwater areas in Sugar Creek. A paucity of instream cover and LWD limits winter holding areas. Wildcat contains several areas where side channels and backwaters exist, but mine tailings limit the floodplain and potential side channel development.

The tail end of the out-migration of coho salmon and steelhead smolts may be impeded by low flow conditions created by the mine tailing in the mainstem of the Scott River by late June.

French Creek

The French Creek watershed is located in the southwestern portion of the Program Area. Its confluence with the main river is located at RM 49. The watershed area is 28,584 acres (5.5 percent of total Program Area). North Fork French Creek and Miners Creek are two major tributaries to French Creek. Elevations in the drainage range from 7,400 feet at the headwater peaks to 2,950 feet at the confluence. Decomposed granite is the parent material for portions of French Creek making the system more susceptible to erosion and contribution of fine sediments.

Agricultural activity in French and Miners Creeks extends from the headwaters to the confluence with the Scott River, ranging from summer grazing to irrigated crop production, but mostly focused on irrigated (mostly flood irrigated) pasture production. Most of the acreage in French Creek is under pasture production for cattle (some for horses) with some under alfalfa production. Agricultural activity within Miners Creek is limited to pasture production. Summer rangeland grazing also occurs in Miners Creek. Livestock is watered through surface diversions in both streams but winter stock water is diverted only in French Creek. Methods to divert water from the stream and into the ditches consist primarily of bolder ~~vortex~~ weirs. Irrigation may begin on April 1 and continue through the adjudicated diversion season (September 30).

Diversions from French Creek are defined by the French Creek Decree (No. 14478, 1958) and are watermastered by DWR. Thus, diversion volumes and history of diversion is better documented in French Creek then any other stream in the Program Area. Irrigation season identified in the decree begins April 1 and continues through September 30, with reduced diversions during the remainder of the year for “the amount required for domestic, stock water, or other beneficial uses.” An estimated maximum of 21.5 cfs can currently be diverted from 13 active diversions on French Creek. Approximately half of this volume is diverted in late summer. Eleven of the 13 diversions are known or presumed to be within reaches accessible to coho salmon and are screened. On Miners Creek, an estimated maximum of 2.5 cfs is currently diverted from three active diversions during the spring. As of the summer of 2008, the two active diversions in Miners Creek were screened.

The riparian conditions on French and Miner Creeks are relatively good and appear to be improving. Miners Creek experiences summer grazing within the riparian area along much of the stream. Riparian plantings and fencing on French Creek and the lower-most mile of Miner Creek were completed in the winter of 2005. The lower reach of French Creek has shown the most marked regeneration (new riparian establishment and encroachment on the stream, improving width-depth ratio and sediment transport/sediment trapping). There appears to be adequate seed stock of alder, black cottonwood and conifers throughout the watershed, but species of tree willows are lacking in the mid-sections of French Creek.

Stream temperature data have been collected by SQRCD (Quigley, 2006b) annually in French Creek since 1997. Temperatures in the upper reaches (above the confluence with Miners Creek) generally do not exceed 16-18°C (61-64°F) during the summer. Temperatures from the confluence of Miners Creek to the mouth may reach 20°C (68°F). No stream temperature data have been collected in Miners Creek. DWR has maintained a streamflow gage on French Creek just above the confluence with the North Fork French Creek since the 1950s. This gage is only operated during the diversion season.

The French Creek watershed is utilized by coho salmon, Chinook salmon, and steelhead. Coho salmon of all three brood years are present in both French and Miners Creeks. The absolute extent of coho salmon use is not known but, based on gradient, may be as high as the confluence of Horse Range Creek on French Creek (approximately RM 6.5 above the French Creek confluence with the Scott River). Adult coho salmon have been observed as high as Azeala Drive located above the Horse Range Creek confluence. The upper boundary of coho salmon use in Miner's Creek is unknown, but adult coho salmon have been observed as high as 1.1 mile from its confluence with French Creek.

Current Habitat Function and Primary Limiting Factors

Adult coho salmon attempting to access French Creek during the early portion of the migration season may be blocked by beaver dams near the confluence with the Scott River and by reduced flows due to stock water diversions. Based on SQRCD observations, French Creek's flow volume and connectivity to the Scott River are attained through natural flow accretion following reductions in diversions. Once diversions are reduced or stopped, flows can naturally increase to the point that adult salmonid access is achieved even if fall precipitation has not occurred (SQRCD, 2005). Stock water diversion, estimated at 2 to 3 cfs (SQRCD, 2005), may adversely affect access during early periods of the adult migration season. Side-channels in Miners and French Creek can experience low flows which may expose salmonid redds.

Coho salmon spawned extensively from the mouth of French Creek to the confluence of Miner's Creek and into Miner's Creek during the winter of 2004-2005 (Quigley, 2005). Both French and Miners Creeks flow through areas of decomposed granite parent materials that may affect the quality of available gravels. Miners Creek in particular contains large amounts of fine sediments, the source of which appears to be a high meadow in the upper watershed that experienced major down-cutting during the 1964 flood event (SQRCD, 2005).

As discussed above, juvenile salmonid populations in the French Creek watershed have been monitored annually since 1992. Most of the benthic macroinvertebrate data and stream temperature data collected in French Creek indicate that upper French Creek maintains excellent water quality throughout the summer. The implementation of upland sediment reduction efforts, riparian fencing and planting programs, and instream enhancement projects has improved over-summering habitat conditions. Surveys have found that juvenile coho salmon often occur in areas where woody debris has lodged in the active channel.

Similar to the other tributaries discussed above, winter water temperatures typically range between 1-4°C (34-39°F). Both lower Miners and French Creek have been known to freeze over during cold temperature periods. There are adequate side channels and backwater areas in French and Miners Creeks, allowing cover during high flow conditions. However, instream cover and complexity are generally lacking, especially in the lower 1.5 miles of French Creek.

French Creek usually remains connected to the Scott River except in late summer of very dry years. Thus, coho salmon smolt out-migration opportunities are usually available.

Etna, Patterson, and Kidder Creeks

Etna, Patterson, and Kidder Creeks are combined in the following discussion due to their proximity and similarities in function and management. The following stream reaches are discussed:

- Etna Creek – headwaters to confluence with Scott River (27,500 acres, RM 43);
- Patterson Creek – headwaters to confluence with Johnson Creek, where the two join to form Big Slough (approx. 4,000 acres, RM 6.8 on Big Slough);
- Kidder Creek – headwater to confluence with Scott River (50,144 acres, RM 2.3 on Big Slough).[10]

All three streams are located on the west side of Scott Valley and are aligned similarly, flowing in a northeasterly direction. The Marble Mountains to the west of Scott Valley are the source of the streams. Elevations range from their confluence with the Scott River at 2,800 feet to mountain peaks near 7,500 feet. Above 4,000 feet elevation, most of the precipitation is snow, which sustains tributary flows through the early summer months. The morphological characteristics of this area include headwater tributaries that are generally narrow, low-order, high gradient streams with lower gradient stream reaches at the valley floor. Streamflows are greatly influenced by snow accumulation and snowmelt runoff, which travel rapidly through the steep upper stream reaches, slowing down when flows reach the lower gradient valley reaches. The tributary stream channels are bordered by discontinuous alluvial floodplains in their lower reaches. Alluvial fans located at the base of the valley floor are relatively large. During the summer, the streamflows frequently become subsurface through the alluvial fan. This appears to be a natural condition experienced by each of these tributaries, but may have been exacerbated by past mining activities.

Agricultural activity in the three tributaries consists of pasture and alfalfa production. Pasture production is the primary crop and a significant percentage of the farmed acres are not irrigated beyond the middle of July. Diversions in each creek occur throughout the season, but are significantly reduced during baseflow periods in early fall. Riparian fencing is generally limited in this sub-watershed.

The Scott River Decree allows a maximum of 75 cfs to be diverted between April 1 and October 15 in the Etna Creek watershed. This volume is reduced to approximately 4 to 5 cfs at baseflow by the early fall. All nine diversions are known or presumed to be within coho salmon use and are therefore screened according to CDFG/NMFS standards. In the Patterson Creek watershed, the decree allows a maximum of 42 cfs to be diverted from five active diversions, but by the early fall, only approximately 0.5 cfs are diverted. All five diversions are screened. In Kidder Creek, the decree allows a maximum of 85 cfs to be diverted (actual diversions are reduced to 3 to 5 cfs in the early fall) from six active diversions, all of which are screened.

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10 Although the reach below the confluence of Kidder Creek and Big Slough is locally referred to as Big Slough, the USGS map quadrangle map labels the reach below the confluence as Kidder Creek.

Overall riparian conditions in all three watersheds generally follow a similar trend of fair to good in the headwaters and the upstream portions of the alluvial fan, but become progressively poorer in the downstream reaches of the alluvial fans and into the valley floors. The only exception is the headwaters region of Kidder Creek where riparian conditions are poor due to a fire in 1955. Regeneration of riparian species and conifers in the incised canyon has been very slow.

Summer (May through October) water temperature data have been collected annually since 1997 in stream reaches above the alluvial sections of Etna, Patterson and Kidder Creek. Summer stream temperatures in upper Etna Creek and its tributaries are approximately 14-15°C (57-59°F). Temperatures in Etna Creek at its confluence with the Scott River range from 18-20°C (64-68°F). Summer stream temperatures in Patterson Creek above Highway 3 average approximately 17°C (63°F), but no temperature data have been collected in lower Patterson Creek. Summer water temperatures in upper Kidder Creek range between 16-19°C (61-66°F). All three streams disconnect from the Scott River (usually by July) and are dry below the Highway 3 crossings during the summer and fall. NCRWQCB (2005) measured base flow in Etna Creek in 2003 and reported a flow range of 3 to 6 cfs upstream of the agricultural diversions. SQRCD (2005) estimates baseflows in Patterson Creek at 1 to 3 cfs upstream of the agricultural diversions.[11]

Surface flows in Patterson Creek resurface approximately 0.5 mile below the Highway 3 crossing and continue for approximately half a mile. Baseflows through this reach are minimal (estimated at less than 0.2 cfs), but provide important over-summering habitat for coho salmon. USFWS collected streamflow data on Kidder Creek (above all diversions) from 2002-2003. September baseflows ranged between 2 to 8 cfs (SQRCD, 2005). The North Coast Regional Water Quality Control Board (NCRWQCB) collected streamflow data on Etna Creek in the summer and fall of 2003 and baseflows were 3 cfs upstream of the diversions (NCRWQCB, 2005).

Etna, Patterson, and Kidder Creeks are currently utilized by coho salmon and steelhead. Coho salmon have been observed spawning in Etna Creek and Patterson Creek in 2001, 2004, and 2007 and in Kidder Creek in 2004 and 2007 (Quigley, 2006b; Yokel, 2008).[12] The known or presumed extent of coho salmon use, in terms of stream distance from the Scott River, is 5.5 miles in Etna Creek, 6.0 miles in Patterson Creek, and 7.3 miles in Kidder Creek.

Current Habitat Function and Primary Limiting Factors

The main limiting factor for adult coho salmon reaching spawning areas in all three creeks is the lack of surface flows through the alluvial fans. Significant precipitation is required to provide surface flow connectivity between the Scott River and the three creeks. However, while surface water diversions in this sub-basin may exacerbate the onset of dry channel conditions in the summer, the lack of fall connectivity does not appear to be directly related to diversions. For example, in December 2004 (i.e., after the surface water diversion season had ended), significant rainfall provided Patterson Creek with connectivity to the mainstem. Adult coho salmon were observed in the creek within 24 hours. One week later, however, spawning beds were dry and flows were less than 2 cfs in lower Patterson Creek even after all stock water diversions were

[11] The City of Etna diverts municipal water supplies from Etna Creek upstream of all agricultural diversions.
[12] Not all locations were surveyed in all years.

voluntarily shut off. Nevertheless, once the streams are connected, stock water diversions can have an impact on continued connectivity and adequate flows for migration and spawning, especially in Patterson Creek where SQRCD estimates that flows of approximately 8 to 10 cfs are required at the upstream end of the alluvial fan to achieve a hydrologic connection with Big Slough. While no known efforts have been made to determine flows required to provide connectivity for Etna and Kidder Creeks, flows in excess of 15 cfs are likely required at the head of the alluvial fans (SQRCD 2005). Etna and Kidder Creeks appear to be lacking quality spawning gravels in areas of perennial flows. Most of the bed load is oversized cobble and the habitat is dominated by riffles. In 2004, a significant percentage of the spawning occurred in the lower sections of these streams where gravels are adequate but flows do not persist year-round.

Juvenile summer rearing habitat is marginal in the three systems. Flows likely go sub-surface earlier in the season than they would otherwise because of the diversion of water for agricultural use. Summer rearing habitat is limited to a section of habitat bordered by excessive gradient (upstream boundary) and subsurface flows downstream. Patterson Creek contains a short (0.6 mile) section where flows resurface and provide valuable summer rearing habitat.

The canyon reaches utilized by coho salmon within this sub-watershed are typically dominated by bedrock and boulders. Side channels are present in the alluvial fan reaches but lack the structure, stability and cover associated with ideal over-wintering habitats. Cover and complexity are also lacking in the main channels through the valley floor segments, although the stream gradient is less in these areas and therefore high flow refugia are not as critical.

CDFG fish rescues of juvenile coho salmon and steelhead have been conducted in some years when the alluvial fan reaches have become dry, but rescued coho salmon are usually young-of-the-year fish, not outmigrating smolts (Whelan, 2007). Thus, smolt out-migration from Etna, Patterson and Kidder Creeks is likely not adversely affected by dry-backs in these streams (i.e., dry-backs typically occur after the end of the coho salmon smolt outmigration period).

Johnson Creek and Big Slough

Johnson Creek and Big Slough are located in the center of the Scott Valley and flow parallel to, and west of, the Scott River. Johnson Creek extends from its headwaters to the confluence with Patterson Creek where the two drainages join to form Big Slough. Big Slough continues to the confluence of Kidder Creek. This section includes a stream segment known locally both as the lowest reach of Kidder Creek or the continuation of Big Slough to its confluence with the Scott River. For the purposes of this document, the stream segment from the confluence of Big Slough and Kidder Creek to the confluence of the Scott River will be identified as Lower Kidder Creek. The only headwater area in this sub-watershed is located in the upper Johnson Creek drainage, and includes the Crystal Creek watershed. The remainder of the Johnson Creek, Big Slough, and Lower Kidder Creek area contains slough-like habitat characteristics, including flat gradient, side channels, high sinuosity, and backwater areas. Some reaches of all three streams have been straightened, but numerous areas retain their natural sinuosity and access to the flood plain.

Much of the Johnson Creek, Big Slough and Lower Kidder Creek sub-watershed is dominated by agricultural production. Irrigated areas surrounding the streams are primarily pastures, with limited grass or alfalfa production.

Water diversion volumes in this sub-watershed are unknown. There is one known active diversion on Johnson Creek, which is screened, three active diversions on Big Slough that were screened in the summer of 2008, and no known active diversions on Lower Kidder Creek.

Riparian conditions throughout this area vary from reaches that are devoid of riparian vegetation to areas with dense riparian corridors. All stream segments included in this area have shallow and stable water tables, as well as high quality soils that should allow for healthy riparian growth. Grazing access to the creeks has not been prevented in this area and grazing practices effectively minimizes woody riparian cover. Overstory species including ponderosa pines and cottonwood are lacking, as are alders. In general, shorter willow species and hawthorn trees form the majority of the existing riparian vegetation. No appreciable planting efforts have occurred on Johnson Creek or Big Slough, but riparian plantings and fencing on lower Kidder Creek have been successful. Big Slough retains much of its slough-like geomorphology but is lacking riparian vegetation in some locations, possibly due to anaerobic soil conditions.

Summer water temperatures have not been monitored due to the absence of surface flows during that season. However, water temperatures likely reach lethal levels prior to the channels drying out. Water temperatures are likely relatively warm in the winter compared to other areas, providing potential winter refugia for out-migrating juveniles. Water quality in Johnson Creek appears to be poor at times due to high levels of suspended sediments, presumably the result of unstable granitic soils and past human activities along the western slopes and watersheds of Scott Valley (see Chapter 3.2). These conditions extend into the Big Slough/lower Kidder Creek reaches, as well. Flow volume of these stream reaches is unknown. Although areas of upper Johnson Creek experience perennial flows, the sub-watershed’s connection to the Scott River is usually severed in mid-July or early August.

Coho salmon and Chinook salmon presence in Johnson Creek is unknown, but steelhead are known to use the system and access by coho salmon is likely (adults were reported to be seen migrating up Johnson Creek in December 2004). Steelhead and coho salmon are known to utilize the Big Slough to access Patterson Creek and Kidder Creek where they spawn and likely rear. No known spawning areas exist through this section except for a potential section of Johnson Creek near the City of Etna. The extent of use by coho salmon is confirmed only to the confluence of Patterson and Johnson Creeks.

Current Habitat Function and Primary Limiting Factors

Spawning opportunities for coho salmon likely exist in Johnson Creek near the City of Etna, but no spawner surveys have been conducted in this reach. Access to this area during the adult migration period may be impeded by low flows. Big Slough has also not been surveyed for spawning activities, but the gradient in this reach is likely too low to provide suitable coho salmon spawning habitat. Lower Kidder Creek and Big Slough are important corridors to spawning grounds in Kidder Creek and Patterson Creek discussed above, as well as potential spawning areas in Johnson Creek.

Little is known about the rearing potential of Johnson Creek and Big Slough. No inventories, surveys, or assessments have been completed. Year-round presence of steelhead in Johnson Creek near the City of Etna indicates that water temperatures may be adequate for juvenile coho salmon. As discussed above, much of this sub-watershed is dry during the summer and early fall and water temperatures likely become lethal before that, effectively eliminating any rearing opportunities in Big Slough and lower Kidder Creek.

Over-wintering conditions in Johnson Creek and Big Slough appear to be favorable and this may be an area where over-wintering juveniles gather. The gradient is low and winter water temperatures are thought to be warmer then in other streams in the watershed.

Out-migration conditions are unknown but thought to be acceptable through the middle of June, although warm water temperatures may be a concern.

Shackleford Creek

The Shackleford Creek watershed, including its most significant tributary, Mill Creek, drains a total of 31,869 acres (six percent of the Program Area). The headwaters are situated in the Marble Mountains at over 8,000 feet in elevation, dropping to 2,880 feet in elevation at Quartz Valley. Shackleford Creek flows into the Scott River at RM 25. Land use in the drainage is a combination of wilderness, U.S. Forest Service land, private timber, small residential, and agriculture in the Quartz Valley. Shackleford and Mill Creeks have alluvial fans at the base of the canyon reach where gradients flatten. The morphological characteristics of this area include headwater tributaries that are generally small, low-order, high gradient streams which drain to lower elevation, lower gradient stream reaches at the valley floor. Streamflows are greatly influenced by snow accumulations and snowmelt runoff, which transport quickly through steep stream reaches until flows reach the lower gradient valley. The tributary stream channels are bordered by discontinuous alluvial floodplains in their lower reaches. In the summer months, streamflows currently become subsurface through the alluvial fan, similar to the hydrologic conditions through the alluvial fans of Etna, Patterson, and Kidder Creeks. However, in the lowest reach of Shackleford Creek, this condition has been exacerbated by channelization efforts in the 1980s which resulted in an increase of elevation of the Shackleford Creek confluence with the Scott River, making this confluence too high. This has resulted in channel aggradation.

Agricultural activity in Shackleford and Mill Creeks includes year-round livestock production, dry land grazing, and irrigated crop production, but primarily focuses on irrigated (mostly flood irrigated) pasture production for livestock. Within the Shackleford Creek watershed, most of the acreage is under pasture for cattle production with limited areas utilized for grass or alfalfa production. Areas of upland summer range grazing occur in the headwaters. Most of the area in livestock production in Shackleford Creek is fenced to protect the riparian areas. Agricultural activity within Mill Creek is limited to pasture production and some upland summer rangeland.

Diversions from the Shackleford watershed are defined by the Shackleford Creek Decree (No.13775, 1950) and are currently water-mastered by DWR. The irrigation season identified in the decree begins April 1 and continues until October 31, with reduced diversions for specific amounts, priorities, and diversions for the remainder of the year (four diversions only). Upper and lower Shackleford Creek are separate in terms of rights and priorities. A maximum of 29.6 cfs can be diverted from upper Shackleford during high flows by the six current diverters, but 21.2 cfs is the maximum during normal operation in the early summer. By late summer, diversions above the alluvial fan are reduced to approximately 6 cfs. SQRCD estimates that even in the absence of summer diversions, flows may still become subsurface in the fan at that time of the year, a condition presumably resulting from the combination of natural geology and human practices such as channelization. In lower Shackleford Creek, five diversions divert a maximum of 20.6 cfs in the spring and approximately 11 cfs in late summer. SQRCD estimates that approximately 17 cfs are required to maintain a hydrologic connectivity with the Scott River. CDFG estimates an additional 8 cfs is required before adult coho salmon migration can occur. All nine active diversions on Shackleford Creek known or presumed to be within coho salmon use for this creek are screened with fish screens that meet CDFG/NMFS standards. Mill Creek is also divided into an upper and lower section. A maximum of 10.6 cfs can be diverted by the only diversion on upper Mill Creek. That diversion usually ceases operation by late summer due to lack of water. Three diverters on lower Mill Creek can divert up to 2.4 cfs in the spring and this volume is reduced to approximately 1 to 2 cfs at baseflows in the early fall. All active diversions on Mill Creek are within coho salmon use and are screened.

According to SQRCD (2005), riparian conditions on Shackleford and Mill Creeks are relatively good and improving due to riparian fencing efforts on both creeks and riparian plantings on Mill Creek, but overstory cover is scattered and riparian encroachment on the active channel is limited, especially on Shackleford Creek. The alluvial fans of both streams have poor riparian densities, likely due to the fluctuating water table and channel instability. There are areas that would likely benefit from riparian planting throughout Shackleford and Mill Creeks. Riparian functions related to channel stabilization and improving width-depth ratios in lower Shackleford Creek is likely limited by unstable and aggraded channel conditions. There appears to be adequate seed stock of alder, black cottonwood, willow species and conifers throughout both streams. According to SQRCD, riparian fencing programs initiated in 2000 have shown moderate to excellent riparian response.

Water temperatures have not been monitored over long periods of time in the lower alluvial sections of the watershed. However, data collected in 2003 and 2004 indicate that water temperatures in lower Shackleford and Mill Creeks can reach 21°C (70°F) during the peak summer months of July and early August (Quigley, 2006b). Limited long-term flow data are available for this sub-watershed. DWR has provided watermaster service since 1967 and also installed a continuous recording streamflows gage near the mouth of Shackleford Creek in 2003. Mill Creek is also gaged at Quartz Valley Drive. Stream flow data collected above all diversions in Shackleford and Mill in 2002 and 2003 showed the combined September baseflow varying from 2 to 13 cfs.

The Shackleford Creek sub-watershed, including Mill Creek, has historically provided habitat for coho salmon, Chinook salmon, and steelhead. During recent years, the system has only been used intermittently by Chinook salmon, as the mouth of Shackleford-Mill is often not open for fish passage during the Chinook spawning season (connectivity with the Scott River was not established until early December in 2003 and 2004, but was established in early November 2005). Both coho salmon and steelhead currently use Shackleford-Mill for spawning and rearing. The upstream boundary range of coho salmon use in Shackleford Creek is likely Shackleford Falls located upstream of the Shackleford-Mill confluence. The limit of coho salmon anadromy on Mill Creek is unknown but could be as high as 2.5 miles above the confluence with Shackleford Creek. All three coho salmon brood years are present in the Shackleford Creek drainage.

Current Habitat Function and Primary Limiting Factors

Shackleford and Mill Creeks contain adequate salmonid spawning gravels and contain high priority coho salmon spawning reaches (Quigley, 2007). However, the early part of the adult coho salmon and steelhead migration may be delayed due to the presence of dry channels in the lower watershed prior to the onset of precipitation. For example, in early December 2004, a flow of 17 cfs was recorded in Shackleford Creek, but this was insufficient to provide a hydrologic connection to the Scott River. This seasonal flow barrier is likely the most important factor limiting coho salmon in this sub-watershed. Overhanging vegetation is limited due to channel instability in sections of Shackleford Creek below the Mill Creek confluence.

Summer salmonid rearing habitat exists above the alluvial fan on Shackleford Creek and Mill Creek. Mill Creek provides a significant volume of the base summer flows below the confluence of the two creeks. Based on habitat typing completed in 2003, the sections of Shackleford and Mill Creeks that have year-round flows appear to offer high quality, complex habitat (Quigley, 2006c). Summer water temperatures may be the most significant limiting factor to this life stage in the lower reaches of Shackleford Creek. Several diversion structures limit fish passage during low flows.

Mill Creek provides relatively warm winter water temperatures typically above 8°C (46°F), which likely improves over-wintering conditions and shortens egg incubation periods. The Shackleford-Mill system contains numerous side-channel and backwater habitats.

The alluvial fans disconnect in mid-June and the mouth disconnects in mid-July, potentially affecting the very tail end of the smolt outmigration.

Moffett Creek

Moffett Creek is a tributary to the Scott River in the northeastern portion of the watershed and its confluence is at RM 32 near the town of Fort Jones. The Moffett Creek watershed encompasses approximately 145,850 acres (28 percent of total for the Scott River basin), but due to the relatively low annual precipitation of approximately 20 inches per year (USDA-SCS, 1972) in this sub-watershed, the contribution to the total Scott River water yield is likely considerably less than the acreage might imply. McAdams Creek, Soap Creek, Duzel Creek, and Cottonwood Creek are the major tributaries to Moffett Creek. Elevations in the drainage range from 6,050 feet at the headwater peaks down to 2,700 feet at the confluence with the Scott River. The predominant soil types found in the watershed have a moderate to high erosion potential and exhibit a high water erosion hazard (USDA-SCS, 1983).

The majority of the watershed is in private ownership, except McAdams Creek, where the Klamath National Forest is the principal landowner. Timber production with seasonal livestock grazing is the primary land use in the upland areas. The comparatively level ground along the stream courses in the valleys is used for irrigated pasture and forage production. Water diversions for irrigation are limited to the period of April 1 to "about" October 15th as defined in the Scott River Decree. Domestic water rights appear in three of the schedules and may be exercised throughout the year but the combined total for the basin is only 0.08 cfs. No stock water rights appear in any of the Moffett Creek schedules. In the upper reaches, where perennial flow persists, gravity diversion dams and pumps can be used to divert water for irrigation, but wells are required in the lower watershed because surface flow subsides early in the summer. The total adjudicated water rights for the basin is 60.58 cfs. However; the majority of the irrigation water is from wells.

Historic and current land uses such as mining and agricultural practices, combined with the erosive nature of the soils, contribute to high fine sediment loads in the Moffett Creek watershed. Riparian vegetation and channel conditions are degraded over the majority of the stream course and channel incision is evident along the upper stream reaches. Commercial timber producers have begun to establish riparian livestock exclusion fencing, but only a small fraction of the stream is currently protected. Landowners adjacent to the stream throughout the valley reaches have historically used mechanical efforts to constrain the stream and enhance channel capacity by pushing up accumulated sediment into levees. However without any mechanism to stabilize the banks or fluvial analyses, these efforts have not been particularly successful and are repeated after high flow events. One of the major tributaries, McAdams Creek, has been extensively dredge-mined and the middle reaches are entirely buried in mine tailings.

Current Habitat Function and Primary Limiting Factors

Steelhead utilize Moffett Creek for spawning and rearing and there are rare fish salvage records for juvenile Chinook and coho salmon (CDFG, unpublished data). However, the lack of surface flow until winter, and the early depletion of flow in the summer, have greatly reduced spawning and rearing opportunities for coho and Chinook salmon (it is unknown if the fish in the salvage records are from spawning within the Moffett basin or exploiting ephemeral habitat for non-natal rearing). The stream is generally dry between its confluence with the Scott River and Highway 3 (RM 6) from early July until late November when rainfall recharges the aquifer. Although the gradient appears to be acceptable for coho salmon in the upper reaches where surface flows persists throughout the summer, current stream conditions and water temperature may limit salmonid production to steelhead. Water temperature data from Skookum Gulch (RM 21) indicate a maximum weekly average temperature of approximately 18°C (64°F) (Quigley et al., 2001).

Scott River – Callahan to Etna Creek

The upper section of the mainstem Scott River, between Callahan and the Etna Creek confluence, is approximately 13 miles long and flows in a northerly direction through the southern portion of Scott Valley. General landform processes have created a wide, flat floodplain and a sinuous channel pattern where bars, islands, side- and off-channel habitats are common. Elevation ranges from a high of 3,120 feet at Callahan to near 2,900 feet at the confluence with Etna Creek. Land use consists primarily of agriculture. The upper five miles of the river channel flows through an area severely impacted by historical mine tailings. Large piles of tailings cover the entire width of the floodplain throughout this section, limiting floodplain availability and resulting in the transport of excessive bed materials (primarily cobble) downstream, creating an unstable and aggraded channel. In addition to the East and South forks, the Wildcat Creek, Sugar Creek, and French Creek tributary sub-watersheds discussed above drain into this reach of the mainstem.

Agricultural activity in the upper Scott Valley includes both pasture and alfalfa production. Crop types change at Young’s Dam (diversion of the Scott Valley Irrigation District) from pasture (south of Young’s Dam) to alfalfa (north of Young’s Dam). Instream conditions also appear to change at Young’s Dam where down-cutting has occurred below the dam and aggradation has occurred above.

The upper Scott River contains a total of five surface water diversions with a maximum diversion rate of 100 cfs, with actual diversion amounts reduced to 12 to 15 cfs in the late summer/fall. Two of these diversions (Farmer’s Ditch and Scott Valley Irrigation District) are the largest in the entire Program Area, diverting a combined 78 cfs. All five diversions have CDFG/NMFS approved fish screens.

Riparian fencing is present throughout the reach. In the reach containing the mine tailings, the channel is relatively unstable and lacks a floodplain. The lack of soil prevents riparian establishment. Between the tailings reach and the Scott Valley Irrigation District (SVID) diversion, channel stability and riparian conditions are better and appear to be improving, although riparian stands are not contiguous. Below the SVID diversion dam, riparian vegetation is sparse and channel down-cutting renders riparian restoration efforts generally unsuccessful.

Summer water temperatures in this reach range between 18-20°C (64-68°F). Warm temperatures of up to 22.5°C (72.5°F) from the East Fork mix with 18°C (64°F) water from the South Fork at their confluence. From the confluence downstream, the Scott River exhibits a general cooling trend from Callahan to approximately Fay Lane, where temperatures begin to rise again. Temperatures at the confluence of Etna Creek can reach 21°C (70°F). Flow data collected in 2002 and 2003 in the lower reaches of the East and South forks indicate that the combined September baseflow can range between seven to 25 cfs. A portion of this flow goes subsurface through the tailings reach, creating fish passage problems.

The upper reaches of the Scott River are used by coho salmon, Chinook salmon, and steelhead. Spawning of Chinook and coho salmon has been observed in this reach and steelhead likely spawn in this reach as well.

Current Habitat Function and Primary Limiting Factors

Access to spawning habitat is limited by the aggraded channel and braided channels through the reach containing the mine tailings. Coho salmon access to spawning areas below the tailings area is often available except during dry years or when fall precipitation arrives late. The lower half of this section (Fay Lane to Etna Creek) contains good spawning habitat and a relatively stable channel. Coho salmon have been noted spawning in the mainstem as low as just above the French Creek confluence. Spawning habitat from the French Creek confluence to Fay Lane is adequate but the cobble is often oversized. Coho salmon prefer to spawn on stream margins, where overhanging cover is present, or in side channels. While the riparian condition is improving through this reach, there are few side channels or margins that provide preferred coho salmon spawning habitat.

Summer rearing habitat through the mine tailings is poor but water temperatures are generally below 20°C (68°F) (Quigley, 2006b). There are few pools and very little instream cover/woody debris. The habitat improves in a downstream direction from the tailings, but water temperatures increase from Fay Lane down. The Farmer's Ditch and SVID diversions also divert a considerable volume of water which reduces available habitat. From SVID to Etna Creek, some channel down-cutting has occurred, but channel stability is generally good and the number of pools is adequate. Deficient features include a lack of cover/woody debris, warming water temperatures, and lack of flow from mid-July/early August through the onset of fall rains.

The quality of over-wintering habitat through this reach is varied. The tailings reach contains little cover, side channels or backwater areas while the reach from below the tailings to Young's Dam has numerous side channels, backwaters and improving cover. There are suitable areas for over-wintering from Young's Dam to Etna Creek, but refugia from high flows are limited.

Smolt out-migration opportunities are adequate through this reach except for the reach from the Farmer's Ditch diversion to 1.5 miles downstream. The hydrologic disconnect in the tailings reach usually occurs in late June or early July and thus only affects the extreme tail end of the out-migration period. Young-of-the-year coho salmon and juvenile steelhead are often trapped and rescued where surface flows stop (below Farmer's Ditch), but smolts have not been observed during these efforts. Thus, the primary concern with this reach is not smolt out-migration ability, but young-of-the-year habitat loss.

Scott River – Etna Creek to Scott Canyon

The mid section of the mainstem Scott River extends from the Etna Creek confluence approximately 17 miles north to Fort Jones, where it turns west and drains into Scott Canyon three miles below the Shackleford Creek confluence. Elevation ranges from 2,900 feet at Etna Creek to 2,630 feet at the upstream end of the canyon area. Land use consists primarily of agricultural production. Significant portions of the Scott River in this reach have been straightened, banks have been stabilized using riprap to prevent erosion, and levees prevent channel access to the flood plain. In areas where channelization has not occurred, the river consists of a wide, flat floodplain and a sinuous channel pattern where bars, islands, side and/or off-channel habitats are common. A substantial reach of the Scott River through Scott Valley is very flat (0.2 percent slope) and contains sand as the predominant substrate type. The northern and southern ends of this reach, however, possess spawning-sized gravels. Tributary sub-watersheds draining into this reach of the river include Etna, Patterson, Kidder, and Shackleford Creeks. Moffett Creek, a potential coho-bearing stream, enters the river from the east near Fort Jones.

Agricultural activity in the middle reach of the Program Area consists primarily of alfalfa production with some pasture production. Alfalfa is irrigated until mid-late September while pasture is irrigated into October.

There are no known surface water diversions in this reach, but groundwater is used widely for irrigation. The effects of groundwater use on river flows and are discussed in Chapter 3.2.

Riparian conditions vary throughout this reach, ranging from moderate to non-existent, even though fencing has been installed on 95 percent of the sections where livestock grazing occurs. The channel is entrenched, allowing only narrow riparian corridors where vegetation does occur. SQRCD has implemented numerous planting efforts throughout this reach with mixed results because channel down-cutting and variable water tables prevent the establishment of vigorous, contiguous growth. Planting success is limited to specific reaches in this section where water tables are stable.

Summer water temperatures at the upstream end of this reach average 19-20°C (66-68°F), and continue to rise moving downstream to approximately three miles upstream of the Shackleford Creek confluence, at which point water temperatures gradually decrease by about 3ºC until river flow reaches Scott Canyon (Watershed Sciences, 2004). Temperatures in Scott Canyon gradually increase in a downstream direction and peak at approximately 26°C (79°F) near the confluence with the Klamath River (Watershed Sciences, 2004). Streamflow data is collected by a USGS gage at the downstream end the reach. Data show a net increase in streamflows between Callahan and the USGS gage. In dry years the river can become disconnected near Fort Jones. Data from the USGS gage shows that during average years, the August and September baseflow is approximately 20 to 30 cfs (SQRCD, 2005).

This segment of the Scott River is used by coho salmon, Chinook salmon, and steelhead. Spawning Chinook have been observed through this reach, but coho salmon have not been observed spawning here.

Current Habitat Function and Primary Limiting Factors

Although some spawning gravels may exist, preferred conditions for coho salmon, such as side channels or gravels on stream margins with overhanging vegetation, are rare. The primary coho salmon habitat function this reach of the river provides is that of a migratory corridor.

Although some areas of potentially suitable summer rearing habitat exist within this reach, water temperatures are likely too high from mid-July through early September. Instream cover and woody debris are lacking throughout this reach.

Suitable over-wintering areas are found throughout this reach as the gradient is very low (0.2 percent). Cover features such as LWD are generally lacking throughout the reach, but backwaters providing potential holding areas are present in areas that have not been channelized.

Flow volumes are adequate to allow for unimpeded smolt out-migration.

Scott River Canyon

The section of the Scott River flowing through Scott Canyon and to its confluence with the Klamath River is part of the Program Area, but few agricultural operations are located in this steep and narrow section of the watershed. However, the section is discussed due to the fact that land use practices, including Program activities, directly affect habitat conditions in this reach.

Current Habitat Function and Primary Limiting Factors

In general, the Scott River canyon reach is fairly steep, narrow, and relatively unimpaired. Large cobble and boulders dominate the channel. Physical habitat features appear to be adequate for rearing juvenile salmonids, but summer water temperatures are high due to the heating effect of the Scott Valley. Juvenile coho salmon, Chinook salmon, and steelhead have all been observed rearing in this reach (Pisano, 2002). Cold water inputs from hillslope seeps and tributaries appear to provide adequate water temperatures in some areas of the mainstem, and coho salmon showed somewhat greater preference for these areas than did Chinook and steelhead (Pisano, 2002). Three tributaries to the Scott River in this reach, Canyon Creek, Kelsey Creek, and Tompkins Creek, are utilized by coho salmon for spawning and rearing (Maurer, 2006; Quigley, 2006a).

Limiting Factors

A Limiting Factors Analysis of the coho salmon in the Program Area is currently being conducted by the Scott River Watershed Council (SRWC). A recent draft document prepared by SRWC consists primarily of a Plan of Action for future analyses to determine and quantify factors limiting coho salmon populations in the watershed (SRWC, 2006). Although few of the studies have been completed, SRWC believes that a number of limiting factors have already been scientifically documented in the Scott River (SRWC, 2006). Furthermore, SSRT (2003) identified various current conditions in the watershed that likely adversely affect coho salmon.

In addition to these reports, various surveys and studies have been conducted over the past decade, focusing on the collection of fisheries population data, habitat use, and habitat conditions. Combining the results and observations of these studies with the limiting factors identified by SRWC (2006) and SSRT (2003) allows us to identify suboptimal habitat conditions that are prevalent throughout the watershed and that, if addressed appropriately in future management efforts, may help, at a minimum, to stabilize salmonid populations and possibly aid in the recovery of coho salmon. While the majority of these factors have been mentioned in the previous descriptions of the various sub-watersheds, the discussion presented below summarizes the current understanding of the primary features of existing aquatic habitat impairment in the Program Area.

Streamflows

Chapter 3.2, Geomorphology, Hydrology, and Water Quality, in this Draft EIR presents historic streamflow data collected at the USGS gage, located at the upstream end of Scott Canyon (i.e., the downstream end of the Program Area), since the early 1940s. Streamflow duration curves plotted for three periods of streamflow records (1942-1962, 1963-1983, and 1984-2005) show that current high and moderate streamflows have remained largely unchanged during the past 65 years, but that summer baseflows (i.e., those flows exceeded more than 80 percent of the time) have been reduced significantly since the early 1940s. Comparing historic (1942-1976) to modern (1977-2005) periods, Van Kirk and Naman (2008) noted a significant decline in Scott River discharge during the low-flow season (approximately July through October); the authors attributed over 60 percent of this observed decline to local factors such as increases in irrigation withdrawal and consumptive use. The authors also conclude that a return to pre-1970s irrigation patterns in the Scott Valley could potentially increase streamflow by an average of 23 cfs during the July 1-October 22 period (Van Kirk and Naman, 2008).

As discussed previously, suitable streamflows throughout the year are important for the various life stages of coho salmon, Chinook salmon, and steelhead. Streamflows need to be sufficiently deep and continuous for adults to complete their migration from the ocean to freshwater spawning grounds unimpeded. Excessive water velocities during the winter and spring incubation and emergence period may scour out redds or flush fry out of the drainage. Low summer baseflows reduce the effective juvenile rearing habitat availability, may result in water temperature increases, and can cause stress or mortality to riparian vegetation.

Existing evidence suggests that water diversions in the Program Area can lead to direct mortality of coho salmon. CDFG staff conduct weekly conference calls with the watermaster to determine the likelihood of fish becoming stranded as a result of water diversions and at times have conducted capture-and-relocation efforts to minimize fish mortality from stranding. Data gathered by CDFG during fish rescue operations in the Program Area indicate that between 1993 and 2006, a total of over 46,000 juvenile coho salmon have been salvaged by CDFG staff during dry-back events downstream of water diversion sites. Salvage efforts on the mainstem accounted for the single largest contribution of approximately 16,000 coho salmon. Since the listing of coho salmon as a threatened species under CESA in March 2005, approximately 14,600 coho salmon have had to be salvaged within the watershed. Although the argument may be made that rescued fish are not dead fish since the very intent of the operations is to save fish from dying, the fact remains that in the absence of the diligent efforts of CDFG staff, these fish would have perished. While natural processes, including decreased streamflows after snow melt and increased water temperature in summer, contribute to deteriorating habitat conditions and fish stranding, water diversions exacerbate these conditions.

As opposed to the incidences of substantial or complete channel dewatering discussed above, the effects of diversions on coho salmon and other fish are far more difficult to determine when only a portion of the streamflow is diverted, as is the case at many of the diversion sites in the Program Area. Intuitively, the reduction of streamflow reduces the overall volume of water available to fish and results in adverse effects to fish through habitat loss and/or degradation. However, the effects of variations in streamflow on fish survival and growth can be difficult to estimate because of the possible confounding effects of associated increases in water temperature and population densities (Harvey et al., 2006). Nevertheless, some research has been conducted on these effects. For example, researchers studying the effect of streamflow on survival and growth of resident rainbow trout by manipulating streamflows entering experimental and control reaches in a small stream in northwestern California found that the mean body mass of fish in control units increased about 8.5 times as much as that of fish in units with reduced streamflow (Harvey et al., 2006).

A reduction in habitat availability is the most obvious effect of water diversions and the relationship between streamflow and habitat availability has been investigated in numerous studies. For example, an Instream Flow Incremental Methodology (IFIM) study of lower Scott *Creek* (not Scott *River*) in Santa Cruz County, found that optimum habitat conditions for juvenile steelhead and coho salmon in Scott Creek are provided at 20 cfs, and that only half of the maximum habitat remains at 5 to 6 cfs (Snider et al., 1995). Nevertheless, while habitat availability is a measurable parameter, the response of fish to reduced habitat availability is more difficult to quantify.

Another effect of habitat reduction, if all other factors remain constant, is an increase in population density. Studies of varying densities of rearing juvenile coho salmon in hatcheries have found that an increase in fish density was associated with significant decreases in weight, length, condition factor, and food conversion efficiency; elevated body water content; reduced fat and protein contents; and increased mortality (Fagerlund et al., 1981). While this study was not conducted in a natural setting and may therefore not be directly applicable to density variations in streams and rivers, the fact that a hatchery experiment allows for control of all parameters (e.g., food supply and temperature) eliminates some of the confounding effects inherent in natural settings.

The reduction of water may also result in increased inter-specific fish densities in natural settings. For example, steelhead and coho salmon are known to be significant competitors for resources when not segregated by natural habitat diversity and preference. Steelhead densities have been shown to have a negative effect on coho salmon growth as measured in weight change. Harvey and Nakamoto (1996) showed that weight change in coho salmon was positive among fish held in the absence of steelhead, neutral among coho salmon held with natural steelhead densities, and negative among those held in twice the natural steelhead densities. The more aggressive coho salmon typically dominate interactions among similar-sized juvenile salmonids (Moyle, 2002). However, Moyle (2002) points out that “when habitat conditions in California streams favor juvenile steelhead so that their densities are higher than those of coho, growth of coho may be suppressed through competition for food in crowded pools, especially when flows are low, and through aggressive interactions with large 1- to 2-year-old steelhead.”

Impaired streamflows are likely the most significant factor limiting coho salmon and CDFG fish species of special concern in the Scott River watershed. It is important to recognize that the effects of water diversions on coho salmon and the other CDFG fish species of special concern and their habitats are in many instances the cumulative result of the water diversions in total throughout the watershed. While some individual diversions might not significantly affect fisheries resources and their habitat because, for example, they are already screened or the amount of water diverted is small, the total volume of water diverted in the watershed results in degraded conditions that contribute to mortality and other adverse impacts to fisheries resources and aquatic habitat quality within the Program Area. This is another reason the Program is watershed-wide.

Water Quality

Coho salmon and other salmonid species are dependent on suitably low water temperatures and spawning gravels relatively free of fine sediments. Increased water temperatures decrease the area and volume of suitable habitat for salmonids, decrease survival during rearing, and migration, and can be lethal. An excess of fine sediment such as sandy and/or silty materials is a significant threat to eggs, alevins, and fry because it can reduce the interstitial flow necessary to regulate water temperature and dissolved oxygen, remove excreted waste, and provide food for fry. Fine sediments may also envelop and suffocate eggs and alevins, and reduce available fry habitat. In the Scott River basin, elevated temperatures and an excessive rate of sediment delivery contribute to the non-attainment of beneficial uses associated with the cold water fishery, specifically the salmonid fishery (NCRWQCB, 2005).

The *Action Plan for the Scott River Watershed Sediment and Water Temperatures Total Maximum Daily Loads* prepared by NCRWQCB (2005) includes a sediment source analysis identifying the various sediment delivery processes and sources in the Program Area and estimates delivery from these sources. Identified sources include landslides, large and small discrete streamside features, soil creep, and roads. The largest human-caused sediment sources are from streamsides and are the result of multiple interacting human activities. Results also show that the current sediment delivery is 167 percent of the natural sediment delivery in the Program Area. The sediment Total Maximum Daily Load (TMDL) is set at 125 percent of natural sediment delivery, which equals 560 tons of sediment per square mile per year (NCRWQCB, 2005).

The temperature source analysis prepared for the TMDL identifies the various water heating and cooling processes and sources of elevated water temperatures in the Program Area. The source analysis found that the primary human-caused factor affecting stream temperatures is increased solar radiation resulting from reductions of shade provided by vegetation. According to NCRWQCB (2005), groundwater inflows are also a primary driver of stream temperatures in the Scott Valley. Diversions of surface water lead to relatively small temperature impacts in the mainstem Scott River, but have the potential to affect temperatures in smaller tributaries, where the volume of water diverted is large relative to the total flow (NCRWQCB, 2005).

Habitat Features

Salmonid species' need for habitat features such as LWD, pool availability and depth, and channel complexity are discussed above. Many reaches of the Scott River watershed lack these features. Although the upper reaches of tributary streams (i.e., where agricultural influences are limited or absent) often contain relatively natural aquatic habitat conditions, many of these reaches are too steep for coho salmon use. Within the lowland valley portion of the watershed, riparian and instream cover are scarce, channel geomorphology is less complex, and water temperatures are high.

Although suitable coho salmon habitat in the watershed has been reduced during decades of agricultural and other land use activities, accessible areas of moderate to high quality habitat continue to be present in the Scott River watershed, particularly in the French Creek and Shackleford-Mill Creek drainages. In addition, moderately suitable salmonid habitat can be found throughout the Scott River watershed.

The potential impacts of agricultural diversions on summer rearing habitat in the watershed have received a considerable amount of attention since the federal and state listing of coho salmon as a threatened species in Northern California. Still, a thorough understanding of winter rearing habitat quality for juvenile survival in the Scott River is essential for the effective management of all life stages of coho salmon. For example, coho salmon have been shown to favor near-channel ponds with a hydrologic connection to the main channel of a stream or river (known as alcoves) over main channel habitats during high winter streamflows (Bell, 2001; Bell et al., 2001). Past channel modification practices (including beaver extirpation, channelization, streambank revetment, and elimination of riparian vegetation, and thus LWD) have reduced the channel complexity of the Scott River and its tributaries. Side-channels, oxbows, alcoves, and other deep water habitat with slow water velocities are now rare in the watershed. The paucity of such habitats is likely a limiting factor for winter rearing of juvenile coho salmon.

Migration Barriers

Barriers to adult up-migration, smolt out-migration, and juvenile intra-watershed migration may be complete (no passage under any flow levels) but are more often partial, such as migration impediments created by shallow flows. Structural impediments such as small dams are in many instances partial barriers as they may be passable during high flows or, in the case of seasonal push-up dams, only affect certain life stages. Larger dams, such as the one on Rail Creek, completely block fish passage. Within the Program Area, low or entirely absent surface flow conditions during the summer and fall are some of the most significant migration barriers for coho salmon and CDFG fish species of special concern.

Coho Salmon Brood Year Lineages

While evaluating the effect of the factors discussed above on coho salmon productivity within the watershed, it is important to keep the rigid three-year life cycle of coho salmon in mind. Although aquatic habitat conditions in the Scott River and its tributaries have been impaired by land use practices over the past 100 years, outmigration studies conducted by CDFG resulted in population estimates of over 75,000 smolts emigrating from the watershed during the spring 2006 migration period compared to less than 1,200 smolts during the spring of 2005 (Chesney et al., 2007). Smolts captured in 2006 were born in the spring of 2005 and are thus members of the one remaining relatively strong brood lineage (2001…2004….2007). The 2006 smolt data, as well as data collected on the spawning adults (2004/2005) and rearing juveniles (2005) suggest that even though coho salmon populations have experienced declines over historic numbers, the watershed is capable of producing relatively large numbers of juvenile coho salmon when sufficient numbers of adults return to the system to spawn and flows are adequate. One of the most important factors in the low numbers of coho salmon observed during two out of every three years may therefore be the low population numbers in and of themselves. Severely depressed brood lineages require a long period of time to recover and regain historic population sizes, even if habitat conditions are ideal and, conversely, a relatively strong brood lineage perpetuates itself even in less than ideal conditions.

It should also be noted that prior to 2007, many other coastal watersheds in California showed similar coho salmon population trends consisting of a strong 2001…2004…2007 brood lineage and weak 1999…2002…2005 and 2000…2003…2006 lineages (e.g., Smith, 2002).[13] Thus, the decline in coho salmon populations is at least partially a result of conditions or events that are not specific to any given watershed. Some of these factors are discussed below.

External Factors

While the limiting factors discussed above pertain primarily to conditions affecting coho salmon within the Scott River watershed, the anadromous life history of salmonids and lampreys also expose these species to factors outside the Program Area, including ocean conditions, migratory conditions in the Klamath River, climate conditions, and a number of highly variable factors. For example, recent studies have documented significant mortality in juvenile salmon and steelhead populations in the Klamath River due to infectious disease, primarily caused by the endemic parasites *Ceratomyxa shasta* and *Parvicapsula minibicornis*. In 2004, infection rates in juvenile Chinook salmon ranged from about 20 to 70 percent for *C. shasta* and from 40 to 96 percent for *P. minibicornis*. In 2005, dual infection rates at or near 100 percent were observed for consecutive weeks in April, a critical period for outmigration of juvenile anadromous fishes (USFWS, 2007).

Although freshwater habitat loss and degradation have been identified as leading factors in the decline of anadromous salmonids in California, climatic variations such as droughts, floods, and ocean conditions also affect these species. For example, a strong correlation between salmon abundance, as measured in annual catch, and Pacific Decadal Oscillation (PDO) cycles has been shown by researchers (Mantua et al., 1997). A warm phase PDO is typically associated with reduced abundance of coho and Chinook salmon in the Pacific Northwest, while cool phase PDO is linked to an above average abundance of these fish (Mantua et al., 1997). A marked decline in the 2007 coho and Chinook salmon returns was observed throughout the species' range in California and elsewhere along the Pacific coast (McFarlane et al., 2008). A recently developed ocean conditions index, the Wells Ocean Productivity Index (WOPI), reveals poor conditions during the spring and summer of 2006, when juvenile coho salmon from the 2004...2007 brood lineage entered the ocean (McFarlane et al., 2008).

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[13] The cited document states that only the "1993, 1996, 1999, 2002 year class" remains strong. However, this assessment is based on data collected during surveys of rearing juveniles. Thus the "2002 year class" is equivalent to the 2001 brood lineage.

3.3.2 Regulatory Framework

Federal and State Regulation of Special-Status Fish Species and CDFG Fish Species of Special Concern

Endangered Species Act

Under ESA, the Secretaries of the Interior and Commerce have joint authority to list a species as threatened or endangered (16 U.S.C. § 1533[c]). ESA prohibits take of endangered or threatened fish and wildlife species on private property, and take of endangered or threatened plants in areas under federal jurisdiction. Under ESA, "take" is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." USFWS and NMFS define "harm" in their regulations to include significant habitat modification that could result in take of a species. If a project would result in take of a federally listed species, either an incidental take permit under ESA section 10(a), or an incidental take statement issued pursuant to federal interagency consultation under ESA section 7, is required prior to the occurrence of any take. Such authorization typically requires various measures to avoid and minimize take and, if necessary, to compensate for take.

Pursuant to the requirements of ESA section 7, a federal agency reviewing a proposed project that it might authorize, fund, or carry out, must determine whether any federally-listed threatened or endangered species, or species proposed for federal listing may be present in the project area and determine whether implementation of the proposed project is likely to affect the species. In addition, the federal agency is required to determine whether a proposed project is likely to jeopardize the continued existence of a listed species or any species proposed to be listed under ESA, or result in the destruction or adverse modification of critical habitat proposed or designated for such species (16 U.S.C. § 1536[3], [4]).

NMFS administers ESA for marine fish species, including anadromous salmonids such as coho salmon, and USFWS administers ESA for non-marine species. Projects where a federally-listed species and/or its habitat are present and are likely to be affected by the project must receive authorization from either USFWS or NMFS. Authorization may involve a letter of concurrence that the project will not result in the potential take of a listed species and/or its habitat or it may result in the issuance of a Biological Opinion that describes measures that must be undertaken in order to minimize the likelihood of an incidental take of a listed species. Where a federal agency is not authorizing, funding, or carrying out a project, take that is incidental to the lawful operation of a project may be permitted pursuant to ESA section 10(a).

California Endangered Species Act

CESA (Fish and Game Code, § 2050 *et seq.*) prohibits take[14] of an endangered, threatened, or candidate species unless the take is authorized by CDFG. CDFG may authorize take by permit provided: 1) it is incidental to a lawful activity; 2) the impacts of the authorized take are

[14] "Take" means hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill. (Fish and Game Code, § 86).

minimized and fully mitigated; 3) the permit is consistent with any regulations adopted pursuant to Fish and Game Code, §§ 2112 and 2114; 4) there is adequate funding to implement the minimization and mitigation measures, and to monitor compliance with and the effectiveness of those measures; and 5) issuance of the permit will not jeopardize the continued existence of the species (Fish and Game Code, § 2081, subds. (b), (c)). Under CESA, the Commission maintains the lists of threatened species and endangered species (Fish and Game Code, § 2070). The Commission also maintains a list of candidate species for which CDFG has issued a formal notice as being under review for addition to either the list of endangered species or threatened species.

Fish and Game Code, § 1600 et seq.

Under Fish and Game Code, § 1600 *et seq.*, CDFG regulates activities that will "substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of any river, streams and lakes, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake." Before an entity may begin such an activity, it must notify CDFG and describe the activity. If CDFG determines that the activity described in the notification could substantially adversely affect an existing fish or wildlife resource, the entity must obtain a Streambed Alteration Agreement (SAA) before conducting the activity, which will include measures CDFG determines are necessary to protect the fish and wildlife resources the activity could affect.

Fish and Game Code, § 5901

Fish and Game Code, § 5901 makes it "unlawful to construct or maintain in any stream … any device or contrivance that prevents, impedes, or tends to prevent or impede, the passing of fish up and down stream."

Fish and Game Code, § 5937

Fish and Game Code, § 5937 requires "the owner of any dam [to] allow sufficient water at all times to pass through a fishway, or in the absence of a fishway, allow sufficient water to pass over, around or through the dam, to keep in good condition any fish that may be planted or exist below the dam."

Goals and Policies

The Klamath Fishery Management Council

The Klamath Fishery Management Council (KFMC) was an 11-member federal advisory committee which included representatives from commercial and recreational ocean fisheries, the in-river sport fishing community, tribal fisheries, and state and federal agencies (CDFG, Oregon Department of Fish and Wildlife, NMFS, and U.S. Department of the Interior) that worked by consensus to manage harvests and ensure continued viable populations of anadromous fish in the Klamath Basin. KFMC developed a long-term plan for the management of in-river and ocean harvest of Klamath Basin anadromous fish.

Before the Klamath Act expired in 2006, the KFMC met three times each spring to review the past year's harvest of Chinook salmon, and to review predictions of Chinook salmon ocean abundance and harvests in the upcoming year developed by their Technical Advisory Team. KFMC then made specific recommendations to the agencies that regulate the harvest of Klamath Basin fish. These agencies include the Pacific Fishery Management Council (PFMC), Commission, Oregon Department of Fish and Wildlife, Yurok Tribal Fisheries, and Hoopa Tribal Fisheries. KFMC recommendations to PFMC were used to develop ocean salmon fishing seasons. PFMC then passed its recommended fishing seasons to the Department of Commerce, which has final authority in setting regulations for the ocean fishery.

In 2006 and 2007, PFMC severely limited the allowable catch of salmon off the California and Oregon coasts, in order to protect the depleted Klamath stocks. For 2008, PFMC took the unprecedented action of completely closing the salmon fishing season off the California coast due to severely depressed Sacramento River stocks. While the intent of the restrictions is to rebuild salmon stocks, they have also had the consequence of impairing the commercial, recreational, and tribal salmon fisheries.

Siskiyou County General Plan

The Conservation Element of the Siskiyou County General Plan includes general objectives relating to biological resources. These objectives include "to preserve and maintain streams, lakes and forest open space as a means of providing natural habitat for species of wildlife." There are no Habitat Conservation Plans or other approved habitat plans that apply to lands within the Program Area.

3.3.3 Impacts and Mitigation Measures

Significance Criteria

To determine the level of significance of an identified impact, the criteria outlined in the CEQA *Guidelines* and Appendix G in the CEQA *Guidelines* were used. The following is a discussion of the approach used to determine whether the Program could have a significant effect on fisheries and aquatic habitats.

Under CEQA *Guidelines,* § 15065(a), if a project "has the potential to substantially degrade the quality of the environment; substantially reduce the habitat of a fish and wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; substantially reduce the number or restrict the range of an endangered, rare or threatened species"[15] the lead agency must prepare an EIR for the project (CEQA *Guidelines,* § 15065, subds. (a), (a)(1)). CEQA *Guidelines,* § 15206(b)(5) specifies that a project shall be deemed to be of statewide, regional, or area-wide significance if it "would substantially affect sensitive wildlife habitats including but not limited to riparian lands, wetlands, bays, estuaries, marshes, and habitats for rare and endangered species as defined by CEQA *Guidelines,* § 15380"

[15] "Endangered, rare, or threatened species" is defined in the Glossary.

(California Code Regulations, title 14, § 15065, subd. (b), (b)(5)). "Endangered, rare, or threatened species" and species that meet the definition of an endangered, rare, or threatened species under CEQA *Guidelines*, § 15380 are collectively referred to as special-status species in this Draft EIR.

In addition to the significance criteria in Appendix G for biological resources (discussed below), for the purpose of this analysis, the criteria in CEQA *Guidelines*, §§ 15065(a)(1) and 15206(b)(5) were used to determine whether any effect of the Program on fisheries and aquatic habitats could be significant. Hence, any effect of the Program that would "substantially degrade the quality of the environment," "substantially reduce the habitat of a fish or wildlife species," and/or "substantially affect sensitive wildlife habitats," constitute a significant effect for the purpose of this impact analysis. The Program would "substantially degrade the quality of the environment" if it could render currently suitable fisheries habitat unsuitable (e.g., fine sediment deposition at levels that would impair salmonid spawning). The Program would "substantially reduce the habitat of a fish or wildlife species" if it could cause an overall reduction in current habitat availability (e.g., through migration barriers) or suitability (e.g., through increases in water temperature). The Program would "substantially affect sensitive wildlife habitats" if it could adversely alter the current use of a fisheries habitat area (e.g., fine sediment deposition at levels that would impair salmonid spawning). Also for the purpose of this impact analysis, an overall reduction of the current extent or ecological function of fishery habitat caused by the Program would constitute a "substantial, or potentially substantial, adverse change in . . . the physical conditions [in the Program Area]," and therefore would be considered a significant effect (CEQA *Guidelines*, § 15382).

In accordance with Appendix G in the CEQA *Guidelines*, the Program would have a significant effect on the environment if it could:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFG or USFWS (or NMFS in the case of marine and anadromous species). For purposes of this analysis, substantial adverse effects on species are defined as effects that result in mortality of a substantial number of individuals or habitat modifications that would reduce the overall suitability of the habitat.

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFG or USFWS (or NMFS in the case of marine and anadromous species). For purposes of this analysis, substantial adverse effects on sensitive natural communities are defined as effects that result in the overall reduction of the current extent or ecological function of the community.

- Have a substantial adverse effect on federally protected wetlands as defined by Clean Water Act section 404 (including, but not limited to, marshes and vernal pools) through direct removal, filling, hydrological interruption, or other means. For purposes of this analysis, substantial adverse effects on federally protected wetlands are defined as effects that result in the overall reduction of the current extent or ecological function of wetlands.

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. For purposes of this analysis, substantial interference with the movement of fish species are defined as effects that permanently block (e.g., dams) or seasonally impede (e.g., insufficient water depths) fish movement.

- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. For purposes of this analysis, a fundamental conflict with a local plan or ordinance is defined as any action that substantially conflicts with the terms of such policies or ordinances.

- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan. For purposes of this analysis, a fundamental conflict with an adopted habitat conservation plan is defined as any action that would substantially conflict with the terms of such a plan.

Impact Analysis

As discussed earlier in this Draft EIR, some of the activities the Program proposes to authorize through the issuance of SAAs and sub-permits are historic, ongoing activities that, along with the impacts they have had on the physical conditions in the Program Area, are part of the existing environmental setting. These include water diversions that the Program proposes to authorize to bring them into compliance with Fish and Game Code, § 1600 *et seq.* and CESA. As a result, authorizing existing water diversions and the activities related to them will not further degrade the physical conditions in the Program Area or elsewhere, or cause the number of water diversions or the amount of water diverted to increase. In fact, it is expected that the overall amount of water diverted in the Program Area will decrease at certain times of the year after the Program is implemented due to the terms and conditions in the SAAs, ITP, and sub-permits that CDFG issues under the Program. Further, the existing water diversions and related activities will continue whether or not the Program is implemented. However, by implementing the Program, the fisheries and aquatic habitat conditions are expected to improve as a result of the implementation of many of the terms and conditions in the SAAs, ITP, and sub-permits that CDFG would issue under the Program. Those terms and conditions are described in Chapter 2 and Appendices A and B of this Draft EIR. Again, it is important to emphasize that these terms and conditions are not mitigation measures CDFG has identified to reduce the level of impacts to less than significant as required by CEQA; rather they are measures that which avoid and minimize impacts in accordance with the Program participants’ statutory obligations under Fish and Game Code, § 1600 *et seq.* and CESA.

Impact 3.3-1: Construction, maintenance, and other instream activities associated with various Covered Activities may result in impacts to fisheries resources and their habitat (Significant).

In addition to the discussion below, please refer to the similar description of impacts and mitigation measures from a hydrological perspective under Impact 3.2-1 in Chapter 3.2.

Implementation of several of the Covered Activities would involve new construction activities within stream channels and/or upland areas in close proximity to channels. Instream construction activities would be required for projects that involve the construction of new headgates, fish screens, stream access and crossings, instream habitat structures, and barrier removal/fish passage, as well as the maintenance and repair of existing structures (e.g., due to flood damage). Projects requiring construction and maintenance activities in upland or floodplain areas include the installation of fencing and riparian restoration/revegetation.

Most of these construction and maintenance activities would require some degree of ground clearing, channel and bank excavation, backfilling, earthmoving, stockpiling and/or compaction, grading, and concrete work. These activities may result in the following significant impacts to coho salmon, CDFG fish species of special concern, and other fisheries resources:

Short-term increases in sedimentation and turbidity. Increased sedimentation rates could result if fine sediment is discharged to streams or mobilized within channels during project activities. Increased sedimentation may adversely affect water quality and channel substrate composition. Specific rates of sedimentation are dependant upon the duration, volume, and frequency at which sediments are contributed to the surface water flow. Substantial sedimentation rates may smother fish eggs and fish food (i.e., benthic invertebrates), degrade spawning habitat, and fill pools. Furthermore, suspended sediments increase the turbidity of the water. High rates of turbidity can result in direct mortality or deleterious sublethal effects (e.g., gill abrasion, decreased visibility during foraging) to fish.

Accidental spills and use of hazardous materials. Equipment refueling, fluid leakage, and maintenance activities within or near-stream channels pose a risk of accidental water contamination that may result in injury or death to coho salmon and other fish species. Many commonly used hydraulic fluids contain organophosphate ester additives that are toxic to salmonids and other fish species. Acute lethal and sublethal effects have been documented in salmonids in particular (as opposed to warm water species). Leaks or spills of petroleum hydrocarbon products found in construction equipment have similar adverse effects on fish.

Furthermore, when surface water comes into contact with uncured concrete, either through accidental spills of concrete or through contact with recently-poured structures (e.g., headgates, fish screens), alkaline substances in the concrete may leach into the water, resulting in decreases in the natural hydrogen ion concentration (pH). Rapid changes in the pH of the stream water can have adverse effects on fish, particularly if the hydrogen ion concentration is reduced such that the pH reading increases above nine.

Direct injury or mortality resulting from equipment use and dewatering activities. During instream construction activities, fish species may be crushed by earth moving equipment, construction debris, and worker foot traffic. It is therefore necessary to isolate the work area from actively flowing water through the use of coffer dams and dewatering pumps. However, dewatering activities can lead to fish becoming concentrated or stranded in residual wetted areas. Thus, if coho salmon and CDFG fish species of special concern are known to or assumed to occur in the project area, capture and relocation procedures need to be implemented prior to construction. Capture and relocation efforts, in turn, may also result in injury or mortality to fish if not conducted by a qualified biologist according to established guidelines.

Temporary loss, alteration, or reduction of habitat. In-channel construction activities, the use of construction equipment in stream channels, workspace dewatering, and clearing of riparian vegetation for work site access may result in temporary impacts to the habitat of coho salmon and CDFG fish species of special concern. Potential adverse impacts that may occur include alterations of the stream substrate composition and channel integrity. Riparian vegetation is an important component of coho salmon habitat, providing channel shading, bank stability and complexity, instream cover in the form of LWD, and an important source of organic matter and food. The temporary loss of riparian vegetation may result in increased soil erosion, elevated water temperatures, and loss of fisheries habitat complexity.

Mitigation Measures Proposed as Part of the Program

Mitigation Measure 3.3-1a: Implementation of ITP General Conditions (g) Instream work period, (h) Instream equipment work period, and (i) Compliance with Fish and Game Code, § 1600 *et seq.* (Article XIII.E.1) would avoid or minimize potential direct and indirect impacts to coho salmon and CDFG fish species of special concern resulting from instream construction and maintenance activities.

Mitigation Measure 3.3-1b: Implementation of numerous applicable conditions in the MLTC would further avoid or minimize potential direct and indirect impacts to coho salmon and CDFG fish species of special concern resulting from instream and upland construction and maintenance activities.

Mitigation Measures Identified in this Draft EIR

Mitigation Measure 3.3-1c: ITP General Conditions (g) and (h) (Article XIII.E.1) limit the season for instream equipment operations and work related to structural restoration projects to the period of July 1 through October 15 ~~31~~. Similarly, ITP Additional Avoidance and Minimization Measure D (Livestock and Vehicle Crossings) and conditions in the MLTC limit the use of stream crossings to the same period. ~~However, based on adult coho salmon observations in the Scott River (Quigley, 2006a), as well as documented migration timing in the adjacent Shasta River watershed (Hampton, 2006), coho salmon may enter the Scott River prior to October 31. Furthermore, the Chinook salmon spawning season occurs even earlier in the season, depending on streamflows. Therefore, as specified under Mitigation Measure 3.2-1d (Chapter 3.2 Geomorphology, Hydrology, and Water Quality), the season for instream construction activities, equipment operations, and stream crossing utilization shall be limited to the period of July 1 through October 15.~~ If weather conditions permit and the stream is dry or at its lowest flow, instream construction activities and equipment operations may continue after October 15, provided a written request is made to CDFG at least five days before the proposed work period variance. Written approval from CDFG for the proposed work period variance must be received by SQRCD or Agricultural Operator prior to the start or continuation of work after October 15.

If work is performed after October 15 as provided above, SQRCD or Agricultural Operator will do all of the following:

- Monitor the 72 hour forecast from the National Weather Service. When there is a forecast of more than 30 percent chance of rain, or at the onset of any precipitation, the work shall cease.

- Stage erosion and sediment control materials at the work site. When there is a forecast of more than 30 percent chance of rain, or at the onset of any precipitation, implement erosion and sediment control measures.

Level of Significance after Mitigation

Implementation of the Program, including the mitigation measure discussed above, would reduce potential impacts of construction, maintenance, and other instream activities to coho salmon and CDFG fish species of special concern and their habitat to a less-than-significant level.

Impact 3.3-2: Increased extraction of groundwater could contribute to decreased baseflows and increased ambient water temperatures in the Scott River and its tributaries, thereby impacting coldwater fish habitat (Less than Significant).

As part of the Program, groundwater may be utilized in place of surface water supplies. In particular, under ITP Mitigation Obligations of SQRCD (a)(iv) (Article XIII.E.2) groundwater supplies may be used as one alternative means of satisfying stock water demands from October through December (the other alternatives being off-stream storage or other appropriate methods). This measure is intended to enhance surface flows during dry conditions and during critical times of the year (October through December) in order to improve salmonid habitat.

However, as discussed in Impact 3.2-4 in Chapter 3.2, increased use of groundwater during dry conditions in order to curb the consumptive use of surface water, as proposed by the Program, could decrease groundwater discharge into the Scott River and its tributaries. A reduction in groundwater discharge could decrease base flow volumes and could contribute to increased water temperatures. In general, the aquifer characteristics and the interaction of groundwater and surface water within the Scott Valley are poorly understood. However, there are some general properties and relationships among groundwater and surface water that *are* understood. The permeability of alluvium within the Scott Valley can vary by orders of magnitude, and groundwater moving through these deposits is an important source of recharge to surface channels (Mack, 1958). Further, groundwater inflows are a primary driver of stream temperatures in the Scott Valley and groundwater accretion directly affects stream temperatures by addition of cold water (NCRWQCB, 2005). Utilizing groundwater instead of surface water has the potential to elevate stream temperatures (Naman, 2005). During low flow conditions, if groundwater is pumped in proximity of a flowing stream or a subsurface channel such that subterranean flow is impacted, then that groundwater extraction could result in a decrease in instream flow and, concomitantly, an increase in water temperatures in the nearby stream.

Notwithstanding the above, any increase in groundwater use under the Program is expected to be low for the following reasons: 1) the proposed scale of the alternative stock watering system is small; the Program specifies the installation of two systems per year within the entire Program Area; 2) not all such systems would necessarily use groundwater, as alternative methods are also proposed; 3) groundwater irrigation tends to cost more (for well installation, piping, and power costs); and 4) the availability of groundwater resources in the Scott Valley varies greatly from location to location.

Because it is not likely that the Program would cause a substantial increase in the use of groundwater, the level of any impacts associated with such use would be low. Further, for the season in which this system is proposed for use, October through December, the *volume* of streamflow is more of a concern for salmonid habitat than the temperature of the water. High water temperatures are of principal concern and exert more influence on limiting salmonid habitat in the late spring and summer months. In addition, some Agricultural Operators must divert much more surface water than is needed to satisfy their stock-watering needs, because a higher volume of water is necessary to enable water to flow from the point of diversion to the point of use to accommodate for carriage loss due to varying delivery efficiencies (Black, 2008). Hence, in some cases, substitution of groundwater for surface water would result in a substantial reduction in the amount of water diverted

As such, with respect to the impact that alternative stock watering systems may have on surface water temperatures, and thus fisheries and aquatic habitat, this potential impact is less than significant.

Mitigation Measures Identified in this Draft EIR

This potential impact was determined to be less than significant. No mitigation measures required.

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CHAPTER 3.4

Biological Resources: Botany, Wildlife, and Wetlands

This Chapter discusses the existing environment for terrestrial wildlife, botanical, and wetland[1] resources in the Scott River watershed; identifies potential impacts the Scott River Watershed-wide Permitting Program (Program) could have on those resources; and identifies mitigation for those impacts deemed to be potentially significant. Information presented in the Setting section of this Chapter is based on reconnaissance surveys of the watershed conducted October 2, 2006 through October 6, 2006, as well as numerous published reports and technical studies, including the California Natural Diversity Data Base (CDFG, 2008) and California Native Plant Society's (CNPS) Electronic Inventory (CNPS, 2006) records for the following United States Geological Survey (USGS) quadrangles: Duzel Rock, Etna, Fort Jones, Gazelle Mountain, Greenview, Indian Creek, Baldy, McConaughy Gulch, Russell Peak and Yreka. Regional published and unpublished biological literature were also consulted, e.g. *Scott River Riparian Zone Inventory and Evaluation* (Lewis**,** 1992), *Northwest California, a Natural History* (Sawyer, 2006), as well as other biological literature including: Sawyer and Keeler-Woolf, 1995; Zeiner et al., 1990; and Holland, 1986. Additional information on special-status species[2] and communities of concern were obtained through the United States Fish and Wildlife Service (USFWS) Arcata Field Office (USFWS, 2006).

3.4.1 Setting

Regional Setting

The Program Area is within the California Floristic Province,[3] Cismontane Region and is located within the Klamath Bioregion,[4] which extends from the Pacific Coast eastward more than halfway across California to the Modoc Plateau and the Sacramento Valley floor. Forest types change from old-growth redwoods, white fir, and Douglas fir along the coast to drier types in the

1 Wetland resources are treated in this Chapter when they are under state or federal jurisdiction and have an ecological function supporting plants and terrestrial animals. Chapter 3.2 discusses hydrology and water quality.

2 For the purpose of this document a "special-status species" is any species that meets the definition of "endangered, rare or threatened" in CEQA *Guidelines,* § 15380. Some CDFG species of special concern are special-status species. Such species are referred to as "special-status species" in this document.

3 Geographic subdivisions are used to describe and predict features of the natural landscape. The system of geographic units is four-tiered: provinces, regions, subregions, and districts. The State of California is covered by three floristic provinces: California Floristic Province, Great Basin, and Desert. The California Floristic Province is the largest, includes most of the state and small portions of Oregon, Nevada and Baja California, Mexico and is made up of six regions.

4 California bioregions were developed by the Inter-agency Natural Areas Coordinating Committee (California Department of Forestry and Fire Protection, 1992. California Bioregions http://www.frap.cdf.ca.gov/data/frapgisdata/select.asp). These regions are more reflective of fauna as well as flora.

mountain ranges of Siskiyou County: mixed conifer–pine and mixed conifer–fir, then to Ponderosa pine and a variety of shrub communities (e.g., bitterbrush-rabbitbrush and juniper-sagebrush). The region is drained by rivers including the Eel, Trinity, Klamath, and Russian. The Klamath is a major river of the Pacific coast (250 miles long), and two of its tributaries at what is called the Middle Klamath, the Shasta and the Scott, drain arid interior valleys characterized by annual grasslands.

Scott River Valley

Climate, Topography, Soils and Drainage

Minimum temperatures at Fort Jones are in the -7°C (19°F) range and peak at about 32°C (90°F) in mid-July. Summers are dry. Yearly rainfall varies from 18 to 85 inches for the Valley, but in the rain shadow of the Salmon and Marble Mountains to the west, rainfall amounts can reach 125 inches. The Scott, Salmon, and Marble Mountains form the southern and western boundary of Scott Valley, and are predominantly granitic in origin. In contrast, the Scott Bar Mountains to the north and the Mineral Range to the east are a mixture of Paleozoic and Mesozoic rocks of many kinds, with serpentine inclusions. The Scott River originates in the Scott Mountains to the south, and the watershed is 520,600 acres in extent (Sawyer, 2006). Chapter 3.2, Geomorphology, Hydrology, and Water Quality provides a more detailed discussion of these topics.

The elevation range within the Valley floor is 2,907 feet to 2,643 feet above mean sea level (amsl). The landforms adjacent to Scott River are flat alluvial floodplains subject to flooding, particularly on the west side. Soils (Diyou loams) are deep, somewhat poorly drained soils formed in alluvium derived from mixed rock sources. The vegetation in areas not cultivated is mainly annual (occasionally perennial) grasses, sedges, and other water-tolerant plants (see Plant Community discussion, below). Permeability of this Diyou soil is moderately slow. Available water capacity is high, and effective rooting depth is 60 inches or more. This soil is subject to flooding during prolonged, high-intensity storms. Damaging floods occur about three years out of 10. The Diyou soils are suited to irrigated hay and pasture, but limited by seasonal high water table. Dotta gravelly loam shares many of the same characteristics, but has some inclusions of a soil that is mildly alkaline throughout and is calcareous in a few places.

Existing Land Use

The adjoining land uses are a combination of pasture (where livestock may or may not have access to the river); hayland which is grazed after cutting; and hayland used primarily for the production of alfalfa hay in conjunction with rotation of small grains.

Plant Communities – Upper Portions of the Watersheds

The vegetation classification system used in this document is based, in part, on the classification systems of Holland (1986) and Mayer and Laudenslayer (1988). The first has been the standard classification system used for describing California's vegetation for a number of years. The second system uses broader groupings known as **Wildlife Habitat Relationships** types, which are more useful when evaluating plant and animal resources simultaneously. A description of each of these communities as they are found in the Valley and surrounding slopes follows, and is displayed as **Figure 3.4-1**.

Klamath Mixed Conifer and Ponderosa Pine

Klamath Mixed Conifer (KMC) and **Ponderosa Pine** (PPN) are the types most prevalent on the northern and western slopes above the Valley. KMC habitat is typically composed of tall, dense to moderately open, needle-leaved evergreen forests with patches of broad-leaved evergreen and deciduous low trees and shrubs (Küchler, 1977). The overstory layer is characterized by a mixture of conifers. Dominant conifers in this portion of this habitat are white fir (*Abies concolor*), Douglas-fir (*Peudotsuga menziesii*), and ponderosa pine (*Pinus ponderosa*). At lower elevations or on more xeric sites, PPN becomes more prevalent and is mixed with canyon live oak (*Quercus chrysolepis*), Oregon oak (Q*uercus garryana*) and California black oak (*Quercus kelloggii*). Understory is commonly bitter cherry (*Prunus emarginata*), manzanita (*Arctostaphylos* spp.), and snowberry (*Symphoricarpos oreophilus*) (Küchler, 1977; Parker and Matyas, 1981). Klamath Mixed Conifer comprises highly diverse vegetation and soils, with multiple nesting and feeding niches for wildlife.

On the eastern and southern slopes, **Juniper** and **Pinyon-Juniper** are more common; these are woodlands of open to dense aggregations of junipers (*Juniperus*). Shrub species typically associated with juniper habitats include wedgeleaf ceanothus (*Ceanothus cuneatus*), antelope bitterbrush (*Purshia tridentata*), California buckwheat (*Eriogonum fasciculatum*), and curlleaf mountain-mahogany (*Cercocarpus ledifolius*). Mayer and Laudenslayer (1988) remark on the high value of this habitat for wildlife, especially when the stands are varied in tree species, sub-canopy species, and understory vegetation.

Plant Communities/Wildlife Habitats – Valley Floor

Annual Grassland

Where the land is not in active cultivation, the vegetation is usually classified as **Annual Grassland,** which comprises mainly herbaceous annual plant species. Differences in appearance and structure both between seasons and between years, are typical of this habitat. Fall rains cause germination of annual plant seeds. Plants grow slowly during the cool winter months, remaining low in stature until spring, when temperatures increase and stimulate more rapid growth (Mayer and Laudenslayer, 1988). Introduced annual grasses are the dominant plant species in this habitat: slender wild oats (*Avena bargata*), brome (*Bromus*), meadow barley (*Horeduem* spp.), and fescue (*Festuca*). Common forbs include broadleaf filaree (*Erodium botrys*), turkey mullein (*Eremocarpus setigerus*), bur clover (*Medicago polymorpha*), and popcorn flower (*Plagiobothrys nothofulvus*). There are likely remnant stands of the original perennial grasses that dominated before European settlement, including purple needlegrass (*Nassella pulchra*) and Idaho fescue (*Festuca idahoensis*). Many wildlife species, especially raptors, use Annual Grassland for foraging, but may require special habitat features in addition, such as cliffs, caves, ponds, or adjacent woodlands for breeding, resting, and escape cover.

Fresh Emergent Wetland

Fresh Emergent Wetlands (FEW) are characterized by erect, rooted herbaceous hydrophytes. Dominant vegetation is generally perennial and herbaceous; emergent wetlands are flooded frequently enough so that the roots of the vegetation thrive in an anaerobic environment. Fresh emergent wetlands are among the most productive wildlife habitats in California. They provide food, cover, and water for more than 160 species of birds and numerous mammals, reptiles, and amphibians (Mayer and Laudenslayer, 1988). However, in the Scott Valley the FEW classification is only partially correct, since they are largely seasonally wet meadows flooded from the adjacent slopes, or irrigated. The dominant plants in these wet meadows include pale spikerush (*Eleocharis macrostachya*) and sword-leaved rush (*Juncus ensifolius*).

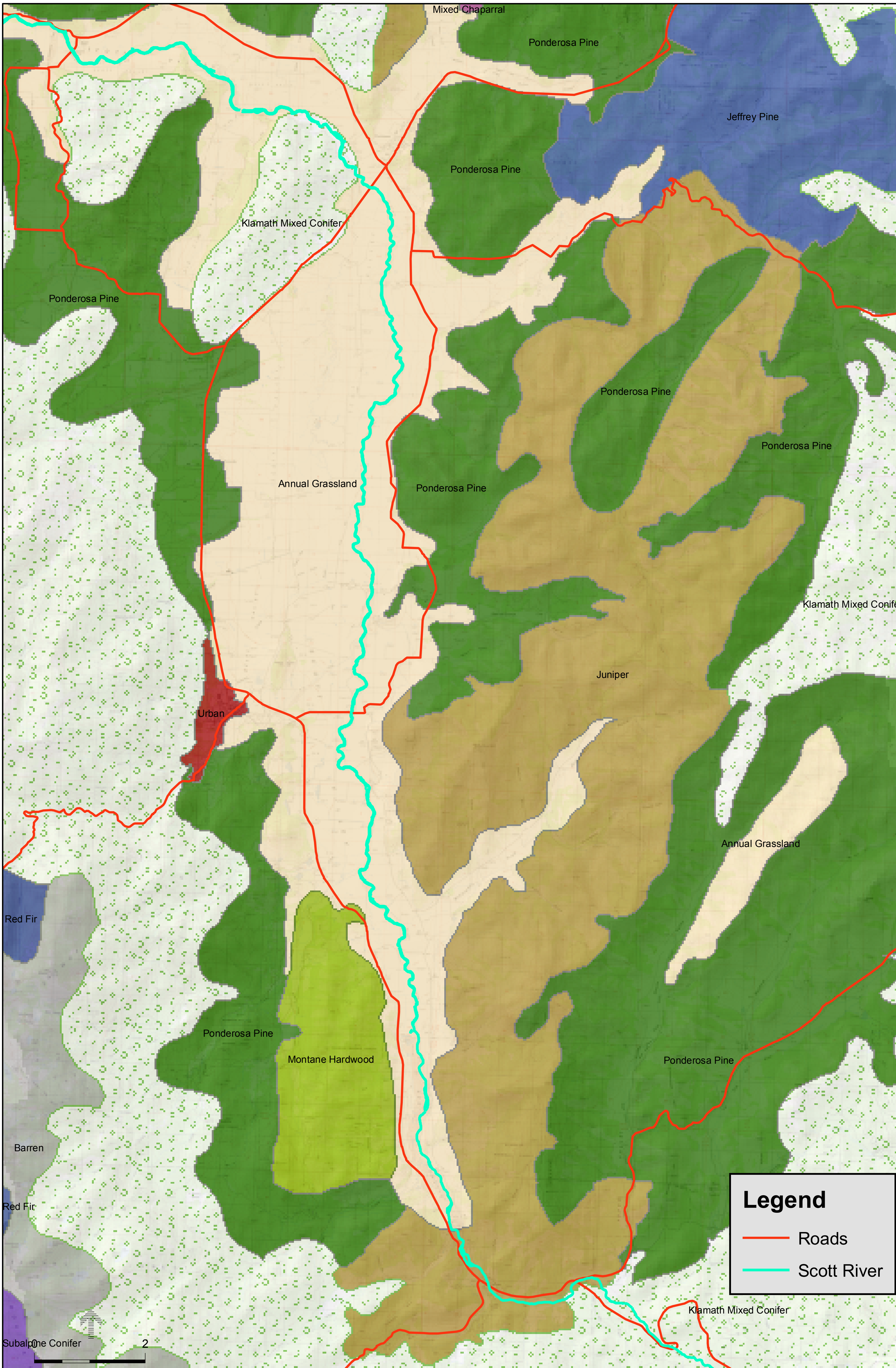
Composition and Condition of the Riparian Vegetation – Relationship to Streamflow

Riparian vegetation along the Scott River is adjacent to a variety of upland habitats and has diverged considerably from conditions prevailing at the time of European settlement in North America. The discussion in this chapter focuses on the riparian areas and the wildlife they support, as terrestrial impacts of Program implementation are almost exclusively limited to this habitat type.

The long-term health of dynamic riparian ecosystems is dependant upon more than access to water during the growing season. Reproduction and growth of riparian plant species are closely associated with peak flows (also referred to as flood flows or channel-forming flows), and related channel processes such as meandering (Busch and Scott, 1995). Where stream regulation limits flooding and channel movement, opportunities for seed germination are limited. In such systems, riparian community structure may become less dynamic (Busch and Scott, 1995). The reverse is also true: if a stream is denuded of riparian vegetation, the system becomes so active and unconfined that successful establishment of riparian plants is inhibited by soils which are never simultaneously moist, bare and protected from removal by subsequent disturbance for long enough for plants to germinate, root and set seed.

Riparian vegetation in the Scott River has been subject both to alteration in flows and removal of vegetation. The original community can be seen in a few places and may serve as an indication of the historic cover. Cottonwood (*Populus balsamifera*) is the most common overstory tree, alder (*Alnus* spp.) a close second, and there is a variety of woody understory species. First among these are the two local species of willow, western black willow (*Salix nigra*) and smooth willow (*S. laevigata*); blackberry (*Rubus ursinus*), and chokecherry (*Prunus emarginata*). Where the Scott River Valley is at its narrowest, in the south, it can support walnut (*Juglans nigra*), rose (*Rosa*), perennial grasses, and horse-tail (*Equisetum*).

Because of the disturbance of natural processes, these complex and robust assemblages are now more frequently found in diversion ditches than on the mainstem of the river. A contemporary overview of the riparian vegetation along the Scott is of a river with upland species up to the edge of the bankfull stream profile, with the stream itself pushing its way though poorly consolidated gravels. Gravel bars, when vegetated at all, support species seeded from adjacent agricultural



SOURCE: California Gap Analysis, 1998

Scott River Watershed-wide Permitting Program . D206063

Figure 3.4-1
Vegetation/Habitat Types in the Scott Valley and Vicinity

areas (e.g., alfalfa (*Medicago sativa*)). Where riparian areas occur they are usually not contiguous and limited to single rows of trees, with many being mature to decadent.

As discussed in some detail in Chapter 3.2, historic accounts describe a narrower, deeper Scott River. That suggests a much more stable situation than today; hypothetically, streamside vegetation was the full suite of emergent plants at the water edge, hydrophytic (water-loving) shrubs along the immediate bank, and a band of large, overstory riparian trees. Alteration began with the trapping of beaver (*Castor canadensis*) in the 1830s, a species which is a major and natural actor enhancing stream and vegetation complexity. Mining, grazing,[5] and water withdrawals have all contributed to a change to a less stable, simpler system incrementally and dramatically, but there were more stochastic events, as well. The situation was probably at its worst in the 1950s, when oystershell scale (*Lepidosaphes ulmi*) destroyed most of the willow growth (Lewis, 1992). Then in December, 1955, a flood accelerated the bank erosion (Lewis, 1992) and high flows continued into 1958. In 1958, the Soil Conservation Service contracted for a low level aerial flight of Scott River. It showed many reaches of eroding river banks where little or no riparian vegetation is visible.

Recovery from the 1950s is evident, however, and in looking more closely at riparian habitat there is a wide range of conditions. Lewis (1992) evaluated riparian vegetation for the Siskiyou Resource Conservation District. The scope of the work included the inventory and evaluation of the riparian system on 30 river miles between 7.0 miles southeast of Etna and 8.0 miles northwest of Fort Jones. Among other parameters, Lewis collected data at 373 identified sites on dominant species age, crown density of overstory species and percentage or diversity of understory cover. By 1992, although only 1 percent could be classified as “pristine”,[6] Lewis rated over 50 percent as “good.”[7] Today, the SQRCD and Natural Resources Conservation Service (NRCS) programs have fenced riparian areas on all but one property with livestock on the Scott mainstem, have completed riparian fencing on Sugar Creek and Patterson Creek, and 90 percent of French Creek. As noted in Chapter 3.3 (which contains a riparian summary for each major reach and tributary), riparian plantings and fencing were completed in lower portion of French Creek in 2005 and the area shows new riparian establishment and encroachment in the stream. The riparian complex in the upper portion of this watershed is intact **Montane Hardwood/Riparian,** black cottonwood co-dominant with bigleaf maple (*Acer macrophyllum*) and in association with dogwood (*Cornus*), boxelder (*Acer negundo*), hollyleaf cherry (*Prunus ilicifolia*), and alder. Crown closure is nearly 100 percent in some areas.

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5 As discussed in Chapter 3.2 and below under Section 3.4.3, livestock grazing is a Covered Activity under the Program, but similar to some other Covered Activities it is not new; rather, it has been occurring in the Program Area for decades. Hence, authorizing livestock grazing as part of the Program will not cause the level of grazing to increase or result in any impacts in addition to those that are already part of baseline conditions in the Program Area. In fact, the Program will reduce the impacts of grazing by excluding livestock from some riparian areas by installing and maintaining fencing (see ITP and MLTC Covered Activity 5). Also, where riparian fencing is constructed under the Program, any grazing of livestock within the riparian exclusion zone ~~adjacent to the channel or within the bed, bank, or channel~~ of the Scott River or its tributaries may only occur in accordance with a grazing management plan that will result in improved riparian function and enhanced aquatic habitat.

6 “Two or more dominate species - average 25 to 30 feet in height with 90 percent to 100 percent crown density - slope and/or over density 85 percent to 95 percent shading and/or overhang of low flow at toe of bank slope - No apparent dieback of dominate species. Age 20 years or more. Livestock excluded.” (Lewis, 1992).

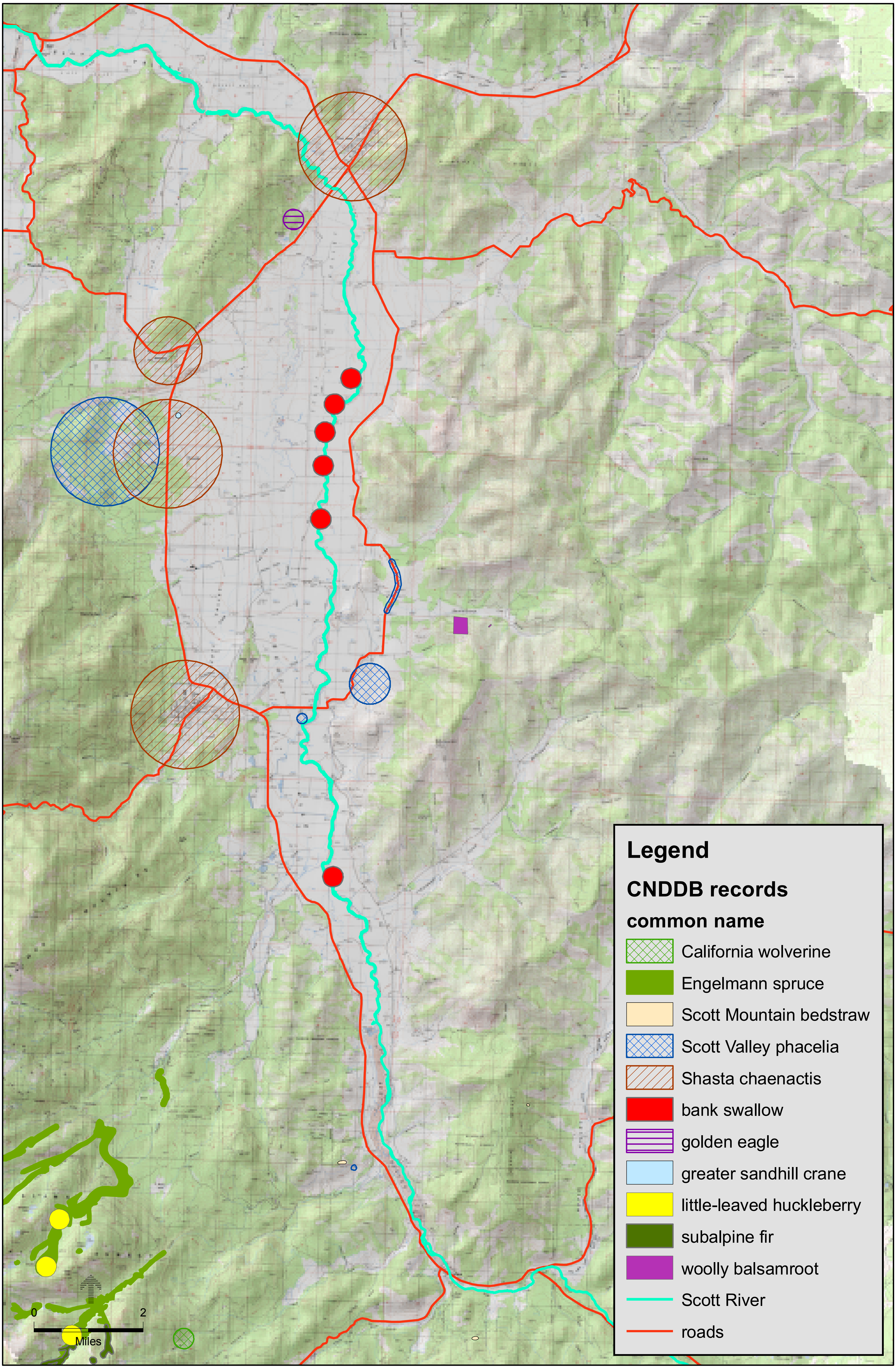
7 One or two dominant species, average 8 to 20 feet in height, with 65 percent crown density. The slope and cover density average 48 percent.

Special-Status Species

Some species known to occur or considered likely to occur in the vicinity of the Program Area are accorded "special-status" because of their recognized rarity or vulnerability to various causes of habitat loss or population decline. Some of these receive specific protection under the federal Endangered Species Act (ESA) and the California Endangered Species Act (CESA). Others have been designated as "sensitive" based on the expertise of State of California resource agencies or non-governmental organizations with acknowledged expertise, or policies adopted by the state and by local governmental agencies such as counties, cities, and special districts to meet local conservation objectives. For the purpose of this Draft Environmental Impact Report (EIR), "special-status species" means any species that meets the definition of "endangered, rare or threatened species" in California Environmental Quality Act (CEQA) *Guidelines*, § 15380, as fully defined in the Glossary.

Figure 3.4-2 displays species records from the California Natural Diversity Data Base (CNDDB) for the portion of the Program Area where Program impacts are most likely. In addition to those species listed under CESA, CNDDB includes additional CDFG species of special concern. CDFG species of special concern includes are those species which CDFG has determined are either declining at a rate that could result in listing or historically occurred in low numbers and known threats to their persistence currently exist. Some CDFG species of special concern are also "special status species" because they meet the definition of "endangered, rare, or threatened" in CEQA *Guidelines*, § 15380. For the purpose of this document, CDFG species of special concern that are also special-status species are referred to as "special-status species", while CDFG species of special concern that are not also special-status species are referred to as "CDFG species of special concern." Figure 3.4-2 does not include those species discussed in Chapter 3.3, Biological Resources: Fisheries and Aquatic Habitats.

Plant and wildlife species occurring anywhere within the USGS quadrangles that define the Program Area and adjacent quadrangles, and have records in CNDDB are displayed in **Table 3.4-1**. However, CNDDB may not include all CESA listed or CDFG species of special concern which occur in an area because it only lists those species for which an observational record has been submitted. The CNDDB-based table must be modified in two ways to produce a focused list that can be used as part of an environmental analysis under CEQA (Table 3.4-2). First, the list is augmented from CNPS's *Inventory of Rare and Endangered Plants* (2006), published literature, and unpublished sources such as bird lists compiled by Audubon Society chapters, by professional knowledge, and by direct observations from nearby areas with similar habitats (such as the Shasta Valley). Second, the list is *reduced* by eliminating those species that will not be affected by the actions of the project being reviewed under CEQA (in this case, the Program and the activities it covers). Also, in this case, the area of potential effect is limited to riparian or wet meadow species and does not, for example, include impacts on furbearing mammals or raptors nesting at higher elevations or away from streams where Program Covered Activities will occur. The analysis is then carried forward in detail for the final list. The list used for this analysis is displayed in **Table 3.4-2** and discussed below. Again, the list does not include those species discussed in Chapter 3.3, Biological Resources: Fisheries and Aquatic Habitats.



SOURCE: CDFG, 2006

Figure 3.4-2
CNDDB-Recorded Species in the Scott Valley and Vicinity

TABLE 3.4-1
SPECIES REPORTED IN THE CALIFORNIA NATURAL DIVERSITY DATABASE FOR ALL PROGRAM AND ADJACENT USGS QUADRANGLES

Common Name *Scientific Name*	**Listing Status ESA**	**Listing Status CESA**	**CNPS / CDFG Status/ # Occurrences Statewide (for plants)**
Plants			
Alkali hymenoxys (*Hymenoxys lemmonii*)	None	None	2.2 / S2.2 / 8
American saw-wort (*Saussurea americanai*)	None	None	2.2 / S1.2? / 3
Blue alpine phacelia (*Phacelia sericea* var. *ciliosa*)	None	None	2.3 / S1.3 / 8
Blushing wild buckwheat (*Eriogonum ursinum* var. *erubescens*)	None	None	1B.3 / S2.3 / 9
Brook pocket-moss (*Fissidens aphelotaxifolius*)	None	None	2.2 / S1.2 / 2
Buttercup-leaf suksdorfia (*Suksdorfia ranunculifolia*)	None	None	2 / S2 / 9
Canadian buffalo-berry (*Sepherdia canadensis*)	None	None	2.2 / S1.2 / 1
Cascade grass-of-Parnassus (*Parnassia cirrata* var. *intermedia*)	None	None	2.2 / S2.2 / 13
Cascade stonecrop (*Sedum divergens*)	None	None	2.3 / S1.3 / 4
Coast fawn lily (*Erythronium revolutum*)	None	None	2.2 / S2.2 / 50
Crested potentilla (*Potentilla cristae*)	None	None	1B.3 / S2.3 / 7
Engelmann spruce (*Picea engelmannii*)	None	None	2.2 / S2.2 / 10
English Peak greenbriar (*Smilax jamesii*)	None	None	1B.3 / S3.2 / 54
English sundew (*Drosera anglica*)	None	None	2.3 / S2S3 / 16
Golden alpine draba (*Draba aureola*)	None	None	1B.3 / S1.3 / 6
Greene's mariposa-lily (*Calochortus greenei*)	None	None	1B.2 / S3.2 / 50
Great Basin claytonia (*Claytonia umbellate*)	None	None	2.3 / S1.3 / 5
Hairy marsh hedge-nettle (*Stachys palustris* spp. *pilosa*)	None	None	2.3 / S2.3 / 12
Heckner's lewisia (*Lewisia cotyledon* var. *henkneri)*	None	None	1B.2 / S2.2 / 22
Henderson's fawn lily (*Erythronium hendersonii*)	None	None	2.3 / S1.3 / 4
Henderson's horkelia (*Horkelia hendersonii*)	None	None	1B.1 / S1.2 / 1
Henderson's triteleia (*Triteleia hendersonii* var. *hendersonii*)	None	None	2.2 / S1.2 / 1
Horned butterwort (*Pinguicula macroceras*)	None	None	2.2 / S3.2 / 15

TABLE 3.4-1 (Continued)
SPECIES REPORTED IN THE CALIFORNIA NATURAL DIVERSITY DATABASE FOR ALL PROGRAM AND ADJACENT USGS QUADRANGLES

Common Name *Scientific Name*	**Listing Status ESA**	**Listing Status CESA**	**CNPS / CDFG Status/ # Occurrences Statewide (for plants)**
Plants (cont.)			
Howell's sandwort (*Minuartia howellii*)	None	None	1B.3 / S3.2 / 20
Howell's tauschia (*Tauschia howellii*)	None	None	1B.3 / S1.3 / 4
Klamath gentian (*Gentiana plurisetosa*)	None	None	1B.3 / S2-S3.2 / 13
Klamath manzanita (*Arctostaphylos klamathensis*)	None	None	1B.2 / S2.2 / 17
Klamath Mountain buckwheat (*Eriogonum hirtellum*)	None	None	1B.3 / S2.2 / 29
Kloehler's stipitate rock-cress (*Arabis koehleri* var. *stipitata*)	None	None	1B.3 / S1.3 / 20
Little hulsea (*Hulsea nana*)	None	None	2.3 / S2.3 / 20
Little-leaved huckleberry (*Vaccinium scoparium*)	None	None	2.2 / S2.2 / 19
Marble Mountain campion (*Silene marmorensis*)	None	None	1B.2 / S2.2 / 43
Lyall's tonestus (*Tonestus lyallii*)	None	None	2.3 / S1.3? / 3
Mason's sky pilot (*Polemonium chartaceum)*	None	None	1B.3 / S1.3 / 14
Northwestern moonwort (*Botrychium pinnatum*)	None	None	2.3 / S1.3 / 5
Mt. Eddy draba (*Draba carnosula*)	None	None	1B.3 / S2.2 / 13
Oregon fireweed (*Epilobium oreganum*)	None	None	1B.2 / S2.2 / 43
Pacific silver fir (*Abies amabilis*)	None	None	2.3 / S3.3 / 9
Pallid bird's-beak (*Cordylanthus tenuis* ssp. *pallescens*)	None	None	1B.2 / S1.1 / 36
Parish's alumroot (*Heuchera parishii*)	None	None	1B.3 / S2.3 / 12
Peck's lomatium (*Lomatium peckianum*)	None	None	2.2 / S1.2 / 13
Pendulous bulrush (*Scirpus pendulus*)	None	None	2.2 / S1.2 / 2
Pickering's ivesia (*Ivesia pickeringii*)	None	None	1B.2 / S2.2 / 12
Rattlesnake fern (*Botrychium virginianum*)	None	None	2.2 / S1.2 / 10
Red-wool saxifrage (*Saxifraga rufidula*)	None	None	2.3 / S1.3 / 1
Robbins' pondweed (*Potamogeton robbinsii*)	None	None	2.3 / S2.3 / 10

TABLE 3.4-1 (Continued)
SPECIES REPORTED IN THE CALIFORNIA NATURAL DIVERSITY DATABASE FOR ALL PROGRAM AND ADJACENT USGS QUADRANGLES

Common Name *Scientific Name*	**Listing Status ESA**	**Listing Status CESA**	**CNPS / CDFG Status/ # Occurrences Statewide (for plants)**
Plants (cont.)			
Scott Mountain bedstraw (*Galium serpenticum* ssp. *scotticum*)	None	None	1B.2 / S2.2 / 33
Scott Mountain sandwort (*Minuartia stolonifera*)	None	None	1B.3 / S1.3 / 2
Scott Mountains fawn lily (*Erythronium citrinum* var. *roderickii*)	None	None	1B.3 / S1.3 / 46
Scott Valley buckwheat (*Eriogonum umbellatum* var. *lautum*)	None	None	1B.1 / S1.1 / 2
Scott Valley phacelia (*Phacelia greenei*)	None	None	1B.2 / S2.2 / 28
Shasta orthocarpus (*Orthocarpus pachystachyus*)	None	None	1B.1 / S1.1 / 4
Shasta chaenactis (*Chaenactis suffrutescens*)	None	None	1B.3 / S3.2 / 25
Showy raillardella (*Raillardella pringlei*)	None	None	1B.2 / S2.2 / 21
Silky balsamroot (*Balsamorhiza sericea*)	None	None	1B.3 / S2.3 / 7
Single-flowered mariposa lily (*Calochortus monanthus*)	None	None	1A / SH / 1
Siskiyou fireweed (*Epilobium siskiyouense*)	None	None	1B.3 / S2.2 / 45
Siskiyou mariposa lily (*Calochortus persistens*)	Candidate	Rare	1B.2 / S2.2 / 3
Siskiyou phacelia (*Phacelia leonis*)	None	None	1B.3 / S2.2 / 18
South Fork Mtn. lupine (*Lupinus elmeri*)	None	None	1B.2 / S1.2 / 11
Subalpine aster (*Eurybia merita*)	None	None	2.3 / S1.3 / 1
Subalpine fir (*Abies lasiocarpa* var. *lasiocarpa*)	None	None	2.3 / S3.3 / 12
Thread-leaved beardtongue (*Penstemon filiformis*)	None	None	1B.3 / S3.3 / 73
Tracy's beardtongue (*Penstemon tracyi*)	None	None	1B.3 / S1.3 / 3
Trinity buckwheat (*Eriogonum alpinum*)	None	Endangered	1B.2 / S2.2 / 17
Tufted saxifrage (*Saxifraga* cespitosa)	None	None	2.3 / S1.3 / 2
Tundra thread-moss (*Pohlia tundrae*)	None	None	2.3 / S2.3 / 5
Waldo daisy (*Erigeron bloomeri* var. *nudatus*)	None	None	2.3 / S2 / 10
Waldo rock cress (*Arabis aculeolata*)	None	None	2.2 / S2.2 / 8

TABLE 3.4-1 (Continued)
SPECIES REPORTED IN THE CALIFORNIA NATURAL DIVERSITY DATABASE FOR ALL PROGRAM AND ADJACENT USGS QUADRANGLES

Common Name *Scientific Name*	**Listing Status ESA**	**Listing Status CESA**	**CNPS / CDFG Status/ # Occurrences Statewide (for plants)**
Plants (cont.)			
Warner Mountains buckwheat (*Eriogonum umbellatum* var. *glaberrimum*)	None	None	1B.3 / S1.3 / 2
White-flowered rein orchid (*Piperia candida*)	None	None	1B.2 / S3.2 / 46
Wilkin's harebell (*Campanula wilkinsiana*)	None	None	1B.2 / S2.2 / 19
Woolly balsamroot (*Balsamorhiza lanata*)	None	None	1B.2 / S2.2 / 38
Yreka phlox (*Phlox hirsute*)	Endangered	Endangered	1B.2 / S1.1 / 4
Animals			
A terrestrial snail (*Monadenia fidelis leonine*)	None	None	
American (=pine) marten (*Martes americana*)	None	None	
American badger (*Taxidea taxus*)	None	None	SC
American peregrine falcon * (*Falco peregrinus anatum*)	Delisted	Endangered	
Bald eagle (*Haliaeetus leucocephalus*)	Delisted	Endangered	
Bank swallow (*Riparia riparia*)	None	Threatened	
California wolverine (*Gulo gulo*)	None	Threatened	
Cascades frog (*Rana cascadae*)	None	None	SC
Downy sideband (*Monadenia callipeplus*)	None	None	
Golden eagle (*Aquila chrysaetos*)	None	None	
Greater sandhill crane (*Grus canadensis tabida*)	None	Threatened	
Humboldt marten (*Martes americana humboldtensis)*	None	None	SC
Northern goshawk (*Accipiter gentilis*)	None	None	SC
Northwestern pond turtle (*Actinemys marmorata marmorata*)	None	None	SC
Osprey (*Pandion haliaetus*)	None	None	SC
Pacific fisher (M*artes pennanti pacifica*)	None	None	SC
Prairie falcon (*Falco mexicanus*)	None	None	SC
Scott Bar salamander ** (*Plethodon asupak*)	None	Threatened	

TABLE 3.4-1 (Continued)
SPECIES REPORTED IN THE CALIFORNIA NATURAL DIVERSITY DATABASE FOR ALL PROGRAM AND ADJACENT USGS QUADRANGLES

Common Name *Scientific Name*	**Listing Status ESA**	**Listing Status CESA**	**CNPS / CDFG Status/ # Occurrences Statewide (for plants)**
Animals (cont.)			
Sierra Nevada red fox (*Vulpes vulpes necator*)	None	Threatened	
Siskiyou Mountains salamander (*Plethodon stormi*)	None	Threatened	
Sliver-haired bat (*Lasionycteris noctivagans*)	None	None	
Siskiyou ground beetle (*Nebria gebleri siskiyouensis*)	None	None	
Siskiyou shoulderband (*Monadenia chaceana*)	None	None	
Swainson's hawk (*Buteo swainsoni*)	None	Threatened	
Trinity Alps ground beetle (*Nebria sahlbergii triad*)	None	None	
Wawona riffle beetle (*Atractelmis wawona*)	None	None	
Western mastiff bat (*Eumops perotis californicus*)	None	None	SC
Western tailed frog (*Ascaphus truei*)	None	None	SC
Yellow-based sideband (*Monadenia infumata ochromphalus*)	None	None	

* The Fish and Game Commission has received and is proceeding with a review of a delisting request for the American peregrine falcon.

** As recognized by the Fish and Game Commission, the Scott Bar salamander is currently protected under CESA as a sub-population of the Siskiyou Mountains salamander (*Plethodon stormi*). (See California Code Regulations, title 14, §670.5, subd. (b)(3)(A); Cal. Reg. Notice Register 2007, No. 21-Z, p. 916 (May 25, 2007)).

ESA = federal Endangered Species Act
CESA = California Endangered Species Act
SC = CDFG Species of Special Concern

California Native Plant Society codes:

List 1A=Plants presumed extinct in California
List 1B=Plants rare, threatened, or endangered in California and elsewhere
List 2= Plants rare, threatened, or endangered in California but more common elsewhere
List 3= Plants about which more information is needed
List 4= Plants of limited distribution

Threat Code extensions

.1 - Seriously endangered in California (over 80 percent of occurrences threatened / high degree and immediacy of threat)
.2 – Fairly endangered in California (20-80 percent occurrences threatened)
.3 – Not very endangered in California (<20 percent of occurrences threatened or no current threats known)

Note that all List 1A (presumed extinct in California) and some List 3 (need more information- a review list) plants lacking any threat information receive no threat code extension. Also, these Threat Code guidelines represent a starting point in the assessment of threat level. Other factors, such as habitat vulnerability and specificity, distribution, and condition of occurrences, are also considered in setting the Threat Code.

CDFG State Ranking Codes

S1 = Less than 6 element occurrences (Eos) OR less than 1,000 individuals OR less than 2,000 acres
S1.1 = very threatened
S1.2 = threatened
S1.3 = no current threats known
S2 = 6-20 Eos OR 1,000-3,000 individuals OR 2,000-10,000 acres
S2.1 = very threatened
S2.2 = threatened
S2.3 = no current threats known
S3 = 21-80 Eos or 3,000-10,000 individuals OR 10,000-50,000 acres
S3.1 = very threatened
S3.2 = threatened
S3.3 = no current threats known

TABLE 3.4-2
SPECIAL-STATUS SPECIES ANALYZED FOR IMPACTS WITHIN THE PROGRAM AREA

Common Name *Scientific Name*	**Listing Status ESA**	**Listing Status CESA**	**CNPS / CDFG Status**	**Occurrence Reported in the Program Area Potential for Occurrence**
Plants				
Alkali hymenoxys *(Hymenoxys lemmonii)*	None	None	2.2/ S2.2	Low
Coast fawn lily (*Erythronium revolutum)*	None	None	2.2/ S1.2	Low
English Peak greenbriar (*Smilax jamesli*)	None	None	1B.3/ S3.2	Low
Henderson's fawn lily *(Erythronium hendersonii)*	None	None	2.3/ S1.3	Low
Oregon fireweed (*Epilobium oreganum*)	None	None	1B.2/ S2.2	Low
Pallid bird's-beak (*Cordylanthus tenuis* spp. *Pallescens*)	None	None	1B.2/ S1.1	Low
Peck's lomatium *(Lomatium peckianum)*	None	None	2.2/ S1.2	Moderate
Pendulous bulrush *(Scirpus pendulus)*	None	None	2.2/ S1.2	Known to occur
Pickering's ivesia *(Ivesia pickeringii)*	None	None	1B.2/ S2.2	Moderate
Rattlesnake fern (*Botrychium virginianum*)	None	None	2.2/ S1.2	Low
Scott Mountain bedstraw (*Galium serpenticum* ssp. *scotticum*)	None	None	1B.2 / S2.2 / 33	Low
Scott Valley phacelia (*Phacelia greenei*)	None	None	1B.2/ S2.2	Known to occur
Shasta chaenactis *(Chaenactis suffrutescens)*	None	None	1B.3/S3.2	Known to occur
Shasta orthocarpus *(Orthocarpus pachystachyus)*	None	None	1B.1/ S1.1	Known to occur
Showy raillardella (*Raillardella pringlel*)	None	None	1B.2/ S2.2	Low
Single-flowered mariposa lily (*Calochortus monanthus*)	None	None	1A/ SH	Low
Siskiyou mariposa lily (*Calochortus persistens*)	None	None	1B.2/ 2.2	Low
Tufted saxifrage (*Saxifraga cespitosa*)	None	None	2.3/ 1.3	Low
Woolly balsamroot (*Balsamorhiza hookeri* var. *lanata*)	None	None	1B.2/ S2.2	Known to occur
Reptiles and Amphibians				
Scott Bar Salamander (*Plethodon asupak*)	None	Threatened	None	Known to occur in Mill Creek drainage

TABLE 3.4-2 (continued)
SPECIAL-STATUS SPECIES ANALYZED FOR IMPACTS WITHIN THE PROGRAM AREA

Common Name *Scientific Name*	**Listing Status ESA**	**Listing Status CESA**	**CNPS / CDFG Status**	**Potential for Occurrence**
Birds				
Bank swallow *(Riparia riparia)*	None	Threatened	None	Known to occur
Greater sandhill crane *(Grus canadensis tabida)*	None	Threatened	Fully Protected Species	Known to occur
Swainson's hawk *(Buteo swainsoni)*	None	Threatened	None	Known to occur
Western yellow-billed cuckoo *(Coccyzus americanus occidentalis)*	Candidate	Endangered	None	Very Low
Willow flycatcher *(Empidonax traillii)*	Endangered	None	None	Very Low
Yellow warbler (*Dendroica petechia brewsteri*)	None	None	SC	Known to occur

For explanation of codes, see Table 3.4-1.

Plants

Alkali Hymenoxys (*Hymenoxys lemmonii* - CNPS List 2.2; State Rank S2.2)

Alkali hymenoxys occurs in Oregon, Utah, Nevada, Arizona, and in Siskiyou County, California. Plants grow in moist or wet alkaline meadows in sagebrush scrub and yellow pine forest communities and at elevations of 787 to 3,280 feet (CNPS, 2006). Five populations of alkali hymenoxys occur in the vicinity of the Program Area, but not within it. Moreover, these populations are historical collections from 1897 to 1934 and have not been relocated. Suitable habitat exists, but the reported locations are not specific.

Coast fawn lily (*Erythronium revolutum* - CNPS List 2.2, State Rank S1.2)

Coast fawn lily is a bulbiferous herb of the lily family known from northwestern California, inlcuding Siskiyou County, as well as from Oregon and Washington. Plants are found in mesic areas, including bogs and fens, and along streambanks or other moist spots in broadleafed upland forest and North Coast coniferous forest. The period of identification for the species is generally from March to July but occasionally may last through August.

English Peak greenbriar (*Smilax jamesli* - CNPS List 1B.3, State Rank S3.2)

English Peak greenbriar is a perennial herb that spreads by rhizomes. The plant is known from Del Norte, Shasta, Trinity, and Siskiyou Counties. This species occurs in marshes and swamps and on streambanks and lake margins in broadleafed upland forest and in lower and upper montane coniferous forests at elevations ranging from 1,900 to 8,200 feet. The species blooms from May through July and occasionally through August. There is a single record, from 1910, from Quartz Valley (CDFG, 2008).

Henderson's Fawn Lily (*Erythronium hendersonii* – CNPS List 2.3; State Rank 1.3)

Henderson's fawn lily is found in Oregon, Washington, and California. Plants occur mainly in lower montane coniferous forest, but other species in this genus can occur in bogs and fens (CNPS, 2006). The only source of information for this species is dated 1909 from Quartz Valley, northwest of Greenview (CDFG, 2008).

Oregon fireweed (*Epilobium oreganum* - CNPS List 1 B.2; State Rank S2.2)

Oregon fireweed is known from northern California, including Siskiyou County, and Oregon. This plant is a perennial herb that occurs in bogs and fens, as well as mesic areas in lower and upper montane coniferous forest at elevations of 1,640 to 7,350 feet. The period of identification for Oregon fireweed is June through September.

Pallid bird's-beak (*Cordylanthus tenuis* spp. *pallescens* - CNPS List 1B.2; State Rank S1.1)

Pallid bird's beak is an annual herb that is sometime parasitic on other plants. The species' known distribution is restricted to Shasta, Sierra, and Siskiyou Counties. Pallid bird's beak occurs on gravelly, volcanic alluvium in lower montane coniferous forest at elevations ranging from 2,200 to 5,400 feet. The species' bloom period is July through September.

Peck's Lomatium (*Lomatium peckianum* – CNPS List 2.2; State Rank 1.2)

Peck's lomatium occurs in Oregon and Siskiyou County, California. Plants occur on rocky clay or clay-loam flats and slopes in the sagebrush-juniper, foothill woodland, and yellow pine forest communities. Plants are found at elevations ranging from 2,296 to 5,904 feet. Records for the species are near Yreka (CDFG, 2008).

Pendulous Bulrush (*Scirpus pendulus* – CNPS List 2.2; State Rank 1.2)

Pendulous bulrush occurs throughout the United States, but is found only in Siskiyou County in California. Plants occur at 2,624 to 3,280 feet in marshes, swamps, moist meadows, ditches and are often associated with calcareous substrates. Under natural conditions, pendulous bulrush occurs almost always in wetlands. Plants have been recorded in Scott Valley (CNPS, 2006).

Pickering's Ivesia (*Ivesia pickeringii* – CNPS List 1B.2; State Rank 2.2)

Pickering's ivesia occurs only in two counties in California, Siskiyou and Trinity. Plants occur in ephemeral drainages and seasonally wet grassy slopes in mixed conifer and yellow pine forests on ultramafic soils. Under natural conditions, Pickering's ivesia occurs almost always in wetlands at elevations of 2,624 to 4,593 feet. Flowering occurs from June to August (CNPS, 2006).

Rattlesnake fern (*Botrychium virginianum* – CNPS List 2.2; State Rank S1.2)

Rattlesnake fern is a perennial herbaceous species known from locations throughout the western United States. However, in California it is only documented from Mendocino, Shasta, and Siskiyou Counties. This species grows in bogs and fens, meadows and seeps, riparian forest, and in mesic micro-habitats in lower montane coniferous forest. The period of identification for rattlesnake fern is June through September and the species can be found at elevations ranging from 2,400 to 4,300 feet.

Scott Mountain bedstraw (*Galium serpenticum* ssp. *Scotticum* – CNPS List 1B.2; State Rank S2.2)

Scott Mountain bedstraw occurs only in two counties in California, Siskiyou and Trinity. Lower montane coniferous forest (serpentinite). Elevation from 3,280 to 6,806 feet. The period of identification is May-August. It is recorded within the Program Area on talus slopes east of Scott Mountain Pass. (near the Trinity County line) (CDFG, 2008).

Scott Valley phacelia (*Phacelia greenei* - CNPS List 1B.2, State Rank S2.2)

Scott Valley phacelia is known only from Siskiyou and Trinity Counties in Northern California. This annual herb can be found on soils derived from serpentinite in closed-cone, lower and upper montane, and subalpine coniferous forest types. Scott Valley phacelia blooms from April to June and the elevational range for the species is 2,600 to 8,000 feet. There are multiple locations in the Program region: Moffett Creek, and Eastside Road and Quigley Ranch near Etna.

Shasta Chaenactis (*Chaenactis suffrutescens* – CNPS List 1B.3; State Rank 3.2)

Shasta chaenactis is present in Siskiyou and Trinity Counties. Plants occur on rocky open slopes, cobbled river terraces and on ultramafic soil or glacial till with ultramafics included. Plants also occur on upper montane coniferous forest habitat. Elevations range from 2,492 to 9,184 feet (CNPS, 2006). It was collected from the Scott River 10 miles downstream from Fort Jones in 1954, and in 1982 “near Fort Jones” in a dry sand wash.

Shasta Orthocarpus (*Orthocarpus pachystachyus* – CNPS List 1B.1; State Rank 1.1)

Shasta orthocarpus is endemic to California and is found only in Siskiyou County. Plants occur on ultramafic alluvium with sagebrush and native bunchgrasses, and may be found in meadows and seeps. Elevations range from 2,755 to 2,788 feet (CNPS, 2006). Records for the species are near Yreka (CDFG, 2008).

Showy raillardella (*Raillardella pringlel* - CNPS List 1B.2; State Rank S2.2)

Known locations for showy raillardella are restricted to Siskiyou and Trinity Counties. This perennial rhizomatous herb is found in bogs and fens, meadows and seeps, and on mesic, serpentine soils in upper montane coniferous forest. Showy raillardella blooms from July through September and can be found at elevations ranging from 4,000 to 7,500 feet.

Single-flowered mariposa lily (*Calochortus monanthus* – CNPS List 1A, State Rank SH)

Single-flowered mariposa lily was documented historically from Siskiyou County but is currently believed to be extinct. The species is known only from the type collection, made in 1876. This perennial bulbiferous herb was blooming when it was collected in June, and was found at an elevation of approximately 2,600 feet. The location documented for the species is… ‘meadows on Shasta River’ in the Montague USGS 7.5 minute quadrangle (CDFG, 2008).

Siskiyou mariposa lily (*Calochortus persistens* – CNPS List 1B.2, State Rank S2.2)

Siskyou mariposa lily is documented only from Siskiyou County in California but occurs in Oregon, as well. This perennial bulbiferous herb grows in rocky soils in lower montane and North Coast coniferous forest types. The period of identification for this mariposa lily is June to July and it can be found at elevations ranging from 3,280 to 6,100 feet. Known locations for Siskyou mariposa lily include "the east-west trending ridge along USFS Road 45N28, near Gunsight Peak" (CDFG, 2008).

Tufted saxifrage (*Saxifraga cespitosa* - CNPS List 2.3, State Rank S1.3)

Tufted saxifrage is known only from Siskiyou and Modoc Counties in California, although it also occurs in Oregon, Washington, Nevada, and Arizona. This is a perennial herb that grows in rocky areas in meadows and seeps. Tufted saxifrage blooms from June through September and can be found at elevations ranging from 3,000 to 6,500 feet.

Woolly Balsamroot (*Balsamorhiza hookeri* var. *lanata* – CNPS List 1B.2; State Rank 2.2)

Woolly balsamroot is endemic to California and is found in four counties: Siskiyou, Sierra, Nevada, and Alpine. Plants occur in cismontane woodlands, grassy flats, and open pine or oak woodlands on volcanic or serpentine substrates. The closest and most recent known population of woolly balsamroot (CDFG, 2008) is at Heartstrang Gulch, about five miles east of Etna.

Other Sensitive Plant Species

Other species are reported by CNPS for the Duzel Rock, Etna, Fort Jones, Gazelle Mountain, Greenview, Indian Creek, Baldy, McConaughy Gulch, Russell Peak and Yreka quadrangles, but have no habitat associations with streams, wet meadows, or riparian areas and adjacent uplands.

Reptiles and Amphibians

Scott Bar Salamander (*Plethodon asupak*)

The species was first described in 2005 as being a separate species from Siskiyou Mountains Salamander. It is found in rocky forested areas, especially thick moss-covered talus in the Siskiyou Mountains in extreme northern Siskiyou County (near the confluence of the Klamath and Scott Rivers). As recognized by the Commission, the Scott Bar salamander is currently protected under CESA as a sub-population of the listed Siskiyou Mountains salamander (*Plethodon stormi*). (See California Code of Regulations (CCR), title 14, § 670.5(b)(3)(A); California Regulatory Notice Register 2007, No. 21-Z, p. 916 (May 25,2007)).

On January 24, 2008, USFWS announced in the Federal Register a 12-month finding on a petition to list Scott Bar salamander as threatened or endangered under ESA that listing the Scott Bar salamander is not warranted. Hence, the Scott Bar salamander is not currently protected under ESA (73 Fed.Reg. 4379 (Jan. 24, 2008).)

Birds

Bank swallow (*Riparia riparia* – California State Threatened)

The bank swallow occurs as a breeding species in California in a hundred or so widely distributed nesting colonies in alluvial soils along rivers, streams, lakes, and ocean coasts. It is largely found in riparian ecosystems, particularly rivers in the larger lowland valleys of northern California, nesting colonies are located in vertical banks or bluffs in friable soils. There are a number of records for this species along the Scott River: near French Creek, approximately four miles southeast of Etna; north of Eller Lane Bridge, and several colonies between 4 and 6.5 miles south of Fort Jones.

Greater Sandhill Crane (*Grus canadensis tabida* – California State Threatened and Fully Protected)

In California, greater sandhill cranes establish territories in extensive wet meadows that are often interspersed with emergent marsh, and nest on the ground. California cranes tend to nest in rather open habitat; favorable roost sites and an abundance of small grain or forage crops characterize the cranes' wintering grounds in the Central Valley. The Siskiyou population is relatively new, since the 1980s, and was considered a westward expansion of their breeding range at that time (Smith, 1999). There is a CNDDB record from 2000 one mile south of Greenview and Kidder Creek, east of State Route 3.

Swainson's Hawk (*Buteo swainsoni* – California State Threatened*)*

Swainson's hawks often nest peripherally to riparian systems, as well as utilizing lone trees or groves of trees in agricultural fields. Suitable foraging areas include native grasslands or lightly grazed pastures, alfalfa and other hay crops, and certain grain and row croplands.

Western yellow-billed cuckoo (*Coccyzus americanus occidentalis* – California State Endangered)

A slender brown bird, ranging from 11 to 13 inches in length, the cuckoo typically nests in horizontal branches of willows in well-hidden locations two to 12 feet above ground. It requires a dense riparian forest and woodlands dominated by cottonwoods and/or willows with an associated understory composed of blackberry, nettles, or wild grape (Riparian Habitat Joint Venture, 2004). The species is probably extirpated from Scott Valley.

Willow flycatcher *(Empidonax traillii* – California State Endangered)

The willow flycatcher, a small insect-eating bird of the tyrant flycatcher family, was formerly a common summer resident throughout California. Its breeding range extended wherever extensive willow thickets occurred. The species has now been eliminated as a breeding bird from most of its former range in California. Only small, scattered populations remain in isolated meadows of the Sierra Nevada and in Southern California (Remsen, 1978). The species is probably extirpated from Scott Valley, but two nests were reported by CDFG from the Shasta Valley Wildlife Area.

Yellow warbler (*Dendroica petechia brewsteri* – California SC)

This species utilizes riparian deciduous habitats with willows or other dense foliage and a low, open canopy. Nest parasitism by brown-headed cowbirds (*Molothrus ater*) has apparently been a major cause of the drastic decline in numbers in lowland localities in recent decades (Zeiner et al., 1990). Parasitism increases when the riparian vegetation is in poor condition. This species is known to occur in the Program Area.

Species Eliminated From Further Consideration

Potential impacts to common plant and wildlife species were determined by CDFG to be less than significant based on the abundance of the species, the small area disturbed by the Covered Activities; and/or the ability of wildlife to move away from any disturbance. CDFG species of special concern which could occur in the vicinity of Covered Activity sites include northwestern pond turtle (*Actinemys marmorata marmorata*), long-eared owl (*Asio otus*), northern harrier (*Circus cyaneus*), yellow-breasted chat (*Icteria virens*), and American badger (*Taxidea taxus*). CDFG has determined the Program's impacts on these species to be less than significant because the potential for any one of them to be present at a project site is low, the Program's timing restrictions for instream work (July 1 to October 15 ~~31~~) would avoid potential impacts to nests and den sites, and their ability to move away from and avoid areas of active construction.

The California red-legged frog (*Rana aurora draytonii*) is included in the group of species listed under ESA and identified by USFWS as potentially within Siskiyou County. This is apparently an expression of a hypothetical historical range, which included the Sierra Nevada from Shasta County south, but these populations have been fragmented and nearly disappeared (USFWS, 2002). The Program Area is located outside of the current range of the species. There are no records of this species in Siskiyou County in the CNDDB database. During the preparation of this Draft EIR, USFWS added the vernal pool fairy shrimp (*Branchinecta lynchi*) to the Siskiyou County list of federally threatened or endangered species. It had been considered previously extant only from Mt. Shasta south. Vernal pools will not be impacted by the Program's Covered Activities.

Jurisdictional Wetlands in the Program Area

Wetlands are ecologically productive habitats that support a rich variety of both plant and animal life. The importance and sensitivity of wetlands has increased as a result of their value as recharge areas and filters for water supplies and widespread filling and destruction to enable urban and agricultural development.

Federal Definition of Wetland

The U.S. Fish and Wildlife Service (USFWS) and the U.S. Army Corps of Engineers (Corps) define "wetland" differently. As defined by USFWS, "[Wetlands are] lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For purposes of this classification, wetlands must have one or more of the following attributes: 1) at least periodically, the land supports predominantly hydrophytes;

2) the substrate is predominantly undrained hydric soil; and 3) the substrate is non-soil and is saturated with water of covered by shallow water at some time during the growing season each year (Cowardin, et al., 1979).[8] By contrast, the Corps defines "wetland" to include only those areas containing hydrophytic vegetation, hydric soils, *and* wetland hydrology. The Corps' definition states: "those areas that are inundated or saturated by surface water 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. Wetlands generally include swamps, marshes, bogs, and similar areas." (33 Code of Federal Regulations, § 328.3(b); 40 Code of Federal Regulations, § 320.3(t).)

State Definition of Wetland

At least for purposes of the California Wildlife Protection Act of 1990 in the Fish and Game Code, wetlands are defined as: "lands which may be covered periodically or permanently with shallow water and which include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, fens and vernal pools" (Fish and Game Code, § 2785(g)). The purpose of the act is to provide funds to acquire, enhance, or restore habitat, including wetlands.

On March 9, 1987, the Commission adopted a wetlands policy. As part of its policy, the Commission adopted USFWS' definition of "wetland," described above. However, as the Commission stated, its wetlands policy is not a regulatory program.

Wetlands as Analyzed in this Chapter

This Chapter addresses only those wetland resources in the Program Area that are subject to state and/or federal jurisdiction and have an ecological function supporting plants and terrestrial animals. Chapter 3.2 discusses hydrology and water quality. For this Draft EIR, National Wetlands Inventory (NWI) maps were used to identify wetlands (including manmade wetlands) in the Program Area. NWI maps are based on the Corps' definition of wetlands (**Figure 3.4-3**) but they have not been assessed *in situ*. As a result, they provide an overview useful in displaying the general extent of jurisdictional wetlands rather than a formal determination.

The mainstem of the Scott River and all of its named tributaries are "riverine" habitat as mapped by the NWI under the Corps jurisdiction. Naturally flooded wet meadows (*Freshwater Emergent Wetlands* in Figure 3.4-3), which occur throughout the Valley but most prominently between Kidder and Patterson Creeks on the west side. These could constitute state and federally regulated wetlands as well, since they are clearly connected with the River, but the flooding is over the most permeable alluvium in the Scott Valley, and they dry quickly. However, NWI maps do not have the accuracy of ground-based delineations. Other, more isolated ponds and forested wetlands that might be under State of California jurisdiction would need to be delineated and reviewed by the Corps before a determination can be made as to their federal status.

8 The definition is also used by the California Coastal Commission and, at the federal level outside the jurisdiction of the CWA, by USFWS and the National Park Service.

3.4.2 Regulatory Framework

Federal and State Regulation of Botany and Wildlife

In addition to ESA and CESA, described in Section 3.3.2 in Chapter 3.3, Biological Resources: Fisheries and Aquatic Habitat, the statutes identified below apply to the species evaluated in this Chapter.

The Migratory Bird Treaty Act (16 U.S.C. § 703) prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. This act applies to whole birds, parts of birds, and bird nests and eggs.

The California Native Plant Protection Act of 1977 (NPPA) (Fish and Game Code, § 1900-1913) directs CDFG to "preserve, protect and enhance endangered and rare native plants of this state." (Fish and Game Code, § 1900.) NPPA, authorizes the Commission to designate native plants as "endangered" or "rare" and to protect endangered and rare plants from take.

Fish and Game Code, § 3503 makes it "unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto."

Fish and Game Code, § 3503.5 makes it "unlawful to take, possess, or destroy any birds in the order 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." This applies to red-tailed hawks, white-tailed kites, burrowing owls, and other birds of prey.

Fish and Game Code, § 3511 prohibits the take or possession of fully protected birds, except for scientific research or to protect livestock. As mentioned above, the greater sandhill crane is a fully protected bird.

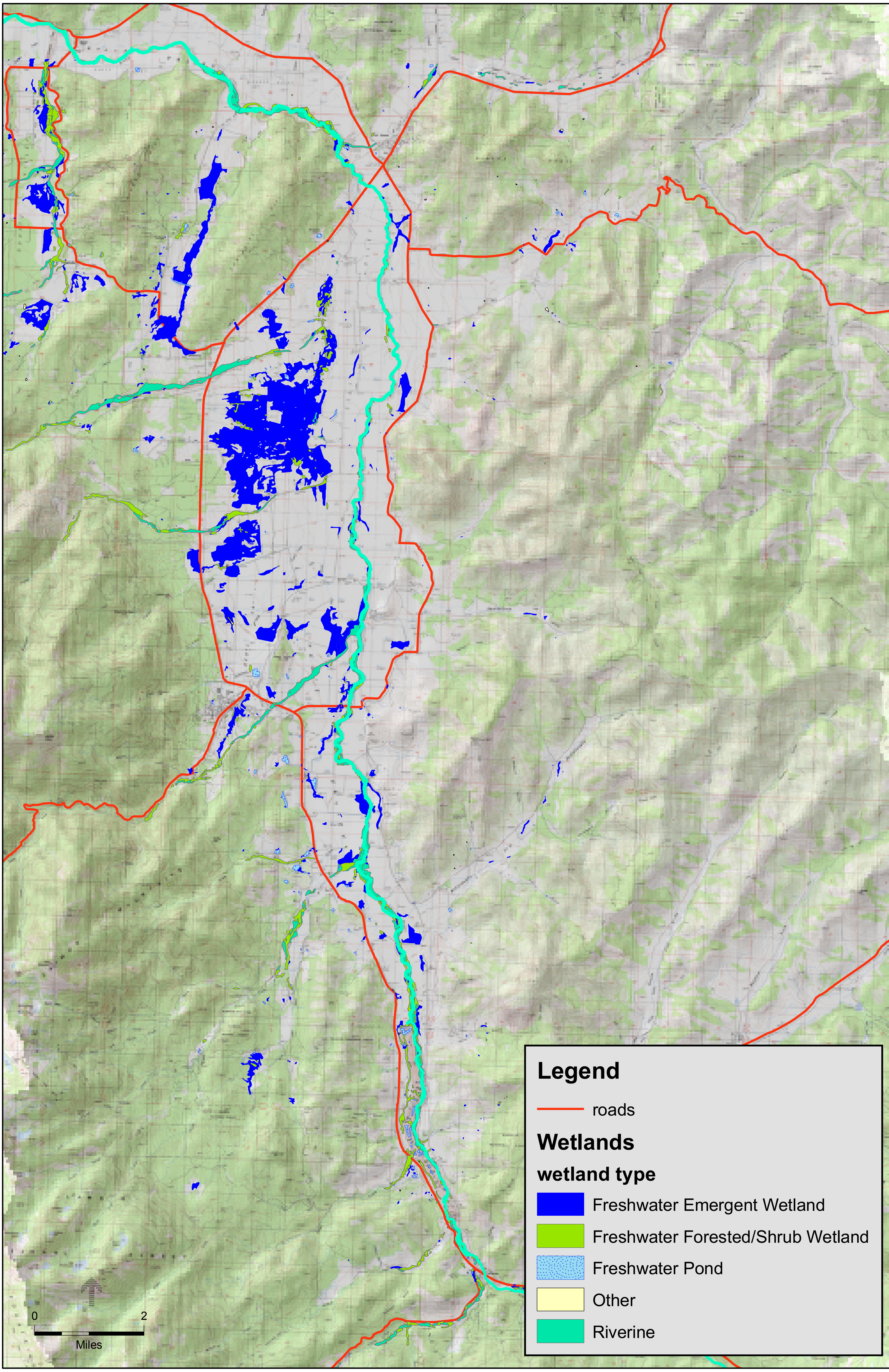
Fish and Game Code, § 3513 prohibits the take or possession of any nongame migratory bird.

Fish and Game Code, § 3800 generally prohibits the take of any nongame bird with some exceptions. Nongame birds are birds occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds.

Federal and State Regulation of Wetlands

Federal Regulation of Activities in Wetlands

The regulations and policies of various federal agencies, including the Corps, U.S. Environmental Protection Agency (USEPA), and USFWS, mandate that the filling of wetlands be avoided unless it can be demonstrated that no practicable alternatives exist. The Corps is mainly responsible for regulating activities that could affect the wetlands identified in the Program Area through the issuance of permits under Clean Water Act (CWA) section 404 (33 U.S.C. § 1251 *et seq.*),



SOURCE: USFWS National Wetlands Inventory, 2006

Figure 3.4-3
Potential jurisdictional wetlands in the Scott Valley and vicinity

USEPA, USFWS, and several other federal agencies provide comments on section 404 permit applications. USEPA provides the primary criteria for evaluating the biological impacts of Corps (section 404) permit actions in wetlands.

State Regulation of Activities in Wetlands

The state's authority in regulating activities that could affect wetlands identified in the Program Area resides primarily with the State Water Resources Control Board (SWRCB). SWRCB normally regulates impacts to wetlands through the water quality certification process under CWA section 401. Under that process, SWRCB, acting through its Regional Water Quality Control Boards (RWQCB), must certify that a federal permitting action (including the issuance of a CWA section 404 permit) meets state water quality objectives in accordance with CWA section 401. In addition, under the Porter-Cologne Water Quality Control Act (Water Code, § 13000 *et seq.*). RWQCB has the authority to regulate activities that could impact the beneficial use of surface waters including the ability of wetlands to provide wildlife habitat and support plant or animal species identified under state or federal laws as rare, threatened, or endangered. Also, in 2004, SWRCB approved Order No. 2004-0004-DWQ, Statewide General Waste Discharge Requirements for Dredged or Fill Discharges to Waters Deemed by the U.S. Army Corps of Engineers to be Outside of Federal Jurisdiction (General Dredge and Fill WDRs). The issuance of General Dredge and Fill WDRs applies to the discharge of small amounts of dredge and fill to wetlands (and other water bodies) that are not subject to CWA sections 401 and 404 (see Chapter 3.2.3 for a general discussion of CWA and the Porter-Cologne Water Quality Control Act.)

CDFG does not have direct permitting authority over activities that could impact wetlands, but CDFG would have indirect authority over such activities if they were also subject to Fish and Game Code, § 1600 *et seq.* or CESA. Also, CDFG may comment on Corps permit actions under the Fish and Wildlife Coordination Act and as a trustee agency under CEQA.

Local Regulations, Goals and Policies Relating to Botany, Wildlife, and Wetlands

Siskiyou County General Plan

The Conservation Element of the Siskiyou County General Plan includes general objectives relating to biological resources. These objectives include: 1) "to preserve, protect and manage the Forest Lands as both wild habitat and a productive economic resource"; and 2) "to preserve and maintain streams, lakes and forest open space as a means of providing natural habitat for species of wildlife." There are no Habitat Conservation Plans or other approved governmental habitat plans that involve lands in the Program Area.

3.4.3 Impacts and Mitigation Measures

Significance Criteria

To determine the level of significance of an identified impact, the criteria outlined in the CEQA *Guidelines* and Appendix G in the CEQA *Guidelines* were used. The following is a discussion of the approach used to determine whether the Program could have a significant effect on plants and wildlife and their habitats.

Under CEQA *Guidelines,* § 15065(a), if a project "has the potential to substantially degrade the quality of the environment; substantially reduce the habitat of a fish and wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; substantially reduce the number or restrict the range of an endangered, rare or threatened species"[9] the lead agency must prepare an EIR for the project (CEQA *Guidelines,* § 15065(a), (a)(1)). CEQA *Guidelines*, § 15206(b)(5) specifies that a project shall be deemed to be of statewide, regional, or area-wide significance if it "would substantially affect sensitive wildlife habitats including but not limited to riparian lands, wetlands, bays, estuaries, marshes, and habitats for rare and endangered species as defined by CEQA *Guidelines,* § 15380" (CCR, title 14, § 15065(b), (b)(5)). "Endangered, rare, or threatened species" and species that meet the definition of an endangered, rare, or threatened species under CEQA *Guidelines,* § 15380 are collectively referred to as special-status species in this Draft EIR.

In addition to the significance criteria in Appendix G for biological resources (discussed below), for the purpose of this analysis, the criteria in CEQA *Guidelines*, §§ 15065(a)(1) and 15206(b)(5) were used to determine whether any effect of the Program on terrestrial wildlife, botanical, and wetland resources could be significant. Hence, any effect of the Program that would "substantially degrade the quality of the environment," "substantially reduce the habitat of a fish or wildlife species," and/or "substantially affect sensitive wildlife habitats," constitute a significant effect for the purpose of this impact analysis. The Program would "substantially degrade the quality of the environment" if it could render currently suitable plant and/or wildlife habitat unsuitable. The Program would "substantially reduce the habitat of a fish or wildlife species" if it could cause an overall reduction in current habitat availability (e.g., through removal of riparian vegetation) or suitability. The Program would "substantially affect sensitive wildlife habitats" if it could adversely alter the current use of a habitat area (e.g., removal of a nesting trees). Also for the purpose of this impact analysis, an overall reduction of the current extent or ecological function of plant and/or wildlife habitat caused by the Program would constitute a "substantial, or potentially substantial, adverse change in . . . the physical conditions [in the Program Area]," and therefore would be considered a significant effect (CEQA *Guidelines,* § 15382).

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9 "Endangered, rare, or threatened species" is defined in the Glossary.

In accordance with Appendix G in the CEQA *Guidelines*, the Program would have a significant effect on the environment if it could:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFG or USFWS (or National Marine Fisheries Service (NMFS) in the case of marine and anadromous species). For purposes of this analysis, substantial adverse effects on species are defined as effects that result in mortality of a substantial number of individuals or habitat modifications that would reduce the overall suitability of the habitat.

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFG or USFWS. For purposes of this analysis, substantial adverse effects on sensitive natural communities are defined as effects that result in the overall reduction of the current extent or ecological function of the community.

- Have a substantial adverse effect on federally protected wetlands as defined by Clean Water Act section 404 (including, but not limited to, marshes and vernal pools) through direct removal, filling, hydrological interruption, or other means. For purposes of this analysis, substantial adverse effects on federally protected wetlands are defined as effects that result in the overall reduction of the current extent or ecological function of wetlands.

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. For purposes of this analysis, a fundamental conflict with a local plan or ordinance is defined as any action that substantially conflicts with the terms of such policies or ordinances.

- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan. For purposes of this analysis, a fundamental conflict with an adopted habitat conservation plan is defined as any action that would substantially conflict with the terms of such a plan.

Impact Analysis

Impact 3.4-1: The Program could result in impacts to special-status plant or animal species (Significant).

The Program could result in impacts to special-status plant or animal species for the following Covered Activities:

- Installation, operation, and maintenance of fish screens;
- Installation of instream and erosion control structures;
- Relocation of existing water diversion structures;

- Installation of fencing;[10]
- Riparian restoration and revegetation; and
- Maintenance of installed structures.

Direct mortality to special-status plant species can result from removal of individuals or their seed banks. Special-status animals can be killed by vehicles and equipment, their burrows or other retreats could be crushed, or they could be killed if buried by new or maintained instream structures. Flow modification can dry-out downstream seasonal ponds in which aquatic animals live, or pools in which the larval stages of amphibians are developing. Larvae and other organisms can be entrained in pumps. Noise and human activity, during installation and maintenance of structures or at equipment staging areas, also has the potential to cause breeding animals to abandon their nests or their young.

Pendulous bulrush, Shasta chaenactis, sandhill crane, Swainson's hawk, and bank swallow are the special-status species most likely to occur in the areas where the above-described Covered Activities could take place. Impacts on these species represent potentially significant impacts because they are restricted in number and/or range or are dependent on habitats which are limited in extent.

Large-scale habitat reduction could theoretically be significant for other species, especially other riparian nesting birds, but substantial effects at this scale are not likely as part of the Program.

Mitigation Measures Proposed as Part of the Program

Mitigation Measure 3.4-1a: ITP General Conditions (g) and (h) (Article XIII.E.1) stipulate that instream work on structural restoration projects and instream equipment operations shall occur from July 1 to October 15 ~~31~~. This restricts noise and other sources of disturbance during most of the nesting season for special status riparian birds.

Mitigation Measure 3.4-1b: ITP Avoidance and Minimization Obligation B.1 (Article XV) requires that water removed directly from the stream by means of a pump shall have inlets properly screened per CDFG/NMFS fish screen standards (NMFS, 1997). These standards specify a mesh size that would avoid entrainment of special-status species in pumps.

Mitigation Measure 3.4-1c: Master List of Terms and Conditions (MLTC) Condition 109 ~~100~~ stipulates that, prior to ground-disturbing activities, work sites shall be surveyed for special-status plant species by a qualified botanist. Special-status plant surveys shall be conducted following the *Guidelines for Assessing Effects of Proposed Projects on Rare, Threatened and Endangered Plants and Natural Communities* (CDFG, 2000). The survey report, including the methodology and survey findings, shall be provided to CDFG for review and approval prior to any ground-disturbing activities. MLTC ~~c~~Condition 110 ~~101~~ further states that if any special-status plant species are identified at a work site, CDFG shall identify one or more of the following protective measures, but not limited to these measures, to be implemented at the project site before work may proceed:

[10] A scoping comment requested clarification of the width of riparian buffer. As noted in the ITP, the sub-permittees must build any exclusion fencing approximately 35 feet from the edge of the streambank. This was not intended to imply that 35 feet was a sufficient width for all riparian functions.

- Fencing to prevent accidental disturbance of special-status plants during construction;
- On-site monitoring by a qualified botanist during construction to assure that special-status plants are not disturbed; and/or
- Redesign of proposed work to avoid disturbance of special-status plant species.

Mitigation Measures Identified in this Draft EIR

Mitigation Measure 3.4-1d: The permissible work window for individual work sites shall be further constrained as necessary to avoid the nesting or breeding seasons of special-status birds and terrestrial animals for which CDFG determines impacts could be significant. At most sites with potential for significant impacts to nesting special-status birds, work shall be conditioned to start after July 31 when the young have typically fledged, potential impacts will be avoided and no surveys will be required. Where work after July 31 would still have the potential to significantly impact nesting special-status birds, work shall not begin until the potential for impacts no longer exists. CDFG may advance the window at individual work sites if:

- There is no suitable habitat present. “Suitable habitat” in this sense varies between species and would be determined by CDFG, for example, for the willow flycatcher in accordance with Figura (2007); or,
- Surveys determine that nesting birds will not be affected, either because the animals are not present or the nests are safely distant or otherwise screened from the activity.

In addition, to prevent impacts to bank swallow nesting areas, no fencing or planting action will be allowed to change the cross-sectional profile of the stream (e.g., lay a cutbank back to an angle of repose for riparian planting) until after a survey is conducted that establishes that bank swallows are not using the area to be affected. No area supporting bank swallows shall be manipulated in any way.

To avoid potential impacts to sandhill crane nesting and rearing activities, surveys for active nests shall be performed by a qualified biologist prior to the start of a Covered Activity when a known sandhill crane nesting territory is located within 0.5 mile of the project site and the activity will occur during the typical nesting and rearing season (March 1 to August 15). If active nests are found, a no-disturbance buffer radius of up to 0.5 mile will be required around the nest. The actual size of the buffer may be modified based on an evaluation by a qualified biologist of the sensitivity of the birds to the level of project disturbance. The no-disturbance buffer may be lifted prior to August 15, if it is determined safe to do so by a qualified biologist and approved by CDFG. Any reduction in the 0.5 mile buffer radius will be approved in writing by CDFG.

To avoid potential impacts to Swainson’s hawk nesting and rearing activities, surveys for active nests within 0.5 miles of a project site shall be performed by a qualified biologist when a Covered Activity will occur in known Swainson’s hawk nesting territory during the typical nesting and rearing season (March 15 to August 15). If one or more active Swainson’s hawk nests are present within the 0.5 mile survey area, the active nest(s) shall be monitored by a qualified biologist prior to and during project activities. If, in the professional opinion of the qualified biologist, the nesting pair’s behavior suggests agitation or disturbance by project activities, all activities in the area shall immediately stop pending consultation with CDFG. Following a review of the breeding pair's behavior, both as reported by the biologist and independently verified by CDFG, CDFG will determine whether the Covered Activity may continue during the nesting season and, if so, the conditions under which they may continue. The no-disturbance buffer may be lifted prior to August 15, if it is determined safe to do so by a qualified biologist and approved by CDFG. Any reduction in the 0.5 mile buffer radius will be approved in writing by CDFG. If, during the non-breeding season, a Swainson's hawk nest is present in the project area and has been used within the past breeding seasons, the nest site shall not be disturbed pending consultation with CDFG.

To avoid potential impacts to willow flycatchers during the typical nesting and rearing season (May 15 to August 30), no project related activities shall occur within 300 feet of potential nesting habitat. A Covered Activity may be performed within the 300-foot buffer zone if surveys for active nests are performed prior to the start of the Covered Activity and no active nests are present.

Level of Significance after Mitigation

Seasonal restrictions on equipment operations reduce direct effects on special-status breeding birds. Pre-construction plant and nesting bird surveys, and resulting activity restrictions will avoid impacts to these species. Implementation of Mitigation Measures 3.4-1a through 3.4-1d will reduce the impact to less than significant.

Impact 3.4-2: Construction of new and maintenance and repair of existing stream access and crossings could result in impacts to special-status plant or animal species (Less than Significant).

Crossing construction and use as a Covered Activity may include the placement of a boulder weir on the downstream side of the crossing at or near grade and placement of angular quarry rock within the crossing location. Constructing and using the crossing for livestock or vehicles can adversely affect stream and riparian special-status species. Although disturbances are temporary and intermittent, movement of livestock and vehicles can mobilize sediment, decreasing habitat quality for aquatic species, destabilize streambeds and banks, and inhibit the growth or reduce the vigor of riparian or instream vegetation. ITP Additional SQRCD and Sub-Permittee Avoidance and Minimization Obligation D.1 through 5 (Article XV), however, prohibit livestock and vehicles crossing flowing streams between October 15 ~~31~~ through July 1, except in designated, CDFG-approved crossing lanes. Further, the ITP and sub-permits include the following restrictions:

- Crossing sites shall not be located in the tails of pools, known spawning habitat, or identified, suitable spawning habitat;
- Approaches must be no steeper than 3:1, and should be sloped with angular base rock;
- For intermittent streams, application of rock shall occur when the stream channel is dry; and

- Annual monitoring shall be required to detect shifting of base rock.

Implementation of these measures is sufficient to render this impact less than significant.

Mitigation Measures

This potential impact was determined to be less than significant. No mitigation measures required.

Impact 3.4-3: ITP Covered Activity 10, the grazing of livestock within the riparian exclusion zone ~~bed, bank, or channel of a stream~~ different from current operations (i.e., not part of baseline conditions), could impact sensitive habitat and special-status species (Significant).

Grazing of livestock within the riparian exclusion zone ~~adjacent to the channel or within the bed, bank, or channel,~~ of the Scott River or its tributaries in accordance with a grazing management plan approved by CDFG is a Covered Activity under the ITP. Grazing of livestock in the riparian or aquatic habitat of the Scott River or its tributaries can have deleterious effects on riparian species through habitat destruction. This would be a significant impact.

Mitigation Measures Proposed as Part of the Program

Mitigation Measure 3.4-3a: ITP Additional SQRCD and Sub-Permittee Avoidance and Minimization Obligation E.5 (Article XV) stipulates that livestock grazing be done in accordance with a grazing management plan prepared by the sub-permittee and approved by CDFG. The grazing management plan shall address the timing, duration, and intensity (the number of livestock allowable per unit area [i.e., stocking rate]) of livestock grazing within the riparian zone and shall explain how the proposed management plan will result in improved riparian function and enhanced aquatic habitat. Grazing plans completed in accordance with the ITP shall include, in addition to other specified requirements, a means to prohibit livestock in live streams.

~~*Mitigation Measures Identified in this Draft EIR*~~

~~**Mitigation Measure 3.4-3b:** The ITP stipulation noted in Mitigation Measure 3.4-3a does not constitute complete mitigation because the actual restriction is not sufficiently specific. Mitigation Measure 3.4-3b clarifies “intensity” to stipulate the number of livestock allowable per unit area (i.e., stocking rate) per unit of time. Grazing plans completed in accordance with the ITP shall include, in addition to other specified requirements, a means to prohibit livestock in live streams.~~

Level of Significance after Mitigation

Implementation of Mitigation Measures 3.4-3a and 3.4-3b will reduce the impact to less than significant.

Impact 3.4-4: ITP Covered Activities may result in incidental discharge of fill into wetlands under federal jurisdiction causing temporary, direct and indirect impacts to wetland function (Less than Significant).

Activities in streams can destabilize streambanks, mobilize silt and small gravels, and impact the root systems of wetland vegetation. This could cause a significant impact to wetlands and wetland function, and could trigger the requirement for federal permitting; however, as described below, the Program and its associated permits would constrain the impact to below the level of significance.

Restoration projects performed by the SQRCD which are funded through CDFG Fisheries Restoration Grant Program and Klamath River Restoration Grant Program would be covered under the Corps Regional General Permit 12 (RGP-12; Corps File No.: 27922N). However, RGP-12 includes only restoration actions. Other Covered Activities performed by the Agricultural Operators and SQRCD may require CWA section 404 permit and/or take authorization under ESA. However, it would be the responsibility of Agricultural Operators and SQRCD to obtain any necessary federal permits that might apply to a Covered Activity. Authorization may also be needed from the Regional Water Quality Control Board.

Because MLTC Specific Terms and Conditions 21-130 ~~20-114~~ are comprehensive and either meet or exceed the provisions which are normally included within CWA section 404 permits, this impact is considered less than significant and requires no further mitigation.

Mitigation Measures

This potential impact was determined to be less than significant. No mitigation measures required.

Impact 3.4-5: Water efficiency measures required by the Program could in some instances significantly impact nesting special-status birds (Significant).

ITP Covered Activities and associated mitigation measures involve water efficiency measures, including "improve baseline instream flows and/or water quality." Water management improvement projects may include the lining or piping of diversion ditches which will result in water savings through the elimination of ditch loss. The removal of woody vegetation which may have developed in the diversion ditch would be required prior to the piping or lining of the ditch. Since this vegetation may provide habitat for nesting special-status birds described earlier in this Chapter, nests could be destroyed as a result of such actions.

Strictly speaking, the above-described impact derives from a mitigation measure in the Program (ITP Mitigation obligations of SQRCD (a) Flow Enhancement [Article XIII.E.2]). Flow improvement translates to reduced water usage and possibly more water in the Scott River to implement the objectives of the Permit Program. However, many diversion ditches support complex and robust assemblages of riparian plant species frequently absent from the mainstem of the river.

On balance, ongoing and future riparian enhancement activities will largely offset the loss of vegetation in the ditches, and potential impacts are limited to the loss of special-status riparian bird nests such as willow-flycatcher nests. Nevertheless, this could cause a significant impact.

Mitigation Measures Proposed as Part of the Program

None specified.

Mitigation Measures Identified in this Draft EIR

Mitigation Measure 3.4-5: Where piping or lining of a diversion ditch is performed as a water efficiency measure under the Program, any required woody vegetation removal shall be considered an activity subject to the same mitigation measure as prescribed for other riparian impacts (Mitigation Measure 3.4-1d).

Level of Significance after Mitigation

Implementation of Mitigation Measure 3.4-5 will reduce the impact on birds nesting in vegetation along diversion ditches to less than significant.

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CHAPTER 3.5
Cultural Resources

This Chapter discusses the existing cultural resources in the Program Area, including historical resources, archeological resources, paleontological resources, and human remains; identifies potential impacts the Scott River Watershed-wide Permitting Program (Program) could have on those resources; and identifies mitigation measures for those impacts determined to be potentially significant.

3.5.1 Setting

Ethnography

Scott Valley and the Scott River watershed are within the ethnographic territory of the Shasta Indians, who are one of four northern California Hokan-speaking groups collectively termed Shastan peoples. Several references discuss the culture of these people (Dixon, 1907; Holt, 1946; Kroeber, 1925; Silver, 1978). The information below is derived from these sources, unless otherwise cited. Historically, the Shasta occupied territories in present-day California and Oregon including almost all of Siskiyou County in California and Jackson and Klamath counties in Oregon. The four main divisions of the Shasta peoples roughly correspond to topographic features: Shasta Valley, Scott Valley, approximately 60 miles of the Klamath River Basin, and the Rogue River Valley.

Permanent winter villages were located along the major rivers and tributaries; and during the other seasons, the Shasta lived in temporary brush huts or bark houses, as they moved to various resource locations. The fundamental social unit of the Shasta was the family. Many villages were small, composed of only one extended family, and larger villages had a headman. Some ownership of land and resource exploitation areas was practiced with regard to village territories, hunting and fishing areas, tobacco plots, and oak trees. Three ethnographic villages are reported in the Valley by Heizer and Hester (1970) and by Silver (1978:211). *Ar'ro-a-re-ho-rah* is located on Scott River west of the mouth of Indian Creek; *Wer'-re-wah-hah* is on Scott River east of the mouth of Indian Creek; and *Kwah-pa'sah-se-rah* is located on Scott River near Fort Jones.

The Shasta were hunters and gatherers who practiced an annual subsistence pattern based on a series of seasonal moves designed to ensure their arrival at specific areas during the peak period of productivity for certain resources. Their life-style centered on careful attention to the cycles of nature and the habits and needs of wildlife and plants. Strict laws, including hunting, fishing, and gathering, were observed to guard and manage the plants, wildlife, water and other natural resources.

Salmon was historically one of the most abundant natural resources in the Scott River and was central to the religion, diet, and way of life of the Shasta, who fished with hook and line, spear, and harpoon. Other foods were also plentiful, with major protein sources including deer, bear, small mammals, birds, other anadromous fish, resident fish, turtles, and invertebrates such as mussels, grasshoppers, and crickets. Men hunted by tracking, driving, and smoking out. Women gathered seeds, bulbs, roots, insects, and grubs. They also trapped fish in baskets. Both men and women collected acorns and pine nuts. In addition, the Shasta practiced limited plant husbandry by burning areas to stimulate plant growth and encourage better seed harvests.

Shasta technology used a wide variety of materials including stone, bone, wood, shell, and plants obtained both locally and in trade with other groups. The Shasta relied heavily on obsidian for tools, but a variety of cherts and basalts were also used. The Shasta traded with their southern and western neighbors, the Wintu and the Hoopa but trade with the Klamath and Modoc to the east was not common.

The Shasta had a rich culture of songs, artistic works, and ceremonies. Elaborate ceremonies were held at certain points in the natural calendars, and these ceremonies were the main social gatherings for various villages and tribes. These ceremonies are still practiced today by the Shasta.

With the influx of miners into Siskiyou County in the 1850s, the traditional Shasta way of life was completely disrupted. In 1851, a treaty made with the three California divisions of the Shasta provided for a reservation in Scott Valley, but it was never ratified (Heizer, 1972:97-99), and "most of the Indians were murdered in the fort at Fort Jones" (Scott Valley History, 2007). Survivors went to the aid of the Oregon Shasta in the Rogue River Wars of 1851-1856. Those survivors were then taken to reservations in Oregon.

Some families returned to the Scott Valley, and several were living in the Quartz Valley/Oro Fino area in the 1930s. In 1937 and 1939, the federal government bought land at the mouth of Shackleford Creek under the Reorganization Act for native peoples, and the Quartz Valley Indian Reservation was established. In 1960, however, the Reservation was terminated, and, although the property was deeded to the Indians, most of the land was sold out of Indian ownership. In 1983, the termination was declared unlawful and the Reservation was legally reinstated. Today the Reservation is home to about 150 community members, and it provides services to the Indian people of both Scott Valley and Shasta Valley. The Reservation is a member of the Inter-Tribal Council of California.

As noted above, salmon was historically one of the most abundant natural resources in the Klamath River region. As described in some detail in Chapter 3.3, Biological Resources: Fisheries and Aquatic Habitat, historic and contemporary land use practices have caused a decline in salmonid stocks in the Scott River watershed and throughout the Klamath River Basin. This has had and continues to have a profound effect on the subsistence economies of Native American people, including disruption of traditional fishing practices and related ceremonies (Harling, 2006).

As stated in his cover letter for the Quartz Valley Indian Reservation's comments on the *Draft Action Plan for the Scott River Watershed Sediment and Temperature TMDL,* Tribal Vice Chairman Harold Bennett stated, "I would like to stress the Tribe's sentiment that the state of the Scott Watershed is in peril and needs immediate attention and action. The implementation schedule is not timely enough to protect the watershed in the face of climatic changes, future development, and increased land use. My people have seen the creeks and rivers of Scott Valley dry up and become seasonal waters. We have seen populations of coho salmon (*Oncorhynchus kisutch*), Chinook salmon (*O. tschawytscha*), steelhead (*O. mykiss*), and lamprey severely decline in the Scott watershed. To us, water is life. We are concerned about the future of our lives and call upon the North Coast and State Water Boards to protect and heal this watershed."[1]

Prehistory

No major archaeological investigations have been conducted in Scott Valley, but the area is believed to have been occupied by the Shasta and their predecessors during the same period as they were in Shasta Valley to the east. Therefore, the following summary of the results of general archaeological investigations in Shasta Valley is included as background information.

The earliest distinct cultural manifestations in Shasta Valley that can be solidly documented are defined by Nilsson (1991) as the Ager Phase which dates from 500 B.C. to A.D. 500. The artifact assemblage associated with this phase is characterized by Elko Corner-Notched, medium-sized side-notched and stemmed leaf-shaped projectile points manufactured nearly exclusively of Grasshopper Flat obsidians, as well as unifacial and bifacial manos, unifacial metates, end scrapers, and side-scrapers. Lithic technology during this period of time appears to focus on the reduction of imported, pre-formed obsidian bifaces; however, core reduction of local basalt materials were also commonly encountered. Faunal remains indicate that dietary patterns focused primarily on large and small terrestrial mammal species. Settlement pattern information appears to suggest that the river banks at the transition zone between the valley bottom and the upland region were occupied. The adjacent upland areas were utilized at least on a sporadic basis.

The Meek Phase follows the Ager Phase, which Nilsson (1991) dates to the period from A.D. 500 to historic contact. Projectile point types in this phase are dominated by Gunther Barbed series specimens, as well as a limited number of Desert Side-Notched series and other small corner-notched specimens; and the groundstone assemblage is similar to that of the preceding complex, except for the appearance of flat-ended and cylindrical pestles and, more rarely, hopper mortars. Also commonly found in site assemblages from this period are various bone tools and ornaments, shell beads, twined basketry, ceramic figurines, and pottery fragments identified as Siskiyou Utility Ware.

Lithic technology patterns typical of Meek Phase assemblages include core, biface, and bipolar techniques revolving around a reduction strategy which was multi-faceted and material specific. Also of note is the apparent increase in the number of obsidian sources utilized during this phase.

[1] The Quartz Valley Indian Reservation's comments on the Notice of Preparation for this Environmental Impact Report and on the Total Maximum Daily Load Action Plan are reproduced in full in Appendix E.

Whereas assemblages associated with the Ager Phase are dominated by a near exclusive use of obsidian from Grasshopper Flat, site assemblages associated with the Meek Phase reveal the presence of four additional Medicine Lake Highland glasses, as well as material from the Cougar Butte, Callahan, Glass Mountain, and Railroad Grade sources.

Subsistence data from Meek Phase site assemblages suggest a continued focus on terrestrial mammal species, but evidence for the exploitation of riverine resources begins to appear during this time period. Based on these data, coupled with the lack of fish bone and freshwater mollusk from Ager Phase site assemblages, Nilsson (1991) hypothesizes that shifts in subsistence patterns may have occurred during the Meek Phase as riverine resources began to be exploited and the reliance on land animals was lessened in favor of a broader-based economy.

Regional History

Siskiyou County was created in 1852 from the northern part of Shasta County and a part of what was formerly Klamath County. “Siskiyou is an Indian name of undetermined origin” according to Rensch et al. (1933), but Luecke (1982) provides two derivations. The French trappers called it *Six Cailloux* for the six stones or boulders in the Klamath River over which Hudson’s Bay Company trappers crossed, and the Indian council grounds on the north side of the Siskiyou Mountains was pronounced “Seeskalyou.”

The following discussion of the earliest travel and settlement in the area is excerpted from Hamusek et al. (1997) and Silva and Arnold (1999). Richard Silva and Keith Arnold are both Yreka residents and members of the California-Oregon Trails Association. They have conducted both extensive archival research and field verification of the early trails and roads through Siskiyou County.

The first Euroamericans to enter the area that became Siskiyou County appear to have been a company of Hudson’s Bay trappers and traders led by Peter Skene Ogden during the winter of 1826-1827. Over the next 20 years, trappers associated with the Hudson’s Bay Company were active in the area.

Mountain man Stephen Meek trapped beaver in Scott Valley in 1836. He came to know the area with a party led by Thomas McKay, another mountain man, and he later described Scott Valley as, "the richest place for beaver I have seen." The original names given by Meek to Scott River and Scott Valley were Beaver River and Beaver Valley. Meek returned many times to the Valley and is buried in Etna Cemetery (Scott Valley, 2007).

Then various wagon roads developed through the area bringing miners and homesteaders. The California-Oregon Trail was first traveled by a settler headed for Oregon in 1834. This trail skirted the western base of Mt. Shasta. In 1849, a party of wagons heading south from Oregon came over the Siskiyou Mountains to Shasta Valley, but “fearing the Native Americans and being concerned about the remoteness of the area,” the party returned to Oregon (Marschner, 2001). By the 1850s, the California-Oregon Trail had become a well-established wagon road. The first wagon team to reach Siskiyou County from the Sacramento Valley came in 1854. Traveling from

Red Bluff, the route headed north to Old Shasta, up over Scott Mountain, along the east side of the Valley to Fort Jones, then north along McAdams creek to Deadwood, and on to Yreka. Miners followed this trail and went up every creek and draw searching for gold.

Gold was first discovered in what became Siskiyou County on the South Fork of the Salmon River above Cecilville in the spring of 1849 by a group from Illinois. It was then discovered on the North Fork the next spring near present-day Sawyers Bar by a group of miners who came over Etna Mountain. In this rugged, mountainous terrain, supplies for the miners and early settlers could only be brought in by pack train, and freight was very costly. Sometimes supplies were brought from Callahan or Etna, but frequently they came over the Trinity Alps or from Arcata on the coast. A road was not built over Etna Summit until the 1890s, and the road from Callahan to Cecilville was not completed until the 1950s. Early trails and roads through Scott Valley have been thoroughly researched and mapped by Richard Silva and Keith Arnold (1999), both Yreka residents and members of the California-Oregon Trails Association.

A history of Euroamerican settlement in Scott Valley is provided below in a brief history of the major towns in the area, as well as a few of the smaller towns which no longer exist. These are listed in alphabetical order. Also included is a history of the only military fort in Scott Valley, Fort Jones.

Callahan

Callahan, originally called Callahan's, was named after Mathias Bernard Callahan, a merchant who established a trading route between Trinidad on the coast and Yreka. In 1851, he was on his way to Yreka with his wife when she floated off her horse while crossing the Scott River. An Indian boy rescued her; and by the time her husband arrived at her side, she had given birth to a premature son, weighing only three pounds. Callahan built a cabin here at the junction of the East Fork and South Fork of Scott River. He served meals to the miners and travelers, and in 1852 he began building the Callahan Ranch Hotel of hand-hewn logs. From 1854 to 1887, this was a stage stop on the Oregon Trail; and meals were served here until the 1930s. In 1880, the population of Callahan was 115, and, in addition to the hotel, there were two stores, a post office, school, church, blacksmith shop, and telegraph office. The post office was established in 1858 as Callahan's Ranch (Luecke, 1982; Scott Valley, 2007).

Deadwood

At the north end of Scott Valley, approximately seven miles north of Fort Jones, was the town of Deadwood at the junction of Deadwood and Cherry Creeks. This town began in 1851, and there were enough people in 1852 to establish an election precinct. In an 1856 election to establish the county seat for Siskiyou County, Deadwood lost by "just a few votes." This busy mining town had a trading post, boarding house, bakery, dairy, two hotels, and a blacksmith shop. Many residents died during a smallpox epidemic in 1854, and most of the town was destroyed by fire in 1861 (Luecke, 1982). The town's claim to fame is that "Joaquin Miller, then a mere youth, wrote his first poem in honor of the marriage of Deadwood's cook to a woman in Yreka. Miller recited the poem at the reception given for the bride and groom on their return to Deadwood" (Rensch et al., 1933).

Etna

The site of present-day Etna was originally called Rough-and-Ready, and there was one house and one sawmill here in 1853. Aetna Mills, a larger town, was approximately one mile south with a flour mill, distillery, sawmill, machine shop, stores, hotel, and post office. Following the disastrous floods on Etna Creek (then called Whisky Creek) in 1861 and 1862, the post office was moved from Aetna Mills to Rough-and-Ready and re-named Etna Mills. The town name was changed to Etna in 1870, and it was incorporated in 1878 (Luecke, 1982).

Water was supplied to Etna by a ditch from Mill Creek about two miles above the town. This furnished power to the flour mill, sawmill, furniture factory, brewery, and marble works, besides being used for irrigation on some of the adjacent ranches (Wells, 1881). Wells also notes that goods were transported to Etna businesses by several pack mule teams. Some 200 mules reportedly packed 600,000 pounds of all classes of goods across the Salmon Mountains annually.

Fort Jones (town)

This town had its beginnings when a Mr. Brown and a Mr. Kelly built a cabin here in 1851; then the following year, O. C. Wheelock bought this cabin and established a “house of public entertainment” and a trading post and named the town Wheelocks. Until 1860, the town was also known as Scottsburg and Scottsville; and in 1854, the post office was established as Ottitiewa, which is the Indian name for the Scott Valley branch of the Shasta tribe. The name was again changed in 1860 to Fort Jones for the fort nearby to the south, although the fort had already been abandoned by this time (see below). The town of Fort Jones was an active trading center for miners and ranchers alike; and there were numerous stores, a livery stable, and a hotel. In the 1880 census, the town had a population of 400 (Luecke, 1982).

Fort Jones (military fort)

The fort was named for Colonel Roger Jones, Brevet Major General, who served as the Adjutant General of the Army from 1825 to 1852, the year he died. Companies A and B, First United States Dragoons, established this military post in October 1852 which was garrisoned by Company E 4th United States Infantry, under the command of Major Edward H. Fitzgerald. George Crook, who later became a well-known general, arrived at the fort as a second lieutenant in 1853; and, shortly thereafter, the two-company post was reduced to a single company of 30 men, under the command of Captain Henry M. Judah (Hart, 2007; Luecke, 1982).

Hart (2007) relates the following incident taken from Crook’s autobiography. When the command took to the field in January 1854, leaving a detachment at Fort Jones under the command of a noncommissioned officer, Crook led the advance guard, and Judah remained with a rear guard composed mainly of volunteers from Yreka. Crook wrote, “It seemed that the rear guard had gotten some whiskey and were all drunk and scattered for at least 10 miles back. Judah was so drunk that he had to be lifted from his horse when the rear guard straggled into camp.” Indians were found barricaded in a cave near where they had killed a party of white men. Judah proposed to charge but his plan was countermanded when a company arrived from Fort Lane, Oregon. Their superior officer parlayed with the Indians, and when he found that they had killed in self-defense, he permitted them to escape.

The fort was officially abandoned in 1857, and it was evacuated in June, 1858. In 1864, it was reoccupied for a short period by the 1st Battalion of Mountaineers, California Volunteers, who were organized from the local area “to fight hostile Indians south of Scott Valley” (Hart, 2007).

Greenview

This community was established in 1894 and was first called Hayes (also spelled Hays) Corner, because the Hayes family had built several homes on their homestead. Siskiyou County’s first creamery was established here, and the town was a crossroads between Etna, Oro Fino, and Fort Jones. The name was changed to Greenview in 1900 when the post office was established, and this name reportedly came from the view the Green family had from their home (Luecke 1982; Scott Valley, 2007).

Hardscrabble

This town established itself in 1854 near the junction of McAdam Creek and Hardscrabble Gulch between Deadwood and Fort Jones; and there was a dairy and a blacksmith and wagon shop. When the area was thought to be mined out by the Euroamericans, the Chinese moved here in 1855 and extracted more gold working as the Gee Wah Company (Luecke 1982).

Hooperville

This town was started in 1853 on Indian Creek approximately one mile west of Hardscrabble, and it was named for Frank Hooper who ran a trading post nearby. Horace Knights had a store to the north at the mouth of Hi-You Gulch, and the mining camp grew into a town with “a hundred miners in the gulches and along the creek by Christmas.” Caleb Gartrill then opened another store down the creek, and this became Hooperville, with a school, a post office, and a baseball team. As with Hardscrabble, the Euroamericans left, and most of the claims were taken over by Chinese miners (Luecke, 1982).

Mugginsville

This town is in the portion of the watershed identified as Quartz Valley, and was first settled by Euroamericans in 1851 when W. J. Evans established a ranch there. This became the center of quartz mining in the region in the 1850s and ‘60s, and current maps show numerous mines in the area. The town had a post office, eight stamp mills, a grist mill, a store, a hotel, and a blacksmith shop; and in 1860, 300 voters turned out for the election. Asa Howard was postmaster, and at his house, built in 1899, “many a fine party was held in the upstairs ballroom” (Luecke, 1982; Scott Valley, 2007).

Oro Fino

Oro Fino, which means “fine gold” in Spanish was once a prosperous mining community, being the area of one of the richest strikes in all Siskiyou County. There were two large hydraulic claims, a quartz mill, a store, a hotel and a post office that operated from 1861 to 1903. The town reportedly has the first white man's grave in Siskiyou County, for Jno. B. Smith, who died June 10, 1839. Mining dwindled in Oro Fino by the 1880s, but resumed again for a period in the 1930s and ‘40s (Luecke, 1982).

Scott Bar

As noted above, the town of Scott Bar, and the river which bears his name, were named for John W. Scott who discovered gold in the area. The original town was on the west side of the river, but it was moved across the river because the mining was better and also because the east side was a better location for a town site. In 1851, the town had 50 houses, as well as saloons, stores, and boarding houses. In 1853, a theater was built, and the post office was established as Scott River. Post office records show the date of the name change to Scott Bar as July 17, 1906 (Luecke, 1982).

During the first quarter of the twentieth century, logging grew as the economic mainstay of the county, along with ranching and agriculture. Sufficient roads and bridges into the County were vital to the growth of the local economy, yet pleas for funding were ignored by the California state government. Because of their discontent, various attempts were made beginning in 1852 by several northern California and southern Oregon counties who were trying to secede from their respective states to form a new state called Jefferson. The most recent attempt was in 1941, but the outbreak of World War II interrupted their efforts (Rock, 1985).

Since 1950, gold mining has continued as small-scale operations in the lower Scott River near Scott Bar, and sand and gravel mining has occurred along Scott River and Kidder Creek at varying intensities over the years (SWRC, 2005).

In the mid-1940s, Highway 97, better known as the Al-Can Highway, which runs from Weed, California, to Alaska, was completed. In the following decades, Siskiyou County has remained a quiet, sparsely populated area. Changing government regulations have led to the decline of logging in the area, which has been replaced in part by tourism and outdoor recreation. The alignment of Interstate-5 through Weed and Yreka was finalized in the mid-1960s by the State of California.

3.5.2 Literature and Record Search Results

A cursory review of maps and records at the Northeast Center of the California Historical Resources Information System, California State University, Chico (NE/CHRIS) was conducted by Trudy Vaughan, Principal of Coyote & Fox Enterprises,[2] in January 2007, with an update in September 2008, to provide general information on the extent of archaeological surveys within the watershed and the number and types of prehistoric and historic sites recorded.

[2] Trudy Vaughan is Principal of Coyote & Fox Enterprises (CFE), a subcontractor to Environmental Science Associates to prepare the Cultural Resources section of this document.

Cultural resources include prehistoric and historic archaeological sites, districts, and objects, standing historic structures, locations of important historic events, and sites of traditional cultural properties. Prehistoric resources include sites, features, and artifacts associated with indigenous Californians, generally prior to contact with people of European descent. Historic resources include structures, features, artifacts, and sites that date from Euroamerican settlement of the region; and to be an "historic" resource, it must be more than 50 years old.

The review of records at NE/CHRIS consisted of a review of the NE/CHRIS atlas of all 7.5' and 15' USGS topographic maps within the watershed, noting the extent of archaeological surveys and the number and types of prehistoric and historic sites recorded. Also, the following documents were reviewed: *National Register of Historic Places - Listed Properties and Determined Eligible Properties* (1990 and supplements through July 2008 by National Park Service), the *California Register of Historic Resources* (2002), *California Points of Historical Interest* (1992), *California Historical Landmarks* (1996), and the NE/CHRIS Historic Property Data File for Siskiyou County. The only site within Scott Valley which is listed on the National Register of Historic Places is the Fort Jones House, also known as the Louis Heller Studio or Herzberg Residence, on Main Street in Fort Jones.

Records indicate that archaeological surveys have been conducted over approximately 30 percent, of the watershed. Relatively little surveying has been conducted on Klamath National Forest lands, and the largest surveys have been conducted on private timber lands by Registered Professional Foresters (RPFs). Three of the largest surveys of this type are Busby and Staley (1995a, 1995b) and Tsudama (2000), each of which covered approximately 2,000 acres. RPFs have received training in the identification and recording of cultural resources through the California Department of Forestry and Fire Protection (CDF), and they are only authorized to conduct this work for CDF. These surveys, therefore, while providing some information on the cultural resources in the area, are not accepted under federal and state laws as meeting the cultural resource requirements of a professional archaeologist.

An example of a larger survey conducted by professional archaeologists is Nilsson et al. (1996), which covered numerous sections for a proposed land exchange to The Trust for Public Land. Linear surveys have been conducted along the major roads, mostly by the California Department of Transportation; and other linear surveys have been conducted for power lines and fiber optic cable routes, one of the latter being Demos (1996). There have also been approximately 80 small surveys covering from a few to 50+ acres for private parcel splits and small development projects. These are scattered throughout the watershed, but are concentrated around the various towns and small communities. Examples of these are Winthrop (1982) and Vaughan (1995, 2005a).

Specific to the Program, numerous small cultural resource surveys have been conducted for Siskiyou Resource Conservation District (SQRCD) for such undertakings as fencing projects to keep cattle from streams, fish screens, bank stabilization, instream restoration, and stock water projects. Between October 1998 and April 2006, Coyote & Fox Enterprises conducted an archaeological survey at 43 locations within Scott Valley for various projects, mostly on private land and mostly along streams. This work resulted in 11 separate reports, with from two to six projects per report, and two examples are cited (Vaughan, 2002, 2005b). Similar small surveys have also been conducted throughout the Valley for SQRCD by other cultural resource consultants.

The review of maps at NE/CHRIS showed that approximately 230 archaeological sites have been recorded to date with the Scott River watershed, approximately 25 percent of which are prehistoric and 75 percent are historic. Undoubtedly, historic mining activity and more recent development has destroyed many prehistoric sites. As noted above, time did not permit a review of all site forms. Prehistoric site forms reviewed indicate that most of prehistoric sites are lithic scatters, with a few midden sites, and one noted housepit village. Most of the historic sites are related to mining and include mines, mine complexes, tailings, water conveyance ditches, and mining camps and associated debris scatters. Several sites identified as homesteads and structure remains were also noted, and there are also recorded camps of the Civilian Conservation Corps, such as the one at Deadwood (T44N, R9W, S12). Listed below, as examples, are four sites within the watershed, three of the larger historic sites and one prehistoric village site. None of these sites has been evaluated for its eligibility to the National Register of Historic Places, and, therefore, each must be considered potentially eligible until such time as it is formally evaluated.

(1) *CA-SIS-1039H (Spring Town Mining Complex)* is the historic remains of the town of Spring Town and the surrounding mining complex located along the South Fork Scott River (T40N, R9W, Sections 26 & 35). The site encompasses approximately 100 acres and includes historic debris, rock alignments, extensive tailings, and water conveyance ditches, one of which has the remains of a wooden flume. This site dates to the 1860s/1870s.

(2) *CA-SIS-2203H (San Jose Ditch)* is a 10-14 mile ditch which runs along the Scott River in the vicinity of Scott Bar. This water conveyance ditch was first constructed in 1874, then rebuilt in 1910 and used into the 1930s. It was identified by Wells (1881) as one of the most important ditches in Siskiyou County.

(3) *CA-SIS-2850H (Scott Valley Tailings)* is an area of tailings encompassing approximately 600 acres that extends north from Callahan approximately five miles along the Scott River. The majority of the tailings are believed to be from dredger operations circa 1900-1920.

(4) *CA-SIS-3299 (Dowling Site)* is a prehistoric village site located between Fort Jones and Etna approximately one mile west of Scott River, upslope from the Valley floor. The site encompasses approximately 22,000 square meters (7 acres) and includes five housepit depressions, midden, obsidian and chert flakes and tools, some groundstone artifacts, freshwater mussel shell, and fire-cracked rock.

Although numerous archaeological sites have been recorded within the watershed, there are undoubtedly many more historic and prehistoric sites. As stated above, only approximately 30 percent of the area has had archaeological survey, and much of this survey has not been conducted by professional archaeologists. The map review conducted at NE/CHRIS also showed many place names for mines, ditches, and abandoned towns which have not been recorded, nor have the ethnographic villages noted above.

3.5.3 Regulatory Setting

Federal Regulations

If a Covered Activity performed under the Program falls under the jurisdiction of a federal agency, either through federal funding, or the requirement of a federal permit, section 106 of the National Historic Preservation Act of 1966 (Preservation Act) and its amendments; the regulations that implement section 106 (36 Code of Federal Regulations Part 800); section 101(b)(4) in the National Environmental Policy Act; and the Archaeological Resources Protection Act would apply. Under the Preservation Act, if a historic resource (a prehistoric or historic archaeological site) is recorded within the impact area of a specific project and the site cannot be avoided, it must be evaluated for its eligibility for inclusion on the National Register of Historic Places.

State Regulations

The California Environmental Quality Act (CEQA) requires that public or private projects financed or approved by public agencies must assess the effects of the project on historical resources. CEQA also applies to effects on archaeological sites, which may be included among "historical resources" as defined by the CEQA *Guidelines*, § 15064.5(a), or, in the alternative, may be subject to the provisions of Public Resources Code, § 21083.2, which governs review of "unique archaeological resources." Historical resources may generally include buildings, sites, structures, objects or districts, each of which may have historical, architectural, archaeological, cultural, or scientific significance.

Under CEQA, "historical resources" include the following:

(1) A resource listed in, or determined to be eligible by the State Historical Resources Commission for listing in, the California Register of Historical Resources (CRHR) (Public Resources Code, § 5024.1.)

(2) A resource included in a local register of historical resources, as defined in Public Resources Code, § 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of Public Resources Code, § 5024.1(g), shall be presumed to be historically or culturally significant. Public agencies must treat any such resources as significant, unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

(3) Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the CRHR (Public Resources Code, § 5024.1):

    (A) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage; or

(B) Is associated with the lives of persons important in our past; or

(C) 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

(D) Has yielded, or may be likely to yield, information important in prehistory or history.

(4) The fact that a resource is not listed in or determined to be eligible for listing in the CRHR, is not included in a local register of historical resources (pursuant to Public Resources Code, § 5020.1(k)), or is not identified in a historical resources survey (meeting the criteria in Public Resources Code, § 5024.1(g)), does not preclude a lead agency from determining that the resource may be a historical resource as defined in Public Resources Code, § 5020.1(j) or § 5024.1.

Archaeological resources that are not "historical resources" according to the above definitions may be "unique archaeological resources" as defined in Public Resources Code, § 21083.2, which also generally provides that "non-unique archaeological resources" do not receive any protection under CEQA. If an archaeological resource is neither a "unique archaeological" nor an "historical resource," the effects of the Program on those resources will not be considered a significant effect. It will be sufficient that both the resource and the impact on it are noted in the Draft Environmental Impact Report (EIR), but they need not be considered further in the CEQA process.

In summary, CEQA requires that if a project (in this case, the Program) results in an effect that may cause a substantial adverse change in the significance of a historical resource, or would cause significant effects on a unique archaeological resource, then alternatives to the Program or mitigation measures must be considered.

Local Regulations

The Scott River watershed, and all of the areas where Covered Activities would occur, falls under the land use jurisdiction of Siskiyou County. Different sections in the County's General Plan have been updated over time. The Siskiyou County General Plan Land Use and Circulation Element was last updated in 1980, while the Conservation Element was updated in 1973. The General Plan provides only broad recommendations for the protection of cultural resources. The Archaeology section in the Conservation Element of the General Plan (pp 104-108) states that Siskiyou County "has a wealth of archaeological history within its borders" and the County shall "preserve, protect, and develop the County's Archaeological, Paleontological, and Historic as well as Geologic sites." To that end, the General Plan requires the County to 1) strictly enforce state laws which prohibit unauthorized excavation on all lands under its jurisdiction; and 2) encourage scientific excavation, with all projects directed to the Siskiyou County Museum or Historical Society for guidance to assure that the proper procedures are followed which will insure the validity and authenticity of any and all finds.

In 1980, Siskiyou County also published the Scott Valley Area Plan and Environmental Impact Report (Siskiyou County Area Plan Number 1). There is no mention of cultural resources or archaeological sites in this document.

3.5.4 Impacts and Mitigation Measures

Significance Criteria

For the purposes of this Draft EIR, and based on Appendix G in the CEQA *Guidelines*, the Program would have a significant impact on cultural resources if it were to do any of the following:

a) Cause a substantial adverse change in the significance of a historical resource as defined in CEQA *Guidelines,* § 15064.5;

b) Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to CEQA *Guidelines,* § 15064.5;

c) Directly or indirectly destroy a unique paleontological resource or site; or

d) Disturb any human remains, including those interred outside of formal cemeteries.

Impact Analysis

Impact 3.5-1: Impacts to known and unknown cultural resources may result either directly or indirectly during the implementation and operational phases of a Covered Activity under the Program (Significant).

Impacts on cultural resources could result from ground-disturbing activities and/or activities that damage, destroy, or alter historic structures. Ground-disturbing activities, which include Program-related excavation, grading, trenching, or other surface and subsurface disturbance, could damage or destroy both surface and buried archaeological resources including prehistoric and historic remains, paleontological resources and human burials. Program measures to address potential impacts to paleontological resources and human remains are described in greater detail in Impacts 3.5-2 and 3.5-3.

Mitigation Measures Proposed as Part of the Program

Mitigation Measure 3.5-1a: Master List of Terms and Conditions (MLTC) Condition 111c ~~102~~ states that prior to any ground-disturbing activities, the responsible party shall contract with at least one qualified archaeologist and paleontologist ~~to~~. The archaeologist/paleontologist will complete cultural and paleontological resource surveys, to identify any previously recorded and unknown historical resources, unique archeological resources, or unique paleontological resources, using standard survey protocols. The survey report must be provided to the California Department of Fish and Game (CDFG) for review and approval prior to any ground-disturbing activities.

Mitigation Measure 3.5-1b: MLTC Condition 112 ~~103~~ notes that if any potentially significant historical resources, unique archaeological resources and/or paleontological resources are identified at the work site, CDFG shall consult with the consulting archaeologist or paleontologist to identify one or more of the following protective measures, or site specific measures, to be implemented at the project site before work may proceed:

- Redesign of proposed work to avoid disturbance of cultural or paleontological resources;
- Fencing to prevent accidental disturbance of cultural or paleontological resources during construction; and/or
- On-site monitoring by a cultural and/or paleontological resource professional during construction to assure that resources are not disturbed.

Mitigation Measure 3.5-1c: MLTC Condition 116 ~~104~~ states that the responsible party shall report any previously unknown historical resources, unique archaeological resources, and paleontological remains discovered at the site to CDFG and other appropriate agencies.

Mitigation Measure 3.5-1d: MLTC Condition 117 ~~105~~ states that if cultural resources such as lithic debitage, groundstone, historic debris, building foundations, or bone are discovered during ground-disturbing activities, work shall cease within 20 meters (66 feet) of the discovery. Furthermore, work near archaeological finds shall not resume until a professional archaeologist has evaluated the materials and offered recommendations for further action.

Mitigation Measure 3.5-1e: MLTC Condition 122 ~~108~~ states that the responsible party shall instruct all persons who will be completing any ground-disturbing activity at a worksite to comply with conditions set forth in the SAA Memorandum of Understanding (MOU) and to inspect each work site before, during and after completion of ground-disturbing activity at the work site.

Mitigation Measures Identified in this Draft EIR

Mitigation Measure 3.5-1f: Prior to carrying out MLTC Condition 111c ~~102~~, the archaeologist/paleontologist shall; a.) contact the Native American Heritage Commission for a Sacred Lands File check and a list of appropriate Native American contacts for consultation concerning the project site and, if necessary, to assist with the development of mitigation measures; and b.) make a determination ~~shall first be made~~ as to whether the area has had an adequate archaeological survey by a professional archaeologist and whether any historic or prehistoric sites have been recorded within a ¼-mile radius of the project area. This records review may be conducted at NE/CHRIS on a case-by-case basis for each project. Alternatively, a professional archaeologist will be contracted to conduct a watershed-wide records search at NE/CHRIS and prepare a map showing the previous surveys and recorded sites. An update of this information would then be prepared at least every two years. This map, which will show the locations of archaeological sites, would be considered confidential and made available only to individuals on an as-needed basis.

Mitigation Measure 3.5-1g: If none of the protective measures described in MLTC Condition 112 ~~103~~ can be implemented, then an archaeological data recovery program (ADRP) shall be implemented, unless the professional archaeologist determines that the archaeological resource is of greater interpretive use than research significance and that interpretive use of the resource is feasible. The project archaeologist and CDFG shall meet and consult to determine the scope of the ADRP, and the project archaeologist shall prepare a research design for the project which shall be submitted to CDFG for review and approval. This document shall identify how the proposed data recovery program would preserve the significant information the archaeological resource is expected to contain. The document will specifically identify the scientific/historical research questions being asked, the archaeological resources' expected data classes, and how the expected data classes would address the applicable research questions. Following approval of the plan by CDFG, the ADRP shall be implemented and a report prepared.

Data recovery, in general, should be limited to the portions of the historical property that could be adversely affected by the proposed project. Destructive data recovery methods shall not be applied to portions of the archaeological resources if nondestructive methods are practical. All significant cultural materials recovered shall be, as necessary, subject to scientific analysis, professional museum curation, and a report shall be prepared by a qualified archaeologist according to current professional standards. <u>If the recovered artifacts are from a prehistoric site, the local Native American groups will be consulted relative to the disposition of these materials.</u>

Mitigation Measure 3.5-1h: If built historical resources (e.g. structures, buildings, or similar) that qualify for listing in the California Register of Historic Resources (CEQA *Guidelines*, § 15064.5)) are identified through the implementation of measure MLTC Condition <u>111c</u> ~~102~~ and cannot be avoided through implementation of measure MLTC Condition <u>112</u> ~~103~~, SQRCD or the Agricultural Operator will comply with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (Standards) which would, in accordance with CEQA *Guidelines,* § 15064.5(b)(3), reduce potential impacts associated with the alteration or modification of a historical resource (including historic districts and individually eligible resources) to a less-than-significant level.

If both avoidance and compliance with the Standards are infeasible, the Covered Activity in question shall be changed or not pursued, such that the historical resource is not destroyed or altered. Activities that would result in such disturbance are not authorized under the Program because SQRCD or the Agricultural Operator would be unable to mitigate the impact to a point where clearly no significant effect on the environment would occur.

Level of Significance after Mitigation

Implementation of Mitigation Measures 3.5-1a through 3.5-1h would reduce the potential impacts to known and unknown cultural resources to a less-than-significant level.

Impact 3.5-2: Covered Activities could adversely affect known or unknown paleontological resources (Significant).

As described in Impact 3.5-1, impacts on paleontological resources could result from ground-disturbing activities. This would be considered a significant impact.

Mitigation Measures Proposed as Part of the Program

Mitigation Measure 3.5-2a: Implement **Mitigation Measures 3.5-1a – 3.5-1e** (MLTC Conditions <u>111, 112, 116, 117, and 122</u> ~~102, 103, 104, 105, and 108~~), as described above.

Mitigation Measures Identified in this Draft EIR

Mitigation Measure 3.5-2b: MLTC Condition <u>117</u> ~~10~~5 (see Mitigation Measure 3.5-1d) states that if cultural resources such as lithic debitage, groundstone, historic debris, building foundations, or bone are discovered during ground-disturbing activities, work shall cease within 20 meters (66 feet) of the discovery. Work near the archaeological finds shall not resume until a professional archaeologist has evaluated the materials and offered recommendations for further action. This measure does not, however, specify the criteria for protecting paleontological resources. Therefore, in the event of an unanticipated paleontological discovery during ground-disturbing activities, the following measure shall be implemented:

- Temporarily halt or divert work within 20 meters (66 feet) of the find until the discovery is examined by a qualified paleontologist (per Society of Vertebrate Paleontology standards).[3]
- Document the discovery as needed, evaluate the potential resource, and assess the significance of the find under the criteria set forth in CEQA *Guidelines*, § 15064.5.
- Notify the appropriate agencies to determine procedures that would be followed before construction is allowed to resume at the location of the find.
- If CDFG determines that avoidance is not feasible, the paleontologist shall prepare an excavation plan for mitigating the effect of the project on the qualities that make the resource important, and such plan shall be implemented. The plan shall be submitted to the CDFG for review and approval.

Level of Significance after Mitigation

Implementation of Mitigation Measures 3.5a and 3.5-2b would reduce the potential impacts to paleontological resources to a less-than-significant level.

Impact 3.5-3: Covered Activities could result in damage to previously unidentified human remains (Less than Significant).

Impacts on unidentified human remains could result from ground-disturbing activities. Ground-disturbing activities, which include project-related excavation, grading, trenching, or other surface and subsurface disturbance, could damage or destroy buried human remains. The Program includes the following measures to address this potential impact:

- MLTC Condition <u>119</u> ~~106~~, which states, "In the event of inadvertent discovery of human remains during project construction, work shall cease within 20 meters (66 feet) of the discovery location, and any nearby area reasonably suspected to overlie adjacent to human remains (see Public Resources Code, § 7050.5). The County Coroner shall be contacted to determine if the cause of death must be investigated. If the Coroner determines that the remains are of Native American origin, the responsible party shall comply with state laws relating to the disposition of Native American burials, which fall within the jurisdiction of the Native American Heritage Commission (NAHC) (Public Resources Code, § 5097)." The Coroner shall contact the NAHC, who shall contact the descendants or most likely descendants of the deceased.

[3] Society of Vertebrate Paleontology Professional standards may be found at: <u>www.vertpaleo.org/society/ethics.cfm</u>

- MLTC Condition 120 ~~107~~, which states, "The responsible party shall insure that the immediate vicinity where Native American human remains are located, according to generally accepted cultural or archeological standards or practices, is not damaged or disturbed by further ground-disturbing activity until the responsible party has discussed and conferred with the most likely descendents regarding their wishes, taking into account the possibility of multiple human remains, as provided in Public Resources Code, § 5097.98. Work may resume if NAHC is unable to identify a descendant, or the descendant fails to make a recommendation." Work may resume if NAHC is unable to identify a descendant, or the descendant fails to make a recommendation."

- MLTC Condition 122 ~~108~~, which states, "[T]he responsible party shall instruct all persons who will be completing any ground-disturbing activity at a worksite to comply with conditions set forth in this Agreement and shall inspect each work site before, during and after completion of ground-disturbing activity at the work site."

MLTC Conditions 119, 120, and 122 ~~106, 107, and 108~~ would ensure that impacts to previously undiscovered human remains are less than significant.

Mitigation Measures

This potential impact was determined to be less than significant. No mitigation measures are required.

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CHAPTER 3.6
Hazards and Hazardous Materials

This Chapter discusses the potential for the Scott River Watershed-wide Permitting Program (Program) to cause hazards or to produce, emit, or encounter hazardous materials and identifies mitigation measures for those impacts determined to be potentially significant.

3.6.1 Setting

Hazardous Materials

Materials and waste may be considered hazardous if they are poisonous (toxicity), can be ignited by open flame (ignitability), corrode other materials (corrosivity), or react violently, explode or generate vapors when mixed with water (reactivity). The term "hazardous material" is defined in law as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment.[1] In some cases, past industrial or commercial uses on a site can result in spills or leaks of hazardous materials and petroleum to the ground; thus resulting in soil and groundwater contamination. Federal and state laws require that soils having concentrations of contaminants such as lead, gasoline, or industrial solvents that are higher than certain acceptable levels must be handled and disposed as hazardous waste during excavation, transportation, and disposal. California Code of Regulations (CCR) title 22, § 66261.20-24 contains technical descriptions of characteristics that would cause a soil to be classified as a hazardous waste. The use of hazardous materials and disposal of hazardous wastes are subject to numerous laws and regulations at all levels of government.

Except in residential areas (for which hazardous materials usage is generally minimal), the types of bulk hazardous materials currently stored and/or used in the Program Area would most likely be petroleum hydrocarbons found in underground storage tanks, such as those at service stations or auto repair shops; or in aboveground storage tanks, such as those at farm or ranch operation centers. Within Siskiyou County, there are 62 known active leaking underground storage tank (LUST) sites; 32 active cease and desist order (CDO) and corrective action order (CAO) sites; and one hazardous waste and substances site. The majority of these sites are located in the cities of Weed and Yreka; however, several of the sites are within the Scott River watershed (Cal-EPA, 2006). Of relevance to the Program would be any underground storage tanks within or near riparian areas that could be affected by Covered Activities.

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1 Health and Safety Code, § 25501(o).

Wildland Fire Conditions

The combination of highly flammable vegetative fuel, long dry summers and steep slopes creates a natural hazard of wildland fires in many areas of Scott Valley. Wildland fires can result in death, injury, economic losses, and a large public investment in fire fighting efforts. Woodlands and other natural vegetation can be destroyed resulting in the loss of timber, wildlife habitat, scenic quality, and recreational opportunities. Soil erosion, sedimentation of streams and waterways, and downstream flooding can also result. The highest fire hazard in the Program Area is found in the mountainous areas west of State Route 3 and east of Callahan Road, which exhibit high volumes of fuel and moderate to steep slopes. The California Department of Forestry and Fire Protection (CDF) classify these parts of the Valley as wildland areas that may contain substantial forest fire risks and hazards (CDF, 2000).

Wildland fire protection services for unincorporated Siskiyou County are provided by CDF. CDF's Siskiyou Unit manages seven fire stations, and one conservation camp. During fire season, 13 Schedule "B" engines and two dozers are staffed. The County provides funding under the Amador Plan for three stations to remain open year-round (CDF, 2005). Siskiyou Unit Battalion 1, Scott Valley, provides wildland fire protection services within the vicinity of the Program Area (CDF, 2005).

3.6.2 Regulatory Framework

State and Federal Laws and Regulations

Table 3.6-1 provides a brief overview of federal and state hazardous materials laws and regulations followed by a more detailed discussion.

Soil Contamination

Soils having concentrations of contaminants higher than certain acceptable levels must be handled and disposed as hazardous waste when excavated. CCR, title 22, § 66261.20-24 contains technical descriptions of characteristics that would classify a soil as a hazardous waste.

Hazardous Materials Management

The California Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act) requires that businesses handling hazardous materials prepare a business plan. In January 1996, the California Environmental Protection Agency (Cal-EPA) adopted regulations implementing a Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program). The program has six elements: hazardous waste generators and hazardous waste on-site treatment; underground storage tanks (USTs); aboveground storage tanks (ASTs); hazardous materials release response plans and inventories; risk management and prevention programs; and Unified Fire Code hazardous materials management plans and inventories. The plan is implemented at the local level, and the agency responsible for the implementation of the Unified Program is called the Certified Unified Program Agency (CUPA).

TABLE 3.6-1
FEDERAL AND STATE LAWS AND REGULATIONS REGARDING HAZARDOUS MATERIALS

Hazardous Materials Management	State and federal laws require detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of, and in the event that such materials are accidentally released, to prevent or to mitigate injury to health or the environment. These laws require hazardous materials users to prepare written plans, such as Hazard Communication Plans, Hazardous Materials Business Plans, and Chemical Hygiene Plans. Laws and regulations require hazardous materials users to store these materials appropriately and to train employees to manage them safely. A number of agencies participate in enforcing hazardous materials management requirements.
Hazardous Waste Handling	The California Department of Toxic Substances Control (DTSC) regulates the generation, transportation, treatment, storage, and disposal of hazardous material waste. These laws impose “cradle-to-grave” regulatory systems that require generators of hazardous materials waste to handle it in a manner that protects human health and the environment to the extent possible. The DTSC permits and oversees hazardous materials waste treatment, long-term storage, and disposal facilities.
Hazardous Materials Transportation	The U.S. Department of Transportation (U.S. DOT) regulates the transportation of hazardous materials between states. Within California, the state agencies with primary responsibility for enforcing federal and state regulations, and for responding to transportation emergencies, are the California Highway Patrol (CHP) and the California Department of Transportation (Caltrans). Together, federal and state agencies determine driver-training requirements, load labeling procedures, and container specifications. Although special requirements apply to transporting hazardous materials, requirements for transporting hazardous waste are more stringent, and hazardous waste haulers must be licensed to transport hazardous waste on public roads.
Soil and Groundwater Contamination	The Comprehensive Environmental Response, Compensation, and Liability Act and associated Superfund Amendments provide the U.S. Environmental Protection Agency (USEPA) with the authority to identify hazardous sites, to require site remediation, and to recover the costs of site remediation from polluters. California has enacted similar laws intended to supplement the federal program. DTSC is primarily responsible for implementing California’s Superfund Law.

Hazardous Waste Management and Handling

Under the Resource Conservation and Recovery Act (RCRA), individual states may implement their own hazardous waste programs in lieu of RCRA as long as the state program is at least as stringent as federal RCRA requirements. USEPA must approve state programs intended to implement federal regulations. In California, Cal-EPA and California Department of Toxic Substances Control (DTSC), a department within Cal-EPA, regulate the generation, transportation, treatment, storage, and disposal of hazardous wastes. The USEPA approved California’s RCRA program, called the Hazardous Waste Control Law (HWCL), in 1992. DTSC has primary hazardous material regulatory responsibility, but can delegate enforcement responsibilities to local jurisdictions that enter into agreements with DTSC for the generation, transport, and disposal of hazardous materials under the authority of the HWCL.

The hazardous waste regulations establish criteria for identifying, packaging, and labeling hazardous wastes; prescribe the management of hazardous wastes; establish permit requirements for hazardous waste treatment, storage, disposal, and transportation; and identify hazardous wastes that cannot be disposed of in ordinary landfills. Hazardous waste manifests must be retained by the generator for a minimum of three years. Hazardous waste manifests provide a description of the waste, its intended destination, and regulatory information about the waste. A copy of each manifest must be filed with the state. The generator must match copies of hazardous waste manifests with receipts from treatment, storage, and disposal facilities.

Contaminated soils and other hazardous materials removed from a site during construction or remediation may need to be handled as hazardous waste.

Hazardous Materials Transportation

The State of California has adopted U.S. Department of Transportation (DOT) regulations for the intrastate movement of hazardous materials. In addition, the State of California regulates the transportation of hazardous waste originating in the state and passing through the state. The regulations that govern these activities are in CCR title 26. Both regulatory programs apply in California.

The two state agencies with primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol (CHP) and Caltrans. CHP enforces hazardous material and hazardous waste labeling and packing regulations to prevent leakage and spills of material in transit and to provide detailed information to cleanup crews in the event of an accident. Vehicle and equipment inspection, shipment preparation, container identification, and shipping documentation are the responsibility of CHP, which conducts regular inspections of licensed transporters to assure regulatory compliance. Caltrans has emergency chemical spill identification teams at as many as 72 locations throughout the state that can respond quickly in the event of a spill.

Common carriers are licensed by CHP, pursuant to California Vehicle Code, § 32000. This section requires the licensing of every motor (common) carrier who transports, for a fee, in excess of 500 pounds of hazardous materials at one time, and every carrier, if not for hire, who carries more than 1,000 pounds of hazardous material of the type requiring placards.

Every hazardous waste package type used by a hazardous materials shipper must undergo tests that imitate some of the possible rigors of travel. Every package is not put through every test. However, most packages must be able to be kept under running water for a time without leaking; dropped, fully loaded, onto a concrete floor; compressed from both sides for a period of time; subjected to low and high pressure; and frozen and heated alternately.

Fire Management

The CDF *Siskiyou Unit Fire Management Plan* addresses wildfire hazards in Siskiyou County. In line with the stated goals of the California Fire Plan and the mission of CDF, maintaining life and property are the highest priorities of the Plan. The Plan is a dynamic, working plan that provides for an ongoing assessment of the fire situation in the Siskiyou Unit. The document includes stakeholder contributions and priorities and identifies targets for pre-fire management as defined by those who live and work with the local fire problem (CDF, 2005).

Local

Siskiyou County Environmental Health Services Division

The Siskiyou County Public Health Department, Environmental Health Services Division's role is to protect the health and welfare of the general public and environment through prevention and control of disease and pollutants. The Environmental Health Services Division is divided into three programs: Consumer Protection, Hazardous Materials Management/Certified Unified Program Agency (CUPA), and Land Use.

The Hazardous Materials Management Group implements the Unified Program (UP) at the local government level pursuant to CCR title 27, § 15110(a)(2). The Environmental Health Services became the CUPA on January 1, 1997. The Environmental Health Services Division is certified by the Cal-EPA Secretary to implement the Unified Program specified by Health and Safety Code (Health & Safety Code, § 25404(a)(1)(A)) within Siskiyou County. The CUPA program regulates underground tanks, hazardous materials (including but not limited to: hazardous substances, hazardous waste, and any material which a handler or the CUPA has reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment (Health & Safety Code, § 25501) and any unauthorized release of hazardous material. In addition, the Hazardous Material Management Group regulates final disposal/transfer activities of solid waste (Siskiyou County, 2006). A county-wide 911 system is in place, which is serviced in unincorporated areas of by the Siskiyou County Sheriff's Department.

3.6.3 Impacts and Mitigation Measures

Significance Criteria

This section addresses potential Program hazards and hazardous materials impacts. The impact significance criteria are based on guidance regarding significant environmental effects in CEQA *Guidelines* §§ 15065 and 15126, and Appendix G. Specifically, an impact related to hazards and hazardous materials a project or program could cause would be significant if it would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- For a program located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, the program would result in a safety hazard for people residing or working in the Program Area;
- For a project within the vicinity of a private airstrip, the program would result in a safety hazard for people residing or working in the Program Area;

- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan;
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code, § 65962.5 and, as a result, would create a significant hazard to the public or the environment; or
- Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

Impact Analysis

In regard to the first six significance criteria listed above, the Initial Study for the Program (Appendix D) found either no impact or a less-than-significant impact, and therefore they are not further analyzed in this Draft Environmental Impact Report (EIR). The impacts associated with the remaining two criteria (i.e., Program sites located on hazardous materials sites and exposure of people or structures to wildland fires) that the Initial Study found to be potentially significant are discussed below.

Impact 3.6-1: Construction activities could result in discovery and release of previously unidentified hazardous materials into the environment (Significant).

Covered Activities would primarily occur in agricultural areas within Scott Valley and would not likely be located on known hazardous materials contamination sites. However, construction associated with some of the Covered Activities (e.g., installation of fish screens and the removal of stream barriers) may require some limited ground disturbance that could disturb previously unidentified subsurface contamination.

While the potential to encounter, release, and mobilize previously identified and unidentified hazardous materials would be relatively low, the mere potential to do so renders this impact significant.

Mitigation Measures Proposed as Part of the Program

Mitigation Measure 3.6-1a: The Program's incidental take permit (ITP) General condition (b) (Article XIII.E.1) states the Siskiyou Resource Conservation District (SQRCD) "and any sub-permittee shall immediately stop, contain, and clean-up any fuel, lubricants, or other hazardous materials that leak or spill while engaged in a Covered Activity. SQRCD or the sub-permittee shall notify the Department immediately of any leak or spill of hazardous materials into a stream or in a place where it can pass into a stream. While engaged in a covered activity, SQRCD and all sub-permittees shall store and handle hazardous materials at least 150 feet away from the edge of mean high water elevation of any stream and properly dispose any unused or leftover hazardous materials offsite. Exceptions to this provision may be provided in individual sub-permits for pre-existing structures with adequate containment facilities." Conditions 76 through 84 ~~68 through 75~~ of the Program's streambed alteration agreement Memorandum of Understanding Attachment 1 Master List of Terms and Conditions (MLTC), contain similar provisions.

Mitigation Measures Identified in this Draft EIR

Mitigation Measure 3.6-1b: SQRCD shall prepare a standard Hazardous Substance Discovery Plan that shall include provisions that would be implemented if any subsurface hazardous materials are encountered during construction. Provisions outlined in the Plan shall be followed by SQRCD and/or any sub-permitee and shall include immediately stopping work in a contaminated area and contacting appropriate resource agencies, including the California Department of Fish and Game (CDFG) designated monitor, upon discovery of subsurface hazardous materials. The Plan shall include the phone numbers of the county and state agencies and primary, secondary, and final cleanup procedures. The Hazardous Substance Discovery Plan shall be submitted to CDFG for review and approval prior to the commencement of Program construction activities.

Level of Significance after Mitigation

Mitigation Measures 3.6-1a and 3.6-1b would reduce this impact to a less than significant level.

Impact 3.6-2: Program construction activities could ignite dry vegetation and start a wildland fire (Significant).

Some Covered Activities would occur in areas of land use, including agriculture, residences, and forest land. These areas are subject to wildfire. Heat or sparks from construction vehicles or equipment have the potential to ignite dry vegetation and cause a fire. Therefore, a high to moderate fire hazard would likely exist during construction of Program activities between late spring and early fall. This would be a significant impact.

Mitigation Measures Proposed as Part of the Program

No mitigation measures are included in the proposed MLTC or ITP.

Mitigation Measures Identified in this Draft EIR

Mitigation Measure 3.6-2: Water tanks and/or fire extinguishers shall be present at Covered Activity construction sites and will be available for fire protection during the fire season (approximately late spring to early fall). All construction vehicles will have fire suppression equipment and construction personnel shall be required to park vehicles away from dry vegetation. SQRCD and/or sub-permittees shall contact and coordinate with CDF to determine the minimum amounts of fire equipment to be carried on the vehicles and appropriate locations for the water tanks/fire extinguishers. SQRCD and/or sub-permittees shall submit verification of its consultation with CDF to CDFG.

Level of Significance after Mitigation

Mitigation Measure 3.6.2 would reduce this impact to a less-than-significant level.

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CHAPTER 3.7
Public Utilities, Service Systems, and Energy

This Chapter examines the potential for the Scott River Watershed-wide Permitting Program (Program) to adversely affect public utilities, service systems, and energy generation and consumption, and identifies mitigation measures for those impacts determined to be potentially significant.

3.7.1 Setting

The Program is located entirely within the Scott River watershed (Program Area) within Siskiyou County, California. As mentioned earlier in Chapter 3.1, the incorporated cities of Etna and Fort Jones, as well as the unincorporated towns of Callahan and Greenview are not participating in the Program. The Scott River Valley is served by several public utilities and service systems, described below.

Water

The Program Area consists of rural agricultural landscapes and forested uplands. Residential and commercial developments are scattered and of low density throughout the agricultural areas, and even more sparse in the forested areas. Much of the high country in the mountains to the west and south of the Scott Valley are federally-designated wilderness areas. There is no water district or other public entity that supplies domestic water to residences and businesses in the Program Area (though the Callahan Water District provides domestic water to the town of Callahan and adjacent areas); rather, these are served by private wells and other water systems. Water wells are permitted by the Siskiyou County Public Health Department.

Water for irrigation is from two primary sources: surface water diversions and groundwater (see Chapter 3.1). Most surface water diversions use a system of seasonal checkdams, headgates, and ditches to convey water by gravity from the stream of origin to the point of use. **Figure 3.7-1** shows the mapped ditch network in the Program Area. Most of these systems are owned and operated by a single landowner or a small group of landowners who manage the system on an informal, cooperative basis. The largest of these informally organized systems is the Farmers Ditch Company.

The Farmers Ditch Company is formed by an unincorporated group of 11 ranchers.[1] Each is signatory to a ditch agreement that establishes the Ditch Company and spells out rights and responsibilities of the members. Under the Scott River Decree (1980), the Farmers Ditch can

1 This description of the Farmers Ditch is based on Spencer, 2007.

divert up to 30 cubic feet per second (cfs) of water from the Scott River from April 15 until about October 15; during the remainder of the year diversion is allowed for stock-watering only. The point of diversion is on the upper reach of the Scott River, just below Callahan, within the tailings (Figure 3.7-1). The headworks consist of a seasonally-constructed gravel push-up dam that spans the Scott River. The California Department of Fish and Game (CDFG) and Siskiyou Resource Conservation District (SQRCD) are currently working with the Farmers Ditch Company to replace the gravel push-up dam with a series of boulder ~~vortex~~ weirs to enable fish passage.

The ditch itself is about 11 miles long, running along the foot of the hills on the east side of the Scott Valley to maintain sufficient gradient for gravity flow. The Ditch Company has easements for the length of the ditch alignment. Water from the ditch is used to irrigate 1,283 acres, about half of which is irrigated pasture and the other half alfalfa and other hay crops. All of the fields irrigated from the Farmers Ditch are flood irrigated, with the exception of one ranch that stores water from the ditch in a reservoir and uses sprinklers to irrigate 160 acres. The ditch ends near the Scott Valley Irrigation District (SVID) dam (Young's Dam); any water remaining in the ditch at its terminus flows into the SVID ditch.

Based on a 183-day diversion season for irrigation, a constant flow rate of 30 cfs would convey approximately 11,000 acre feet of water in one year. Typically, however, summer reduction in base river flow limits diversion volume to 20 to 25 cfs in August and September, so the actual volume diverted would be somewhat less than this. Loss from seepage and evaporation is thought to be minor, and is estimated at five to seven percent (Spencer, 2007).

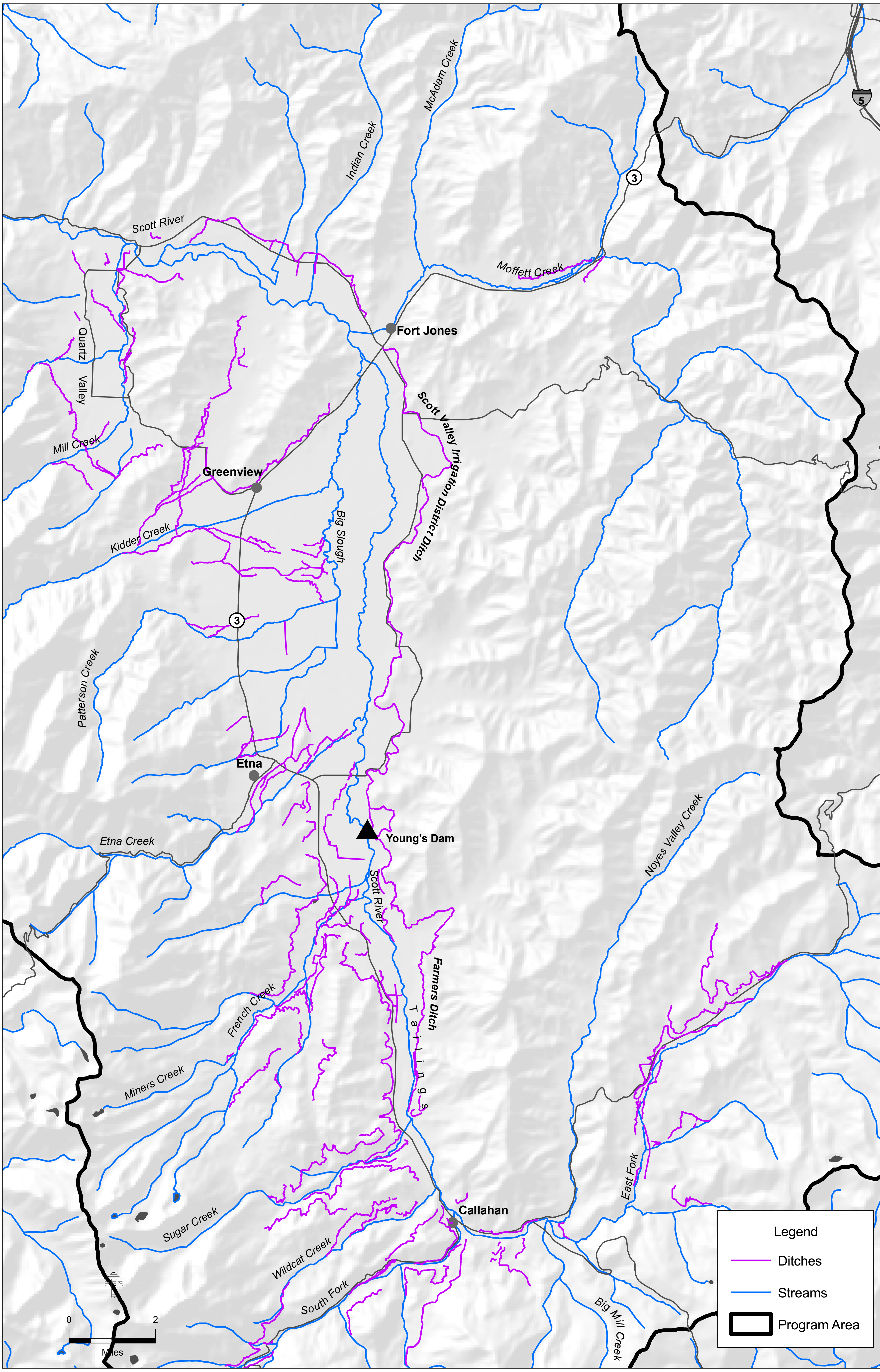
Members of the Farmers Ditch Company pay a share of the costs of maintaining the system, based on the volume of water they are entitled to under the Scott River Decree and the distance from the point of diversion down the ditch to their turnout. Annual expenses for the Ditch Company are typically $10,000–$12,500, and include construction and maintenance of the headworks and cleaning the ditch. The ditch is cleaned annually to remove vegetation and accumulated sediment. This is accomplished by running a backhoe or excavator along its length.

Scott Valley Irrigation District

The SVID is the only formal Special District[2] providing irrigation water in the Program Area.[3] SVID was organized in 1921, and has operated continuously since then. The District has an elected Board of Directors. Revenues are from fees paid by members of the District; Siskiyou County also provides some funds and the District is eligible for some state grant funding. The Board of Directors adopts a budget annually; typically annual budgets are in the range of $40,000 – $50,000 in revenue and expenses.

2 State law defines a special district as "any agency of the state for the local performance of governmental or proprietary functions within limited boundaries" (Gov. Code, § 16271(d)). A special district is a separate local government, formed by residents or landowners, which delivers specified public services to a particular area.

3 This description of the SVID is based on Loudon, 2007.



SOURCE: California Department of Fish and Game, 2007; ESA, 2007

Figure 3.7-1
Scott Valley Irrigation Ditches

The SVID delivers water to properties totaling about 3,300 acres, representing about 28 land owners. Some landowners use the water themselves, while some sell to others. Most of the members irrigate from a combination of water delivered by the District and groundwater. One member has a reservoir that is fed by the ditch. The District owns and maintains a 15-mile long ditch that begins at Young's Dam on the Scott River, and ends near the cemetery at Fort Jones.

Like the Farmers Irrigation Ditch, the SVID ditch runs along the base of the eastside hills at a gentle, constant gradient to maintain flow. In addition to water from the Scott River, the ditch picks up flows from tributary streams that drain into it. The ditch therefore also acts as a flood control channel, conveying tributary high flows down the Valley to Fort Jones. At the end of the ditch the water flows across fields and back into the Scott River. In 2006, high flows caused damage to the ditch in several places, necessitating costly repairs.

The SVID ditch diverts flows from the river at Young's Point. The Scott River Decree allotted SVID 62.5 cfs however, this was later reduced by the State Water Resources Control Board to 43 cfs. The rate of diversion is highest at the beginning of the season, and at the beginning of an allocation cycle to compensate for ditch loss. Each allocation cycle is about 14 days, and starts with delivery to the farthest downstream user on the ditch, then works upstream in sequence. Each user takes the full flow of the ditch for an allotted number of hours when it is their turn. It takes more water, and approximately 24-36 hours, for the water to reach the last user at the beginning of a cycle. After that there is not much loss from seepage.

Under the Scott River Decree the diversion season is April 15 to around October 15, but in some years there is not enough water in the Scott River to maintain flow into the ditch for the entire season. Over the past 10 years, the District's Operating Manager estimates that in only four years has the ditch run all season. In some years there is insufficient flow in the Scott River to maintain the diversion past June or July. When the ditch runs dry, most members switch to groundwater for irrigation. Were the ditch to run at the full allotment of 43 cfs continuously for the approximately 183 days of the diversion season, the total volume of water delivered would be about 15,400 acre feet.

Maintenance of the system consists chiefly of weed control within the ditch and on its banks. This is done through a combination of chemical weed suppression and mechanical removal using a backhoe on the bank. Aquatic vegetation tends to grow in the ditch over the course of the summer, reducing flow velocity and increasing seepage; chemical or other means are used to suppress vegetation growth. The ditch is cleaned on about a three-year cycle.

Sanitary Sewer

Within the unincorporated area of Siskiyou County, individual properties are serviced by on-site sewage disposal systems under permits issued by the Siskiyou County Public Health Department (Navarre, 2006). The Public Health Department follows a set of Sewage Disposal Codes that apply to all new construction, relocated buildings, and trailers and to all alterations, repairs, or reconstruction within the unincorporated area of the County (Siskiyou County, 2006).

Electricity and Natural Gas

Electrical service in the Program Area is provided by Pacific Power, a division of PacifiCorp. Siskiyou County does not have access to natural gas; however, several local companies provide propane to individual residences and businesses (Siskiyou County Economic Development Council, 2006).

Telephone and Communications

Telephone, cable, and high-speed internet services are provided in the Program Area by Siskiyou Communications, Inc., a locally-owned and operated company that was founded in 1896 (Siskiyou Communications, Inc., 2007). There are several long distance and wireless providers that service the area.

Solid Waste and Recycling Service

The Yreka Solid Waste Landfill in Yreka provides refuse disposal and recycling services to residents and businesses in the Program Area. This landfill currently has a remaining permitted capacity of approximately 4.7 million cubic yards and is not projected to reach capacity until 2065 (CIWMB, 2006a). Scott Valley Disposal provides refuse collection services in the Program Area.

3.7.2 Global Climate Change

The International Panel on Climate Change (IPCC) states that human activities contribute to climate change by causing changes in Earth's atmosphere in the amounts of greenhouse gases (GHGs), aerosols (small particles), and cloudiness (IPCC, 2007a). The largest known contribution comes from the burning of fossil fuels, which releases carbon dioxide gas to the atmosphere. GHGs and aerosols affect climate by altering incoming solar radiation and outgoing infrared (thermal) radiation that are part of Earth's energy balance. Changing the atmospheric abundance or properties of these gases and particles can lead to a warming or cooling of the climate system. Since the start of the industrial era (about 1750), the overall effect of human activities on climate has been a warming influence. The human impact on climate during this era greatly exceeds that due to known changes in natural processes, such as solar changes and volcanic eruptions (IPCC, 2007a).

Human activities result in emissions of four principal GHGs: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O) and the halocarbons (a group of gases containing fluorine, chlorine, and bromine). These gases are long-lived and accumulate in the atmosphere, causing concentrations to increase with time. Significant increases in all of these gases have occurred in the industrial era. All of these increases are attributable to human activities.

- Carbon dioxide has increased from fossil fuel use in transportation, building heating and cooling, and manufacturing. Deforestation releases CO_2 and reduces its uptake by plants. Carbon dioxide is also released in natural processes such as the decay of plant matter.

- Methane has increased as a result of human activities related to agriculture, natural gas distribution, and landfills. Methane is also released from natural processes that occur, for example, in wetlands. Methane concentrations are not currently increasing in the atmosphere because growth rates decreased over the last two decades, but current atmospheric levels are approximately three times higher than the pre-industrial period. Methane has an influence on climate ("global warming potential" or GWP) estimated to be 25 times that of CO_2 (IPCC, 2007a).

- Nitrous oxide is also emitted by human activities such as fertilizer use and fossil fuel burning. Natural processes in soils and the oceans also release N_2O. N_2O has a GWP 298 times that of CO_2 (IPCC, 2007a).

- Increases in halocarbon gas concentrations are primarily due to human activities, though natural processes are also a small source. Principal halocarbons include the chlorofluorocarbons (e.g., CFC-11 and CFC-12), which were used extensively as refrigeration agents and in other industrial processes before their presence in the atmosphere was found to cause stratospheric ozone depletion. The abundance of chlorofluorocarbon gases is decreasing as a result of international regulations designed to protect the ozone layer. These gases, however, have GWPs many hundreds or thousands of times that of CO_2. (IPCC, 2007a)

Some of the potential resulting effects in California of global warming may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years (CARB, 2006). Globally, climate change has the potential to impact numerous environmental resources through potential, though uncertain, impacts related to future air temperatures and precipitation patterns. The projected effects of global warming on weather and climate are likely to vary regionally, but are expected to include the following direct effects (IPCC, 2007b):

- Higher maximum temperatures and more hot days over nearly all land areas;
- Higher minimum temperatures, fewer cold days and frost days over nearly all land areas;
- Reduced diurnal temperature range over most land areas;
- Increase of heat index over land areas; and
- More intense precipitation events.

There are many secondary effects that are projected to result from global warming, including global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity. While the outcomes and the feedback mechanisms involved are not fully understood, and much research remains to be done, Global Climate Change has the potential to cause catastrophic environmental, social, and economic consequences.

The California Energy Commission (CEC) estimated that in 2004, California produced 492 million metric tons of CO_2-equivalent (mmt-eCO_2) GHG emissions (CEC, 2006). The CEC found that transportation is the source of 41 percent of the state's GHG emissions; followed by electricity generation at 22 percent; and industrial sources at 21 percent.

3.7.3 Regulatory Framework

State

Waste Management

Assembly Bill 939 (AB 939), enacted in 1989 and known as the Integrated Waste Management Act, required each city and/or county's Source Reduction and Recycling Element to reduce the amount of waste being disposed to landfills, with diversion goals of 50 percent by the year 2000. Siskiyou County has an adopted Countywide Source Reduction and Recycling Element that establishes goals and methods for compliance with the AB 939, which establishes 50 percent diversion of solid waste from landfills. Siskiyou County's diversion rate in 2002 was 53 percent, which met the requirement of AB 939 (CIWMB, 2006b). The California Integrated Waste Management Board's Recycling Market Development Zone program helps the County meet this goal. This program includes the entire County and offers low-interest loans up to $1 million, technical assistance on financing strategies, and assistance on financing strategies, and assistance with marketing nationally and internationally.

Global Climate Change

Concern about the disproportionately negative impacts global climate change is expected to have on the California environment and economy has led the state legislature to pass several climate change-related bills in the past five years. These bills aim to control and reduce the emission of GHGs in order to slow the effects of global climate change, and provide guidance as to determining the impact of individual projects on global climate change.

Assembly Bill 1493

Assembly Bill 1493 (AB 1493) was signed into law by the California Governor on July 22, 2002. This legislation required the California Air Resources Board (CARB) to adopt regulations, by January 1, 2005, that would result in the achievement of the "maximum feasible" reduction in GHG emissions from vehicles used in the state primarily for noncommercial personal transportation. As enacted, the AB 1493 regulations were to become effective January 1, 2006, and apply to passenger vehicles and light-duty trucks manufactured for the 2009 model year or later. AB 1493 prohibited CARB from requiring: (1) any additional tax on vehicles, fuel, or driving distance; (2) a ban on the sale of certain vehicle categories; (3) a reduction in vehicle weight; or (4) a limitation on or reduction of speed limits and vehicle miles traveled.

Although the regulation of tailpipe emissions traditionally is subject to the jurisdiction of the U.S. Environmental Protection Agency (USEPA), CARB has some regulatory authority due to the severe air quality issues in California. In fact, pursuant to the federal Clean Air Act, CARB may implement stricter regulations on automobile tailpipe emissions than the USEPA, provided a waiver from the USEPA is obtained.

In September 2004, CARB adopted AB 1493-mandated regulations and incorporated those standards into the Low-Emission Vehicle (LEV) program. The regulations set fleet-wide average GHG emission requirements for two vehicle categories: passenger car/light duty truck (type 1) and light-duty truck (type 2). The standards take into account the different GWPs of the several GHGs emitted by motor vehicles, and would phase in during the 2009 through 2016 model years. If implemented, these regulations would produce a nearly 30 percent decrease in GHG emissions from light-duty vehicles by 2030.

In December 2004, these regulations were challenged in federal court by the Alliance of Automobile Manufacturers, who claimed that the regulations attempted to regulate vehicle fuel economy, a matter that lies within the exclusive jurisdiction of the federal government. In a decision rendered in December 2007, the U.S. District Court for the Eastern District of California rejected key elements of the automakers' challenge and concluded that CARB's regulations are neither precluded nor preempted by federal statutes and policy.

While the litigation described above was pending, in December 2005, CARB submitted a waiver application to the USEPA. After waiting nearly two years for a decision from the USEPA, in November 2007, California filed a lawsuit alleging that the USEPA failed to consider the waiver application in a timely fashion. The USEPA's chief promised to issue a decision on the application by December 31, 2007, and, in mid-December 2007, the USEPA's chief fulfilled his promise by issuing a decision denying California's waiver application. The denial was based on the assertion that new federal automobile fuel economy requirements achieve what California sought to accomplish *via* the AB 1493 regulations. The denial of California's waiver application has precluded as many as 16 other states from implementing tailpipe emission regulations similar to those adopted by California under AB 1493. In response to this denial, California filed a lawsuit, with the support of 15 other states, challenging the USEPA's decision.

Shortly after the USEPA issued its denial of California's waiver application, the Senate Environment and Public Works Committee and the House Oversight and Government Reform Committee (both led by Californians) made an official demand for all documents concerning the USEPA's decision to deny California's waiver application. (This request includes communications with the White House.) The USEPA has signaled that it would comply with this request for documents and any further Congressional investigation that follows.

Assembly Bill 32

Citing concerns similar to those enumerated in AB 1493, the California State Assembly also passed the California Global Warming Solutions Act of 2006 in August 2006. Also known as Assembly Bill 32 (AB 32), the law instructs CARB to set reporting requirements for GHG emissions and to devise rules and regulations that will achieve the maximum technologically feasible and cost-effective GHG emissions reduction, achieving a reduction in statewide GHG emissions to 1990 levels by 2020, and further reductions in future years.[4] While AB 32 sets out a timeline for the adoption of measures to evaluate and reduce GHG emissions across all source categories, it does not articulate these measures itself; instead, these measures will be determined

[4] Prior to the enactment of AB 32, Governor Schwarzenegger signed Executive Order No. S-3-05 on June 1, 2005, mandating a reduction to 2000 levels by 2010, to 1990 levels by 2020, and to 80 percent below 1990 levels by 2050. Although the 2020 target is the core of AB 32, and has been incorporated into AB 32, the 2050 target remains the goal of the Executive Order only, as AB 32 does not speak to the 2050 target.

in subsequent processes. The specific GHG emission reduction measures that will be required of facilities as result of the passage of AB 32 have not yet been set but currently are being devised.

Under AB 32, by January 1, 2008, CARB was required to determine what statewide GHG emissions were in 1990 and set the 2020 limit equivalent to that level. In that regard, CARB determined that the 1990 GHG emissions level (and the 2020 statewide cap) was 427 million tonnes of eCO_2. Accordingly, the current estimate of reductions necessary to achieve AB 32's goal is 174 million tonnes of eCO_2. CARB staff estimates that the proposed discrete early action measures, discussed further below, will provide approximately 16 million tonnes of eCO_2 reductions, while the other early action measures will provide approximately 26 million tonnes of eCO_2 reductions. It is further anticipated that an additional 30 million tonnes of eCO_2 reductions will be secured through the passage of anti-idling measures and AB 1493. The remaining 102 million tonnes of eCO_2 needed to reduce California's GHG emissions to 1990 levels would be achieved through implementation of CARB's Scoping Plan and other regulatory efforts.

In addition, also by January 1, 2008, CARB was required to adopt mandatory GHG reporting and verification regulations. Accordingly, on December 6, 2007, CARB adopted regulations requiring the largest facilities in California to report their annual GHG emissions. These regulations require the facilities to begin tracking their GHG emissions in 2008, with reporting to be submitted in 2009. The facilities identified in the regulations account for 94 percent of California's emissions from industrial and commercial stationary sources, and the regulations cover approximately 800 separate sources (e.g., electricity generating facilities and retail providers; oil refineries; hydrogen plants; cement plants; cogeneration facilities; and industrial sources that emit more than 25,000 tonnes of eCO_2 per year from an on-site stationary source).

CARB also has adopted its first set of GHG emission reduction measures, known as the "early action measures." At this time, CARB has approved 44 early action measures. These early action measures either are currently underway or are to be initiated by CARB in the 2007-2012 timeframe. A subset of these measures, known as "discrete early action measures," must be adopted by regulation by January 1, 2010, as required by AB 32. The early action measures cover a number of sectors including transportation, fuels, and agriculture.

Emission reduction measures that cannot be initiated in the 2007-2012 timeframe will be considered in the Scoping Plan. CARB issued a draft Scoping Plan in June, 2008 (CARB, 2008), which includes recommendations for the following emission reduction programs:

1. California Cap-and-Trade Program Linked to Western Climate Initiative
2. California Light-Duty Vehicle GHG Standards
3. Energy Efficiency
4. Renewables Portfolio Standard
5. Low Carbon Fuel Standard
6. High GWP Gases
7. Sustainable Forests
8. Water
9. Vehicle Efficiency Measures
10. Goods Movement

11. Heavy/Medium-Duty Vehicles
12. Million Solar Roofs Program
13. Local Government Actions and Regional Targets
14. High Speed Rail
15. Recycling and Waste
16. Agriculture
17. Energy Efficiency and Co-Benefits Audits for Large Industrial Sources

CARB accepted comments on the Draft Scoping Plan during the summer of 2008; AB 32 requires that CARB adopt the Scoping Plan before January 1, 2009. GHG emission limits and emission reduction measures from the Scoping Plan must be adopted by regulation on or before January 1, 2011, for enforcement by January 1, 2012. By January 1, 2014 and every five years thereafter, CARB will update its Scoping Plan.

AB 32 specifically allows CARB to consider a market-based compliance mechanism. A Market Advisory Committee (MAC) was formed under Governor Schwarzenegger's Executive Order No. S-20-06 in order to make recommendations to CARB on the design of a cap-and-trade mechanism for reducing GHG emissions. The MAC issued its final report in June 2007 to CARB for consideration. In general, the MAC proposed to include as many sources and sectors in the cap-and-trade program as practicable. The MAC also is recommending that emission allowances be auctioned rather than freely distributed. In addition, the MAC recommended that offsets be allowed to satisfy GHG limits and that linkages to other existing GHG markets be allowed. CARB currently is considering the recommendations of the MAC for inclusion into the Scoping Plan.

Senate Bill 97

With respect to CEQA, in 2007, the State Legislature passed Senate Bill 97 (SB 97), which addresses GHG analysis under CEQA. The bill exempts transportation projects funded under the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act of 2006, and projects funded under the Disaster Preparedness and Flood Prevention Bond Act of 2006, from analysis of GHG emissions under CEQA. In addition, SB 97 requires the Office of Planning and Research, by July 1, 2009, to develop and transmit to the California Resources Agency guidelines for the mitigation of GHG emissions and their effects. The California Resources Agency will be required to adopt the regulations by January 1, 2010.

In addition to these bills, the California Legislature has introduced numerous other bills that range in scope from establishing market based compliance mechanisms to reduce GHG emissions to renewable energy standards for utilities in the state. It is unclear which, if any, of these bills eventually will be enacted.

Local

Siskiyou County General Plan

The Siskiyou County Conservation Element (1973) includes policies that assure adequate water supply and sewage disposal. The following Conservation Element objective related to water supply would be applicable to the Program:

- Preserve the quality of the existing water supply in Siskiyou County and adequately plan for the expansion and retention of valuable water supplies for future generations (Siskiyou County, 1973).

Greenhouse Gas Emissions

Siskiyou County does not have any rules or regulations that govern GHG emissions.

3.7.4 Impacts and Mitigation Measures

Significance Criteria

Based on Appendix G in the CEQA *Guidelines*, the Program may be deemed to have a significant adverse effect on the environment if it were to do any of the following:

a) Conflict with wastewater treatment requirements of the applicable Regional Water Quality Control Board;

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;

c) Require or result in the construction of new storm water drainage facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects;

d) Require new or expanded water supply resources or entitlements;

e) Result in a determination by the wastewater treatment provider that would serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;

f) Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs;

g) Comply with federal, state, and local statutes and regulations related to solid waste.

Greenhouse Gases

Appendix G of the CEQA *Guidelines* sets forth "Air Quality" significance criteria used to evaluate project impacts, and states, "where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make" a significance determination. However, Appendix G is written for criteria pollutants which are regulated by both an air quality management plan and numerous regulations and standards. GHGs are not criteria pollutants, and do not have resulting regulations or ambient air quality standards. As a result, the thresholds of significance set forth in Appendix G are not appropriate for use in analyzing the potential impacts of the Program on global climate change related to emissions of GHGs. Also, as discussed above in Section 3.7.2, no state or local agency has established significance thresholds for the analysis of GHG emissions under CEQA. Nonetheless, for purposes of this Draft EIR, the following significance threshold has been created and utilized in assessing the impacts of the Program's GHG emissions on global climate change:

> The threshold will be determined by whether the Program's GHG emissions impede compliance with the GHG emissions reduction goals mandated in AB 32.

Effects Found Not to be Significant

The Initial Study for the Program (see Appendix D) found that potential impacts of the Program that relate to criteria *a-c* and *e-g* above would not be significant. Therefore, this Chapter only addresses impacts associated with criterion *d* (require new or expanded water supply resources or entitlements), as well as potential impacts on energy supply and emissions of GHGs.

Impact Analysis

Impact 3.7-1: The Program could result in the modification or expansion of existing water supply systems (Less than Significant).

The Program includes several minimization, avoidance, and mitigation measures that would involve changes to the existing systems of water diversion, conveyance, and application for irrigation and stock watering. These include: moving points of diversion; piping and lining ditches; realigning ditches; and removing barriers to fish passage. Several projects are specified, including fish passage at Young's Dam (the diversion dam for SVID); replacement of the seasonal push-up dam for Farmers Ditch with a series of boulder ~~vortex~~ weirs; and replacement of China Cove Ditch with a pipeline to eliminate loss through seepage.

Construction within stream channels is limited in the Program to the period of July 1-October 15 ~~31~~. This overlaps with the diversion season. It is possible, therefore, that some water supply construction projects could interrupt service. Periods of service interruption are, however, likely to be temporary and of short duration, and are therefore considered less than significant.

Mitigation Measures

This potential impact was determined to be less than significant. No mitigation measures required.

Impact 3.7-2: Construction activities could inadvertently contact underground utility lines and/or facilities during excavation and other ground disturbance, possibly leading to short-term utility service interruptions (Less than Significant).

Some construction activities associated with Covered Activities would involve earth moving activities. In the course of such activities, underground utility lines could be encountered and damaged or disturbed, potentially interrupting services. Government Code, § 4216 requires pre-construction notification of the Underground Service Administration (USA) between two and 14 days before an underground activity that could disturb utility lines. Because of this requirement, the impact is considered less than significant.

Mitigation Measures

This potential impact was determined to be less than significant. No mitigation measures required.

Impact 3.7-3: Replacement of gravity-based surface water diversions with diversions or wells utilizing pumps, would increase power consumption and air emissions (Less than Significant).

Several of the Flow Enhancement Mitigation Measures contained in the Program's proposed Incidental Take Permit (ITP) involve changes in surface water diversions, including moving points of diversion downstream closer to the point of use, and switching from surface water diversions to groundwater pumping for fall stock watering. Most existing surface water diversions are gravity-based and do not use electric or fuel-powered pumps. The Flow Enhancement Mitigation Measures would in some instances substitute electric or fuel-powered pumps for existing gravity-based systems, either to lift surface water to an irrigation ditch or to the point of use, or to pump groundwater. This would result in increased demand for electric power and fuel.

The number of diversions that would be affected, their location, and the types and sizes of pumps involved in fulfilling the requirements of the Flow Enhancement Mitigation Measures is unknown. For the purposes of this analysis, it was assumed that at the peak of the diversion season up to 230 cfs would be pumped instead of gravity-diverted, and that half of this would be with electric pumps and half with fuel-powered pumps (assuming that electric pumps would be used where possible). As a worst-case scenario, it was assumed that all fuel-powered pumps would use diesel fuel, and that all electrical pumps would be powered from the electrical grid. It was further assumed that the average vertical lift for all pumps would be 30 feet, and that there would be 50 individual pumped diversions. Ten of the pumped diversions would be larger, with a capacity of 15 cfs each, and 40 would be smaller, with a capacity of 2 cfs each.

Based on a rough estimate that five horsepower is required to lift 1 cfs 30 vertical feet, pumping requirements could be met with a combination of 20 ten-horsepower electric pumps and five 75-horsepower electric pumps, and the same number and size of diesel-powered pumps. Using a standard conversion for horsepower to electrical power consumption, the total power requirement for the electrical pumps would be about 429 kilowatts (kW), or 10,295 kilowatt hours per day (kWH/d) if they were operated 24 hours. These figures are shown in **Table 3.7-1**. Table 3.7-1 also shows the estimated emissions of criteria air pollutants from anticipated diesel pump operation. The table indicates that total emissions of criteria air pollutants would fall well below the significance thresholds set by the Siskiyou County Air Pollution Control District (SCAPCD) (see the Air Quality analysis in Appendix D, Initial Study).

According to PacifiCorp, which supplies electricity to the Scott Valley, there is sufficient transmission capacity to supply the anticipated additional electrical power demand that the Program may create (Chambers, 2007). Some areas of the Scott Valley have limited transmission capacity that may limit the ability to use larger pumps; this would have to be assessed on a case-by-case basis.

Because sufficient electrical transmission capacity exists to supply the anticipated increase in demand, and because the potential for increased emissions of criteria air pollutants falls below SCAPCD thresholds, this impact is considered less than significant.

Mitigation Measures

This potential impact was determined to be less than significant. No mitigation measures required.

Impact 3.7-4: Construction activities and water pumping associated with Covered Activities and ITP mitigation measures would generate greenhouse gas emissions that would contribute to global warming (Less than Significant).

Projects associated with some of the Program's Covered Activities would generate GHG emissions in the form of CO_2. Small amounts of other GHGs could also be emitted. GHG emissions would be generated by construction activities and by water diversions that would use diesel or electric powered pumps.

Most existing diversions are gravity-based and do not use other power sources. As described in Chapter 2, Project Description, ITP Flow Enhancement Mitigations 2 and 5 (Article XIII.E.2(a)(ii) and (v)) would in some instances use electric or fuel-powered pumps in place of existing gravity-based systems, either to lift surface water to an irrigation ditch further downstream from the existing point of diversion, or directly to the point of use; pumps would also be used to pump groundwater for alternative stockwatering systems, and to pressurize more water-conserving irrigation systems.

Several of the Covered Activities in the ITP and Master List of Terms and Conditions (MLTC) involve construction activities, including instream and riparian restoration activities, and construction and installation of gravel push-up dams, headgates, boulder weirs, fish screens, and measuring devices. Similar activities already occur on an annual basis but because the Program

TABLE 3.7-1
POWER CONSUMPTION AND EMISSIONS FROM PUMPS

Diesel Pump Assumptions		Quantity of Equipment	Project Specific Equipment HP	State Average HP	Equipment Usage - 2007	
Equipment	Fuel				Hours/day	Days/year
Small Diesel Pumps (2 cfs each)	diesel	20	10	10	24	198
Large Diesel Pumps (15 cfs)	diesel	5	75	70	24	198

Diesel Pump Emissions	Equipment Emissions (lbs/day) – Based on OFFROAD 2007 Emissions Model					
	ROG	CO	NOx	CO_2	SO_2	PM
Small Diesel Pumps	7.8	26.3	45	3,560	0.1	3.4
Large Diesel Pumps	20.8	67.2	130	10,013	0.1	10.3
TOTAL Diesel Pump Emissions- lbs/day	28.6	93.5	175	13,573	0.2	13.7
TOTAL Diesel Pump Emissions (figures are short tons/yr, except CO_2, which is metric tons)	2.8	9.3	17.3	1,219	0.02	1.4
Siskiyou Co. Air Pollution Control District Threshold (short tons/year)	40	100	40	NA	40	15

Electric Pumps

Factor	Value	Unit
1cfs, 30 ft head to Horsepower	5	hp
Total Volume Pumped	115	cfs
Horsepower requirement	575	hp
Horsepower to kW	429	kW
Energy Consumption, 24 hours	10,295	kWH/day
Energy Consumption, Annual (198 days)	2,038,370	kWH
$C0_2$ Emission factor	0.00036551	Mg/kWH
Annual CO_2 Emissions	745	Mg
Project Lifecycle CO_2 Emissions (10 years)	7,450	Mg

Key:
- ROG: reactive organic compounds
- CO: carbon monoxide
- Nox: oxides of nitrogen
- CO_2: carbon dioxide
- SO_2: sulfur dioxide
- PM-10: Particulate matter less than 10 microns
- hp: horsepower
- cfs: cubic feet per second
- kW: kilowatt
- kWH: kilowatt hour
- Mg: million grams (1 million grams = 1 metric ton)

Notes:
1 horsepower hour = 0.745 699 861 kilowatt hour (from onlineconversion.com)
CO_2 emissions for electricity generation for California calculated from factors in CA Climate Action Registry, 2007

SOURCE: Chambers, 2007; ESA

specifically includes certain construction activities, and would likely result in other activities such as the installation and operation of pumps that would emit GHGs, these activities and their related emissions are considered to be part of the Program.

Estimated GHG emissions that would be generated with implementation of the Program are presented in **Table 3.7-2**, and are estimated to be approximately 2,358 metric tons per year of eCO_2. Over the ten-year span of the Program, emissions are expected to be 23,577 metric tons of eCO_2.

TABLE 3.7-2
ESTIMATED GREENHOUSE GAS EMISSIONS
FIGURES ARE MILLIONS OF GRAMS (METRIC TONS) OF CARBON DIOXIDE EQUIVALENT

Activity and Equipment	Annual Emissions Mg eCO_2	Program Lifecycle Emissions[a] Mg eCO_2
Emission Sources		
Construction Equipment Emissions	154	1,535
Vehicle Emissions	240	2,402
Pump Emissions: Diesel	1,219	12,190
Pump Emissions: Electric	745	7,450
Subtotal: Emission Sources	**2,358**	**23,577**
Emission Reductions and Off-Sets		
Riparian Revegetation and Fencing	-893	-22,325
Water Use Efficiency (15% Reduction in pump emissions)	-295	-2,946
Subtotal: Program Reductions and Off-Sets	**-1,188**	**-25,271**
Net Greenhouse Gas Emissions of Program	**1,170**	-1,694
Optional Mitigation Measures		
Use of renewable energy for pumping (10% of pumping)[b]	-167	-1,669
Use of Biodiesel Blend[c]	-197	-1,965
Subtotal: Optional Mitigation Measures	**-363**	**-3,634**
Net Greenhouse Gas Emissions with Optional Measures	**807**	**-5,328**

a Program lifecycle emissions are based on a 10-year period, except for riparian revegetation and fencing, which is based on a 25 years of forest growth.
b 15 percent water use efficiency factored into this emission reduction calculation
c Approximately 1,069 of the total annual CO_2 emissions would be generated by diesel fueled equipment (approximately 79 metric tons of the vehicle emissions would be generated by gasoline fueled vehicles). Therefore, the total diesel fuel use for the purpose of calculating reductions associated with use of biodiesel is 949 metric tons, also accounting for a 15 percent water use reduction.

Other aspects of the Program would result in reduction of GHG emissions or emission offsets. Water efficiency measures required by the Program (see Chapter 2, Project Description,) would reduce the need for pumping by an estimated 10 to 20 percent. Therefore, a 15 percent reduction in pump emissions has been applied to the emissions presented in Table 3.7-2.

Two aspects of the Program are intended to result in plantings along portions of the Scott River's riparian corridor. These are ITP Mitigation Obligation E.2.b.iii (Article XIII), which requires the SQRCD to plant 20 acres of riparian forest over the ten-year term of the ITP; and Additional Avoidance and Minimization Measure E (Article XV), which requires SQRCD and sub-permittees to prepare a Riparian Fencing Plan and submit it to CDFG for approval within one year of the effective date of the Program; and in each of the successive nine years to install an average of two miles of exclusionary fencing in areas identified in a priority list that will be developed as part of the plan. Fencing would be approximately 35 feet from the edge of the streambank. Sub-permittees would be required to make reasonable efforts to include the existing riparian vegetation within the fenced area.

As plants grow, they use CO_2 in the process of photosynthesis and store carbon in their cell walls. As a forest matures, a considerable volume of carbon is accumulated and stored in standing live and dead trees, understory vegetation, downed dead wood, litter on the forest floor, and in the soil. The accumulation, or sequestration, of carbon in forests is recognized as an important mechanism for reducing the concentration of CO_2 in the atmosphere, and is an essential tool in combating global warming (Nabuurs et al., 2007).

The U.S. Department of Agriculture has developed methods for estimating carbon sequestration in forests in the United States, as part of the Department of Energy's Voluntary Reporting of Greenhouse Gases Program, also known as the 1605(b) Program (USDA, 2007). The simplest of these methods uses "look-up tables" in which the average amount of carbon in a forest stand (referred to as "carbon stock") is given for different regional forest types in the years following a clearcut. This method was used for estimating the amount of carbon that can be expected to be sequestered in the riparian forest areas that will be revegetated and protected under the Program.[5] The results for carbon sequestration are shown as the total amount of carbon, expressed both as carbon contained in plant matter, and its CO_2 equivalent, that would accumulate during the 25 years following revegetation and fencing. The reforestation activities associated with the Program will sequester approximately 22,325 metric tons of CO_2 equivalent (**Table 3.7-3**).

Table 3.7-2 indicates that over the ten-year life of the ITP, Program activities will result in the emission of 23,577 tons of CO_2. Table 3.7-2 also shows that water conservation and reforestation measures that are part of the Program will result in reduction and offset of about 25,271 tons of CO_2 equivalent. As a result, the Program is expected to result in a net decrease in GHG emissions

5 Table A21 from USDA, 2007 provides estimates of carbon stock of alder-maple stands on forest land after clearcut harvest in the Pacific Northwest, western area. For the analysis, it was assumed that areas that would be revegetated under the Program would have a carbon stock equivalent to a recently clearcut forest, except that carbon stored in down dead wood would be less. For areas that would be fenced, it was assumed that the carbon stock at the time of fencing would be equivalent to a forest 15 years after clearcut.

TABLE 3.7-3
CARBON SEQUESTRATION FROM REFORESTATION

Program Element	Description	Assumed Carbon Stock at Beginning of Program[1,2] (Mg per Acre)	Assumed Carbon Stock 25 years after beginning of Program[1] (Mg per Acre)	Increase in Carbon Stock (Mg per Acre)	Area Affected (Acres)	Lifecycle Increase in Carbon Stock (Mg)	Carbon Dioxide Equivalent (Mg)
SQRCD Mitigation Obligation b.iii	Riparian forest planting	9.4	53.4	44.1	20	881	3,233
Additional Minimization and Avoidance Measure E	Install 2 miles per year (years 2-10) riparian fencing 35 feet from channel	22.1	90.6	68.5	76	5,202	19,092
TOTAL					**96**	**6,083**	**22,325**

Key:

Mg = million grams, or metric tons

Notes:

1 Values for carbon stocks from USDA, 2007, look-up table A21 for Alder-Maple forest stands in the Pacific Northwest, West region.

2 For areas targeted for planting assumes no standing vegetation at beginning of program look-up table value adjusted to account for assumed lower amount of down deadwood; for areas targeted for fencing assumes forest stand is equivalent to 15 years after clearcut.

SOURCE: CDFG, USDA, 2007

over the life of the Program, and so will not impede compliance with the GHG emissions reduction goals mandated in AB 32. Therefore, any potential impact the Program will have on global climate change is considered less than significant.

Mitigation Measures

This potential impact was determined to be less than significant. No mitigation measures required.

Additional Mitigation Measures Identified in This Draft EIR

The mitigation measures discussed below were identified as part of this Draft EIR. While these measures are not required to reduce this impact to less than significant, they are technically feasible. Still, CDFG does not have the statutory or regulatory authority to impose these requirements. As a result, they will only be implemented voluntarily or by another regulatory agency (e.g., CARB) that has the authority to require them, whether now or in the future.

Mitigation Measure 3.7-4a: Program participants are encouraged to fuel all diesel equipment, including pumps, vehicles, and construction equipment, with a minimum 20 percent biodiesel (maximum 80 percent conventional diesel) blend (B-20). B-20 biodiesel is currently available commercially in Siskiyou County.[6] A blend of 20 percent biodiesel will reduce CO_2 emissions by approximately 15 percent (USDOE, 2005), although with a slight increase in NOx (the increase in NOx emissions would not exceed significance thresholds established by SQAPCD – see the emissions calculations in the technical appendix to the Initial Study in Appendix D).

Mitigation Measure 3.7-4b: Renewable energy sources such as photovoltaic or wind power could be used to power some pumps installed to meet Program requirements for stockwatering and moving points of diversion downstream.

Table 3.7-2 shows the reduction in emissions achieved by using renewable energy sources for 10 percent of the projected increase in pumping due to the Program, and from the use of biodiesel.

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CHAPTER 4
Cumulative Effects and Other Required Topics

This Chapter summarizes the findings with respect to cumulative impacts, growth-inducing impacts, significant, unavoidable environmental impacts, and significant irreversible environmental changes that could result from implementing the proposed Scott River Watershed-wide Permitting Program (Program).

4.1 Cumulative Impacts

A cumulative impact is created when "two or more individual effects, when considered together, are considerable or compound or increase other environmental impacts" (CEQA *Guidelines*, § 15355). The "individual effects" could be "changes resulting from a single project or a number of separate projects" (CEQA *Guidelines*, § 15355(a)). "The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely-related, past, present and reasonably foreseeable probable future projects" (CEQA *Guidelines*, § 15355(b)).

The purpose of this cumulative impacts analysis is to disclose the potential for significant cumulative impacts that could result from the Program in combination with other closely-related, past, present, and reasonably foreseeable probable future projects or programs.

CEQA *Guidelines*, § 15130 requires that environmental impact reports (EIR) discuss the cumulative impacts of a project or program when its incremental effect is "cumulatively considerable," meaning that the project's incremental effects are considerable when viewed in connection with the effects of past, current, and probable future projects. The discussion of cumulative impacts should include:

- Either: (1) a list of past, present, and probable future projects producing related or cumulative impacts; or (2) a summary of projections contained in an adopted general plan or similar document, or in an adopted or certified environmental document, that described or evaluated conditions contributing to a cumulative impact. This Draft EIR uses a listing approach;
- A discussion of the geographic scope of the area affected by the cumulative impact;
- A summary of expected environmental effects to be produced by these projects;
- An assessment of whether such effects are significant, and if they are, whether the project's contribution to such significant impacts is cumulatively considerable; and

- Reasonable, feasible options for mitigating or avoiding a project's contribution to any significant cumulative effects.

4.1.1. Approach to Analysis

As described in Chapter 1, Introduction, a primary objective of the Program is to facilitate, through voluntary participation in the Program, compliance with Fish and Game Code, § 1600 *et seq.* and/or the California Endangered Species Act (CESA) by the Siskiyou Resource Conservation District (SQRCD), Agricultural Operators, and California Department of Water Resources (DWR) when conducting Covered Activities, many of which are ongoing, historic activities. Because the Program is a regulatory program, this Chapter examines similar past, present, and reasonably foreseeable probable future government regulatory initiatives that have affected, are presently affecting, and/or will likely affect in the future activities similar to the activities the Program covers and/or their related impacts, as described in this Draft EIR. This Chapter also examines similar past, present, and reasonably foreseeable probable future activities similar to the activities the Program covers, including restoration activities, and their related impacts regardless of whether they are subject to any regulatory initiatives.

An impact analysis follows this discussion to evaluate whether the incremental impacts of the Program and the activities it covers when added to the potential impacts of the regulatory initiatives and activities similar to the Covered Activities that could cause related impacts, as described above, will be cumulatively considerable.

4.1.2 Past, Present, and Reasonably Foreseeable Future Regulatory Initiatives

This section provides a description of the existing and reasonably foreseeable regulatory environment that could affect activities in the Program Area similar to the Covered Activities. Recent and proposed regulatory plans, policies, and programs (collectively, initiatives) include those that relate or respond to the listing of coho salmon (*Oncorhyncus kisutch*) as a threatened species under CESA and the Endangered Species Act (ESA);[1] CDFG's Lake and Streambed Alteration Programs; the 1994 Northwest Forest Plan (NWFP); the Scott River Total Maximum Daily Loads (TMDL) Action Plan; the Water Quality Control Plan for the North Coast Region (Basin Plan) and proposed amendment of the Basin Plan; Pacific Fishery Management Council's (PFMC) Salmon Fishery Management Plan; and the Klamath Fishery Management Council's (KFMC) long-term plan for the management of in-river and ocean harvest of Klamath Basin anadromous fish. These initiatives have been enacted to reduce impacts to protected species, riparian and aquatic habitats, water quality, and overall watershed health, and ultimately result in a net-benefit to these resources. In the Impact Analysis section of this Chapter, we examine whether these regulatory actions could combine with the Program's impact on the resources described in Chapters 3.1 to 3.7 in this Draft EIR to produce a cumulatively considerable impact.

[1] Chapter 3.3, Biological Resources: Fisheries and Aquatic Habitat, includes an overview of CESA and ESA.

Regulation of Special-Status Species

Federal Listing of Southern Oregon/Northern California Coho Salmon

The National Marine Fisheries Service (NMFS) is responsible for conducting ESA status reviews and making listing determinations for anadromous fishes on the West Coast, including Pacific salmon and steelhead. In 1997, NMFS issued a final determination that the Southern Oregon/Northern California Coast Evolutionarily Significant Unit (ESU) of coho salmon is a “species” under ESA, and listed coho salmon as a threatened species under ESA (NMFS, 1997). Its threatened status was reaffirmed in 2005 (NMFS, 2005). The ESU includes all naturally-spawning populations of coho salmon in coastal streams between Cape Blanco, Oregon, and Punta Gorda, California, as well as three artificial propagation programs: the Cole Rivers Hatchery (ODFW stock #52), Trinity River Hatchery, and Iron Gate Hatchery coho salmon hatchery programs. A federal recovery plan which provides prioritized actions for restoring coho salmon in the Klamath River basin was recently completed (NMFS, 2007).

State Listing of Coho Salmon (San Francisco to the Oregon Border)

In 2004, the California Fish and Game Commission (Commission) approved new protections for coho salmon by adding coho salmon between San Francisco and Punta Gorda (Humboldt County) to the list of endangered species under CESA, and by adding coho salmon between Punta Gorda and the Oregon border to the list of threatened species under CESA. The Commission’s decision to list coho salmon under CESA concluded a lengthy process that began in August 2002, when it found that populations of coho salmon warranted new protections (CDFG, 2004a). The effective date of listing for coho salmon in the Program Area was March 30, 2005 (CDFG, 2006).

Federal Land Management Planning Related to Special-Status Species

Northwest Forest Plan

The mission of the NWFP is to adopt coordinated management direction for the lands administered by the U.S. Forest Service (USFS) and the Bureau of Land Management (BLM) and to adopt complementary approaches by other federal agencies within the range of the northern spotted owl.[2] This plan was the result of a focused federal effort to respond to timber management conflicts on old growth forests of the Pacific Northwest within the range of the northern spotted owl and other listed species. In 1993, the Forest Ecosystem Management Assessment Team (FEMAT) convened to present and analyze alternatives for ecosystem management of these old-growth forests. Within a year, FEMAT published a report that presented 10 forest management alternatives. Of these 10 options, former President Clinton selected Option 9 as the course of action. An Environmental Impact Statement followed based on the FEMAT report and Option 9, which resulted in the approval of the currently implemented NWFP. The

[2] Eight federal agencies have developed an implementation and effectiveness monitoring program encompassing federal land managed by USFS, BLM, and the National Park Service in western Washington, Oregon, and northwest California. This program focuses on important regional scale questions about older forests, listed species (including Northern spotted owls and marbled murrelets), watershed health, federal agency relationships with Tribes, and changing socio-economic conditions in communities closely tied to federal lands. The Regional Monitoring program receives its own funding and is a separately managed interagency program.

NWFP covers 24.5 million acres in Oregon, Washington, and northern California that are managed by a variety of federal agencies.

In the Program Area, the NWFP applies to the Klamath National Forest (KNF) and Shasta-Trinity National Forest. The Land and Resource Management Plans (LRMP) of both National Forests reflect the requirements of the NWFP, and "…use active stewardship and participative [sic] management to provide for environmental health and community stability in a sustainable manner." Timber production within the Program Area and neighboring Shasta River watershed has been on the decline over the past several decades, both in the years leading up to the approval of the NWFP and following implementation (KNF, 1993).

State and Federal Water Quality Plans and Policies

Water Quality Control Plan for the North Coast Region

As described in Chapter 3.2, Geomorphology, Hydrology and Water Quality, the North Coast Regional Water Quality Control Board (NCRWQCB) is responsible for the protection of the beneficial uses of waters within Siskiyou County. NCRWQCB uses its planning, permitting, and enforcement authorities to meet this responsibility and has adopted the Water Quality Control Plan for the North Coast Region (Basin Plan) to implement plans, policies, and provisions for water quality management. The most recent version of the adopted Basin Plan was published by NCRWQCB in September, 2006 (NCRWQCB, 2006). The Basin Plan and relevant beneficial uses are discussed in Chapter 3.2, Geomorphology, Hydrology, and Water Quality.

Stream and Wetlands System Protection Policy - Proposed Amendment to the North Coast Basin Plan

NCRWQCB and the San Francisco Bay Regional Water Quality Control Board have been working to develop an amendment to the Basin Plans for the North Coast and San Francisco Bay Regions that will protect stream and wetlands systems, including measures to protect riparian areas and floodplains. This amendment, if approved, would be known as the Stream and Wetlands System Protection Policy (Policy) which would establish new beneficial uses and water quality objectives, and include an implementation plan to protect stream and wetland systems in the North Coast and San Francisco Bay Regions.[3] The goals of the proposed Policy are:

- to achieve water quality standards and protect beneficial uses of waters of the state;
- to protect drinking water through natural water quality enhancement and protection of groundwater recharge zones;
- to restore habitat and protect aquatic species and wildlife;
- to enhance flood protection through natural functions of stream and wetlands systems;
- to restore the associated recreational opportunities, green spaces, and neighborhood amenities that water resources provide;
- to protect property values and community welfare by protecting natural environments;

3 A single policy is being proposed for Basin Plan adoption to improve regulatory consistency.

- to encourage local watershed planning and support local oversight of water resources; and
- to improve Regional Water Board permitting and program efficiency.

The proposed Policy recognizes that it is necessary to protect and restore the physical characteristics of stream and wetlands systems-stream channels, wetlands, riparian areas, and floodplains, including their connectivity and natural hydrologic regimes, to achieve water quality standards and protect beneficial uses. The Policy, if approved, would serve as a model for the other RWQCBs and the state to protect water quality. The Policy would also promote regulatory efficiency by linking to existing relevant permit conditions and provisions in federal Clean Water Act (CWA) Section 401 water quality certifications, timber harvesting plans (THPs), waste discharge requirements (WDR), WDR waivers, and urban runoff National Pollutant Discharge Elimination System (NPDES) permits. The Policy would also promote general efficiency by linking to RWQCBs' monitoring programs (e.g., Surface Water Ambient Monitoring Program) and grants program.

The Policy would also provide incentives for local jurisdictions to develop watershed management plans that can be used by project applicants to offset impacts to stream and wetland functions when on-site avoidance of impacts is impossible. In this way the Policy would create a vehicle for working with local jurisdictions to develop effective implementation strategies consistent with local stakeholder interests. This Policy is currently undergoing public review.

Scott River TMDL Action Plan

The U.S. Environmental Protection Agency added the Scott River to California's 303(d) impaired waters list in 1992 due to sediment and temperature levels in excess of water quality standards, as described in the CWA or in the Basin Plan. The beneficial uses impaired in the Scott River watershed by excessive sediment and elevated temperature are primarily those associated with the cold-water salmonid fishery (commercial and sport fishing; cold freshwater habitat; rare, threatened and endangered species; migration of aquatic organisms; spawning, reproduction, and/or early development of fish, and recreation (NCRWQCB, 2005). The *Staff Report for the Action Plan for the Scott River Watershed Sediment and Water Temperatures Total Maximum Daily Loads* was published in 2005 (NCRWQCB, 2005). In general, this document identifies and describes causes of impairment, recommended levels for water temperature and sediment concentration, and an implementation plan.

The goal of the Scott River TMDL Action Plan is to achieve the TMDLs, achieve sediment and temperature water quality objectives, and restore and protect the beneficial uses of water in the Scott River watershed (NCRWQCB, 2005). Specific implementation actions are necessary in order to attain the sediment and temperature TMDLs, achieve the sediment and temperature-related water quality standards, and protect the beneficial uses of water in the Scott River watershed. The voluntary implementation actions of this plan are designed to encourage and build upon ongoing, proactive restoration and enhancement efforts, and to comply with the state's *Policy for the Implementation and Enforcement of the Nonpoint Source Pollution Control Program*. Should any of the voluntary implementation actions fail to be implemented by the responsible party or should the voluntary implementation actions prove to be inadequate, the RWQCB would take appropriate permitting and/or enforcement actions (NCRWQCB, 2005). The implementation actions address sediment waste discharges, water temperature and vegetation by focusing on:

- roads at the private, county, and state levels;
- ground-disturbing activities;
- dredge mining;
- water use;
- flood control and bank stabilization;
- timber harvest;
- activities on USFS land;
- activities on U.S. Bureau of Land Management land;
- grazing; and
- cooperation with the SQRCD, Scott River Watershed Council (SRWC), NRCS, University of California Cooperative Extension (UCCE) and CDFG.

The Plan is geared toward using ongoing efforts and existing regulatory standards and enforcement tools more effectively than in the past, using available watershed-specific information and applicable science to inform those efforts (NCRWQCB, 2005).

Regulation of the Pacific Salmon Fishery: the Pacific Fishery Management Council and the Klamath Fishery Management Council

PFMC is one of eight regional fishery management councils established by the federal Magnuson Fishery Conservation and Management Act of 1976 for the purpose of managing fisheries three to 200 miles offshore of the U.S. coastline. PFMC is responsible for fisheries off the coasts of California, Oregon, and Washington.

Pacific coast salmon fisheries in PFMC-managed waters focus on Chinook or king salmon and coho or silver salmon. Small numbers of pink salmon are also harvested, especially in odd-numbered years. There are no directed fisheries for other salmon species such as sockeye, steelhead and chum in PFMC-managed waters.

PFMC's Salmon Fishery Management Plan (PFMC, 1999) describes the goals and methods for salmon management. Management tools such as season length, quotas, and bag limits vary depending on how many salmon are present. There are two central parts of the Plan: an annual goal for the number of spawners of the major salmon stocks ("spawner escapement goals"), and allocation of the harvest among different groups of fishers (commercial, recreational, tribal, various ports, ocean, and inland). PFMC must also comply with ESA and other federal laws.

Every year PFMC follows a pre-season process to develop recommendations for management of the ocean fisheries. Public involvement begins in late February when reports describing the previous season and estimating salmon abundance for the coming season are released. These reports are followed by a meeting early in March to propose season options. Public hearings on these options are held in late March or early April, and the final recommendations are adopted at a meeting in April. Recommendations are implemented by NMFS on May 1 (PFMC, 2007). In 2006 and 2007, the PFMC severely limited the allowable catch of salmon off the California and Oregon coasts, in order to protect the depleted Klamath stocks. For 2008, the PFMC took the unprecedented action of completely closing the salmon fishing season off the California coast due to severely depressed Sacramento River stocks. While the intent of the restrictions is to rebuild salmon stocks, they have also had the consequence of impairing the commercial, recreational, and tribal salmon fisheries.

The Klamath Fishery Management Council. KFMC was an 11-member federal advisory committee that brought together commercial and recreational fishermen, Tribes, and state and federal agencies to work by consensus to manage harvests and ensure continued viable populations of anadromous fish in the Klamath Basin.

KFMC developed a long-term plan for the management of in-river and ocean harvest of Klamath Basin anadromous fish. Members included representatives from commercial and recreational ocean fisheries, the in-river sport fishing community, tribal fisheries, and agencies (CDFG, Oregon Department of Fish and Wildlife, National Marine Fisheries Service, and U.S. Department of the Interior) (KFMC, 1992).

Before the Klamath Act expired in 2006, the KFMC met three times each spring to review the past year’s harvest of Chinook salmon, and to review predictions of Chinook salmon ocean abundance and harvests in the upcoming year developed by their Technical Advisory Team. KFMC then made specific recommendations to the agencies that regulate the harvest of Klamath Basin fish. These agencies included the PFMC, the Commission, Oregon Department of Fish and Wildlife, Yurok Tribal Fisheries, and Hoopa Tribal Fisheries. KFMC recommendations to PFMC were used to develop ocean salmon fishing seasons. PFMC then passed its recommended fishing seasons to the Department of Commerce, which has final authority in setting regulations for the ocean fishery (KFMC, 2007).

The Klamath Act expired on October 1, 2006 and was not reauthorized by Congress. The funding for the Klamath Fishery Management Council was eliminated and the charter was discontinued.

4.1.3 Activities Similar to Covered Activities

This Chapter examines similar past, present, and reasonably foreseeable probable future activities similar to the activities the Program covers, including restoration activities, and their related impacts regardless of whether they are subject to any regulatory initiatives. Such activities include those associated with agricultural operations and private development projects, among others, by individuals, CDFG, French Creek Watershed Advisory Group (on a voluntary basis), Natural Resources Conservation Service (NRCS), Klamath River Basin Fisheries Task Force, Department of Water Resources (DWR), Siskiyou County and Five Counties Salmon Conservation Program, SQRCD, SRWC, University of California Cooperative Extension (UCCE), and U.S. Fish and Wildlife Service (USFWS). These activities are examined here because the activities the Program covers and their potential impacts are closely related to those other activities. As a result, it is possible that the incremental impact of the Program and the activities it covers in combination with the potential impacts of these other activities could be cumulatively considerable.

This section also describes two ongoing projects that could combine with Program effects to cause a cumulative impact: (1) the Federal Energy Regulatory Commission's (FERC) re-licensing of the Klamath Hydroelectric Project; (2) recent changes to the State Watermaster Program by the State Legislature and DWR.

Projects Subject to Fish and Game Code, § 1600 *et seq.*

An entity must notify CDFG before beginning an activity that will substantially divert or obstruct the natural flow of, or substantially change or use material from the bed, channel, or bank of a river, stream, or lake, such as the Scott River and its tributaries, are subject to the notification requirement in Fish and Game Code, § 1602. Such activities could include restoration projects to enhance coho salmon habitat. If CDFG determines that the activity described in the notification could substantially adversely affect an existing fish or wildlife resource, the entity must obtain a streambed alteration agreement (SAA) before beginning the activity. CDFG maintains a database of all notifications it has received for projects in Siskiyou County since 2002. Of the projects listed in the database, 130 projects occurred in the Scott River watershed (see **Table 4-1**) (Harris, 2007, 2008). Many of the projects included in Table 4-1 are representative of activities the Program covers, including those relating to ongoing routine agricultural operations and restoration projects. Table 4-1 also lists projects outside the scope of the Program. These include culvert repair, bridge work, gravel extraction, timber harvest plans, and emergency repair work in the watershed.[4] Although these projects are outside the scope of the Program, they are representative of the type of projects that could occur in the future in the Program Area. Together these projects comprise activities that will have short- and long-term impacts in the Program Area, both adverse and beneficial.

While it is not possible to predict the exact number and types of projects in or near the Scott River, its tributaries, and other rivers, streams, and lakes in the Program Area that will be subject to Fish and Game Code, § 1602, it is reasonably foreseeable that such projects will continue to occur in the future, and that the entities responsible for those projects will notify CDFG in accordance with the requirements in Fish and Game Code, § 1602, or in the case of emergency projects, Fish and Game Code, § 1610 (see footnote 4).

As mentioned above and described elsewhere in this Draft EIR, the Covered Activities include coho salmon restoration projects. To evaluate cumulative impacts that relate to those projects, a discussion of past, present, and reasonably foreseeable future restoration projects are discussed below.

The list below includes most of the agency and non-profit programs that conduct and/or funded restoration restoration activities within the bed, bank, and channels of the Scott River watershed.

- Bureau of Reclamation (BOR)– Klamath Watershed Restoration Program
- CDFG Fisheries Restoration Grant Program

[4] Emergency work is not subject to the notification and SAA requirements in Fish and Game Code, § 1602. Instead, the entity performing the emergency work must simply notify CDFG of the work within 14 days of beginning the work. (Fish and Game Code, § 1610.)

TABLE 4-1
SUMMARY OF CDFG-TRACKED ACTIVITIES IN THE BED, BANKS AND CHANNEL OF THE SCOTT RIVER WATERSHED (2002– JUNE 2008)

Project Name	Year Initiated	Project Description	Water	Receiving Water
Crystal Creek Ditch Cleaning	2002	Ditch Cleaning	Crystal Creek	Patterson Creek
Kidder Creek Work Order 03FJ303	2003	Placement of Pipe under Streambed	Kidder Creek	Scott River
Menne Extraction	2003	Bar Skimming Operation	Scott River	Klamath River
Scott River Dredge Tailings Interim	2003	Bank Stabilization	Scott River	Klamath River
Scott River Work Order 03-FJ303	2003	Placement of Pipe under Streambed	Scott River	Klamath River
Shackleford/ Mill Creek Water Quality Improvement Project	2003	Construction of a Tail Water Return Pond	Unnamed	Scott River
Cooper Meadows 2004 THP	2004	Timber Harvest Plan	Kangaroo Creek	Cooper Creek
Ditch Cap THP	2004	Timber Harvest Plan	Ditch Creek (technically outside the watershed)	Cottonwood Creek
Friden Ditch Fish Screen Project	2004	Fish Screening	Kidder Creek	Scott River
Fruit Growers Supply	2004	Description not available	Meamber Creek	Scott River
Michael Thamer on Wildcat Creek	2004	Seasonal Diversion	Wildcat Creek	Scott River
Moffett Creek Road Abandonment	2004	Road abandonment	Unnamed	Moffett Creek
Quartz THP	2004	Timber Harvest Plan	Unnamed	Alder Creek
SB 271 - Scott River Fish Screening Project	2004	Fish Screening	Scott River	Klamath River
SB 271 Newton Enhancement Project	2004	SB 271 Newton Enhancement Project	East Fork Scott River	Scott River
Turner Diversions	2004	Water Diversion	Jackson, Wildcat, Grizzly and Sugar creek	Scott River
Thamer Diversion	2004	Water Diversion	Wildcat Creek	Scott River
Scott Bar Exploration I	2004	Exploration of the Scott Bar for Placer Gold	Scott River	Klamath River
Scott River Bank Stabilization	2004	Bank Stabilization	Scott River	Klamath River
Upper Mill Creek THP	2004	Timber Harvest Plan	McKinney Creek (technically outside the watershed)	Mill Creek
Wildcat THP	2004	Timber Harvest Plan	Wildcat Creek	Unnamed
3 Wood THP	2005	Timber Harvest Plan	Unnamed	Cottonwood Creek
Blue Whiskey	2005	Description not available	Unnamed	Tate Creek

TABLE 4-1 (continued)
SUMMARY OF CDFG-TRACKED ACTIVITIES IN THE BED, BANKS AND CHANNEL OF THE SCOTT RIVER WATERSHED (2002–JUNE 2008)

Project Name	Year Initiated	Project Description	Water	Receiving Water
Cabin Creek 2006	2005	Work to be completed in 2006	Rail Creek, Rock Fence Creek	Scott River, Rail Creek
Clark Creek 2005 THP	2005	Abandonment of Water Crossing		Clark Creek
Duzel Creek Water Pipe Installation	2005	Installation of Water Pipe Across Duzel Creek	Duzel Creek	Moffett Creek
Farmer's Ditch	2005	Fish Passage Improvement	Scott River	Klamath River
French Creek 2005 THP	2005	Timber Harvest Plan	Meeks Meadow Creek, North Fork French Creek	North Fork French Creek, French Creek, Paynes Lake Creek
Johnson Creek Estates	2005	Description not available	Johnson Creek	Crystal Creek
Johnston Flood Repair and Bank Restoration	2005	Straighten and Define Creekbed of Seasonal Indian Creek back to natural condition	Indian Creek	Scott River
Krause Bank Stabilization and Riparian Enhancement	2005	Bank Stabilization	Moffett Creek	Scott River
Nixon Property Access Maintenance	2005	Maintain Existing Low River Crossing	South Fork Indian Creek	Indian Creek
Owens_E. Fork Scott River Bank Stabilization and Riparian Enhancement	2005	Bank Stabilization	East Fork Scott River	Scott River
Scott River Tailings, Bank Stabilization and Channel Reconstruction	2005	Scott River Bank Stabilization and Fish Passage	Scott River	Klamath River
Scott Valley Ranch on Indian Creek Emergency Bank Repair	2005	Bank Stabilization and Channel Repair	Indian Creek	Scott River
Scott Valley Watershed	2005	Proposed Scott River Watershed Permitting Program	Various tributaries	Scott River
Shackleford Creek Bridge Replacement	2005	Removal of the existing steel truss bridge. Construction of two new approaches and steel truss bridge north of existing bridge.	Shackleford Creek	Scott River
Shackleford Creek Diversion Improvement Project, Agreement P0410316	2005	Fish Passage Improvement	Shackleford Creek	Scott River
Turkey THP	2005	Timber Harvest Plan	Meamber Creek	Scott River
Young's Dam Fish Ladder	2005	Fish Ladder Construction	Scott River	Klamath River
Brownell Emergency Bank Reinforcement: Shackleford Creek, plus debris removal	2006	Bank Stabilization	Shackleford Creek	Scott River

TABLE 4-1 (continued)
SUMMARY OF CDFG-TRACKED ACTIVITIES IN THE BED, BANKS AND CHANNEL OF THE SCOTT RIVER WATERSHED (2002–JUNE 2008)

Project Name	Year Initiated	Project Description	Water	Receiving Water
Callahan Water District	2006	Replacement of Gravel Bed Intake Structure	Boulder Creek	Wolf Creek
Emergency Work Kidder Creek Flood 05/06	2006	Road Repair, Culvert Installation, and Riprap	Kidder Creek	Scott River
French Creek Farm	2006	Replacement Weir	French Creek	Scott River
JH Ranch Bridge	2006	New Bridge Installation	French Creek	Scott River
Lower Mill Creek 2007	2006	Work to be completed in 2007	Mill Creek	
Martin on Kidder Creek Emergency Reestablishment of Banks	2006	Bank Stabilization	Kidder Creek	Scott River
Matteson on Etna Creek Emergency tree removal	2006	Tree Removal	Etna Creek	Scott River
McAdams Emergency Repair Flood 05/06	2006	Road Repair and Channel Improvement	McAdam Creek	Scott River
Mill Creek Crossing and Flood Central	2006	Flood Control Maintenance, Gravel Berm Placement	Mill Creek	Shackleford Creek
Miranda on Indian Creek 'Emergency Project'	2006	Repair Damages from May 2006 flood event	Indian Creek	Scott River
Moffett Creek Emergency Repair Project 05/06 Flood	2006	Install (and later remove) temporary culvert, stabilize shoulder, restore existing overflow channel, road modifications	Moffett Creek	Scott River
Moody's on Shackleford Creek Bank Stabilization Emergency Project	2006	Bank Stabilization	Shackleford Creek	Scott River
Sisq PWD on Scott River Flood 2005/2006	2006	Road Repair and Cross Drain Installation	Scott River	Scott River
Tickner on Moffett Creek Maintenance	2006	Channel and Bank Maintenance	Moffett Creek	Scott River
Happy Camp 'Emergency' Indian Creek	2007	Hillside adjacent to house failed due to water seepage fro undetermined source, partial exposed house foundation	Indian Creek	Klamath River
Black Bridge Fiber Optics	2007	Placement of a new underground Fiber Optic line throughout Scott Valley	Scott River	Klamath River
Install Culvert in a Gulch	2007	Use of a small backhoe to create a bed for the culvert in the gulch install the culvert compact fill around the culvert with a vibra plate or wacker. Use a small bulldozer to extend driveway across gulch. Rip rap culvert ends and stabilize fill as required.	Unnamed	Moffett Creek
Fish passage through diversion improvements in the Scott River Phase I	2007		Scott River	Klamath River

TABLE 4-1 (continued)
SUMMARY OF CDFG-TRACKED ACTIVITIES IN THE BED, BANKS AND CHANNEL OF THE SCOTT RIVER WATERSHED (2002–JUNE 2008)

Project Name	Year Initiated	Project Description	Water	Receiving Water
Storm damage of vortex boulder weirs	2007		French Creek | Patterson Creek | Shackleford Creek	Scott River
Scott River Rearing Habitat Improvement	2007	Create vegetated bumps, vegetated baffles, boulder constrictor weirs and boulders placed in the channel. Focus is to improve instream conditions for the rearing of juvenile salmonids while insuring the protection of the stream banks.	Scott River	Klamath River
East Fork Flow Enhancement	2007		East Fork Scott River	Scott River
Horse Creek Migration Barrier Removal Project	2007	Improve fish passage and replace a flood damaged culvert	Horse Creek	Klamath River
Canyon Creek Bridge	2007	Install temporary bridge and replace a permanent bridge	Canyon Creek	Scott River
Emergency work Kidder Creek	2008	Gravel build-up in middle of creek forced water to north side of undercut bank exposing tree roots, toppling trees, loosing bank and cutting toward the road. Left unchecked would have lost two remaining trees, access road and water would flow in to the town of Greenview.	Kidder Creek	Scott River
Moore's Gravel	2008	Extraction of 2,100,000 cubic yards of dredger tailings turning into marketable aggregate.	Westside Drain	Scott River
Tschopp Kidder Creek Mine	2008		Kidder Creek	Scott River

NOTE: In addition to the projects detailed above, the following represents projects implemented in the Scott River Watershed during the 2002-2008 period (that did not include identification of year implemented):

Construction/Maintenance: 6 projects
Emergency Repair Work: 35 projects
Fisheries – related: 4 projects
Gravel Extraction: 5 projects
Streambank enhancement: 4 projects
Timber Harvest Plans: 3 projects
Water Supply/Delivery: 6 projects

SOURCE: CDFG, 2008

- CDFG Klamath River Restoration Grant Program
- NRCS Water Quality and River Restoration Program
- National Oceanic and Atmospheric Administration (NOAA) Community Based Restoration Grant Program
- Siskiyou County Department of Public Works and Five Counties Salmonid Conservation Program
- Siskiyou Resource Conservation District
- French Creek Watershed Advisory Group
- USFWS Klamath Restoration Program

All of these entities have funded or conducted instream, riparian, and other related projects subject to the notification requirements in Fish and Game Code, § 1602. These restoration and fish passage, habitat, and water quality improvement projects are representative of the variety of activities that have occurred throughout the watershed within the past five years. They also represent the types of projects that will continue to be funded and implemented in the watershed. For the purpose of this section, past projects are defined as instream, riparian, and other related activities that were initiated between 2002 and 2005. New projects are defined as instream, riparian, and other related activities that were funded in 2006 and 2007. Projects funded in 2006 were typically implemented in 2007. Projects funded in 2007 will be implemented in 2008 and beyond.

Restoration and Enhancement-Related Projects Implemented in the Scott River Watershed

CDFG Fisheries Restoration Grant Program

CDFG administers the Fisheries Restoration Grant Program (FRGP) for watershed restoration projects within the coastal watersheds of California. The focus of FRGP is to restore anadromous salmonid habitat with the goal of ensuring the survival and protection of coho salmon, steelhead trout, Chinook salmon, and cutthroat trout in coastal watersheds of California. Since 1981, there has been a collaborative effort with more than 600 stakeholders to restore declining salmon and steelhead trout habitat. Over the last 24 years, FRGP has invested over $170 million and supported approximately 2,600 salmonid restoration projects throughout the state's coastal watersheds.

Projects range from education and instream barrier removal, to riparian restoration and project monitoring. These projects are consistent with the Steelhead Restoration and Management Plan for California and the Recovery Strategy for California Coho Salmon. The success of these projects has contributed to an evolving program that directly benefits threatened and endangered anadromous salmonids in coastal California. Local partners in the Scott River watershed have received many FRGP grants since the Program's inception. Since 2001, CDFG has funded 38 instream and upslope projects (**Table 4-2**).

TABLE 4-2
CDFG-FUNDED FISHERIES RESTORATION GRANT PROGRAM
INSTREAM AND UPSLOPE PROJECTS IN THE SCOTT RIVER WATERSHED (2002-2007)

Project Name	Stream Location	Project Type
2002		
Diversion Improvement Program in Coho Over-Summering Area	French Creek, Miners Creek	Instream Habitat Restoration
Fish Screen Maintenance Program-Implementation	South Fork of Scott River, French Creek, Shackleford Creek	Project Maintenance
French Creek Restoration Project	French Creek	Public School Watershed and Fishery Conservation Educational Program
Lower Kidder Creek Enhancement Project	Kidder Creek	Riparian Restoration
Scott River Fish Screening Program III	Mill Creek, Moffett Creek	Fish Screening of Diversions
Shackleford Creek Demonstration Project	Shackleford Creek	Instream Habitat Restoration
Sugar Creek Flow Enhancement through Diversion Piping	Sugar Creek	Water Conservation Measures
2003		
Moffett Creek Road Abandonment and Decommission	Moffett Creek, Sissel Gulch, Skookum Gulch	Watershed Restoration (Upslope)
Scott River Water Balance - Precipitation Gaging	Scott River Basin	Monitoring Status and Trends
2004		
Fish Screen for Stapleton Pump Diversion	French Creek	Fish Screening of Diversions
Kangaroo Creek Fish Passage	Kangaroo Creek	Fish Screening of Diversions
Newton Enhancement Project	East Fork Scott River	Riparian Restoration
Scott River Adult Coho and Steelhead Spawning Ground Surveys	Various Scott River tributaries	Monitoring Status and Trends
Young's Dam Fish Ladder Construction	Scott River	Fish Ladder
2005		
Farmers Ditch Diversion Improvement Project	Scott River	Fish Screening of Diversions
Scott River - Out-Migrant Trapping of Key Tributaries	Scott River, Scott River Tributaries	Monitoring Status and Trends
Scott River Tailings Bank Stabilization and Channel Reconstruction Project	Scott River	Instream Bank Stabilization
Scott River Water Balance: Streamflow and Precipitation Gaging	Scott River, Scott River Tributaries	Monitoring Status and Trends
Scott River Watershed Monitoring Program - Water Quality	Scott River, Scott River Tributaries	Monitoring Status and Trends
Shackleford Creek Diversion Improvement Project	Shackleford Creek	Fish Screening of Diversions
2006		
East Fork Water Quality Improvement Project	East Fork Scott River	Water Conservation Measures
French Creek Riparian Planting and Fencing	French Creek	Riparian Restoration

TABLE 4-2 (Continued)
CDFG-FUNDED FISHERIES RESTORATION GRANT PROGRAM
INSTREAM AND UPSLOPE PROJECTS IN THE SCOTT RIVER WATERSHED (2002-2007)

Project Name	Stream Location	Project Type
2006 (cont.)		
Fish Screen Maintenance Program – Implementation	Boulder Creek, East Fork of the Scott River, Etna Creek, French Creek, Johnson Creek, Kidder Creek, Mainstem Scott River, Mill Creek, Miners Creek, Patterson Creek, Shackleford Creek, Sniktaw Creek	Project Maintenance
Scott River Restoration/Education Project	Various Scott River tributaries	Public School Watershed and Fishery Conservation Educational Program
Fish Passage through Diversion Improvement in the Scott River Basin	Diversion improvement at 13 sites; fish screens at 4 sites	Fish Passage
Rail Creek Fish Passage	Rail Creek	Fish Passage
Farmer's Ditch Fish Passage	Scott River	Fish Passage
Scott River Head Gate and Measuring Weir Installation Program	Scott River, SF Scott River; Sugar, French, Etna, Big Mill, Oro Fino and Kidder creeks	Water Conservation
Storm Damage Repair of Weirs in the Scott River Basin	Patterson, French, Shackleford and Minors creeks	Fish Passage
Scott River Fish Screening	Kangaroo, Etna and Minors creeks and Big Slough	Fish screens
Scott River Spawning Gravel	Sugar Creek, SF Scott River	Habitat Enhancement
Scott River Rearing Enhancement	Shackleford Creek, Scott River	Habitat Enhancement
2007		
Sugar Creek Debris Modification	Sugar Creek	Fish Passage
Young's Dam Fish Passage	Scott River	Fish Passage
Scott River Off-Channel Habitat Enhancement	Scott River	Habitat Enhancement
ITP Capacity Building for Siskiyou & Shasta Valley RCDs	Shasta River and Scott River watersheds	Capacity Building
2008		
Scott River Tributary Flow Gaging & Precipitation Monitoring	Scott River, Scott River Tributaries	Monitoring Status and Trends
Implementation of Key Coho Recovery Tasks in the Scott River Watershed	Scott River, Scott River Tributaries	Produce Dry & Critical Dry Year Contingency Plan and Develop several Priority Plans for Restoration Activities

SOURCE: CDFG, 2008

Table 4-2 is organized by the year that projects were funded. To clarify, projects are typically funded in one year and implemented in the following year. Hence, projects funded in fiscal year (FY) 2006/2007 were implemented in 2007 and beyond, and projects funded in FY 2007/2008 are being implemented in 2008 and beyond. For that reason, Table 4-2 includes past and present projects.

It is reasonably foreseeable that CDFG will continue to fund fisheries restoration projects in the Scott River watershed in the future, but it is difficult to project funding levels or funding priorities for FRGP. Future funding is determined during the annual budget process. For FY2007/2008, FRGP received $7.8 million from NOAA, and $8.75 million in state funding came from the General Fund, Wildlife Conservation Board, and Proposition 84 allocations. In FY2008/09, CDFG will likely receive $10.9 million in Proposition 84 funds (according to the May 2008 revision of the Governor's budget), and $9.5 million from NOAA (Flosi, 2008).

CDFG Klamath River Restoration Grant Program

In FY 2006/2007, CDFG received a one-time budget augmentation to fund the Klamath River Restoration Grant Program (KRGP). This program funds projects that have immediate benefits for salmon and steelhead. The emphasis was on projects to remove permanent or seasonal migration barriers in otherwise functioning historical salmon and steelhead streams. CDFG has directed funds for projects that provide fish passage, including removal of flashboard dams and screening of diversions (**Table 4-3**). All projects funded in the Scott River watershed are being implemented by the project applicant. Similar to the FRGP, all projects that were funded in 2006 have been disbursed for project implementation in 2007. Depending on the nature of the project, some projects will continue through 2008. KRGP was not reauthorized for additional funding in FY2007/2008 (Scott, 2007). Consequently, it is reasonably foreseeable that the current listed projects will be the only projects funded KRGP. These projects will be covered by individual SAAs.

TABLE 4-3
CDFG KLAMATH RIVER RESTORATION GRANT PROGRAM PROJECTS IN THE SCOTT RIVER WATERSHED (FY 2006/2007)

Project Name	Project Type	Location
Farmers Ditch Fish Passage	Fish Passage	Farmers Ditch
Fish Passage through the Improvement of 13 diversion sites	Fish Passage	East Fork Scott, Scott River, French & Shackleford creeks
Rail Creek Fish Passage	Fish Passage	Rail Creek
Scott River Fish Screen Program	Screening, Construction, Maintenance Program	Big Slough, Etna, Kangaroo & Miners Creeks
Scott River Head Gate & Measuring Weirs	Diversion Improvements	Scott River
Scott River Rearing Habitat Improvement	Habitat Improvements	Scott River
Scott River Spawning Gravel Demonstration	Spawning Enhancement	Scott River
Storm Damage Repair of Weirs	Storm Damage	French, Miners, Patterson & Shackleford creeks

SOURCE: CDFG, 2007

NRCS Water Quality and River Restoration Program

In addition to several other conservation programs, NRCS administers the Environmental Quality Incentives Program (EQIP) in the Program Area. EQIP provides individuals engaged in livestock and agricultural production with incentive payments and cost-share benefits to implement conservation measures on agricultural lands in the Scott Valley. Commonly funded EQIP projects include implementation of ground and surface water conservation measures, riparian fencing, and healthy forest and fuel load projects. The highest priority is agricultural improvements that will help meet water quality objectives (NRCS, 2007a).

NOAA Community-Based Restoration Program

NOAA Restoration Center has administered its Community-based Restoration Program since 1996 in order to restore NOAA trust resources and to improve the environmental quality of local communities.[5] This program uses a grassroots approach to engage communities in fisheries habitat restoration. Although NOAA Restoration Center has not funded projects through the Community-Based Restoration Program in the past five years, NOAA is currently engaged in discussions with SQRCD regarding several project initiatives, including:

- Support for water leasing via the Scott River Water Trust;
- Fish passage enhancement at up to two existing irrigation water diversions on tributaries to the Scott River;
- Juvenile salmon rearing habitat restoration on the mainstem Scott River;
- Gravel enhancement on Sugar Creek; and
- Gravel enhancement on the South and East Forks of the Scott River.

Siskiyou County Department of Public Works and Five Counties Salmonid Conservation Program

In response to the listing of coho salmon under ESA, five counties in northern California – Siskiyou, Del Norte, Humboldt, Trinity, and Mendocino – joined together to form the Five Counties Salmonid Conservation Program (5C Program). These five counties are within the "Transboundary Evolutionarily Significant Unit (ESU)" for the coho salmon (CFSP, 2002). The mission of the 5C Program is to strive to protect the economic and social resources of northwestern California by providing for the conservation and restoration of salmonid populations to healthy and sustainable levels and to base decisions on watershed rather than county boundaries. Siskiyou County Department of Public Works (DPW) is the county-liaison for the 5C Program.

As part of this joint effort, UCCE and county staff developed a “Water Quality and Stream Habitat Protection Manual for County Road Maintenance in Northwestern California Watersheds.” The purpose of this manual is to provide a “user-friendly, fish-friendly” guide for county road maintenance staff as part of each county’s primary mission to provide a safe and

5 NOAA’s NMFS acts on behalf of the U.S. Department of Commerce as a trustee for coastal and marine resources, including commercial and recreational fishery resources; anadromous and catadromous species; marine mammals; endangered and threatened marine species and their habitats; marshes, mangroves, seagrass beds, coral reefs, and other coastal habitats; and resources associated with National Marine Sanctuaries and National Estuarine Research Reserves.

open road system for the traveling public. DPW staff has been trained to use this manual and to implement sediment control practices related to bridge maintenance, road redesign and reconstruction, as well as remediation of fish passage barriers.

The 5C Program has been a catalyst for several county-wide assessments. In 2000, an assessment of culvert fish barriers was conducted. Subsequently, Siskiyou County has completed several barrier removal projects involving the replacement of culverts with bridges. Future projects of this kind are contingent on available grant money and staff time (Sumner, 2007). During the spring of 2006, DPW received authorization to initiate a Direct Inventory of Roads and Treatments (DIRT), using the 5C Program protocols, for the Scott and Salmon River watersheds. Using grant monies from CDFG, DPW completed an inventory of 377 miles of county-maintained roads in the Salmon and Scott River watersheds (Sumner, 2008). The goal of the DIRT is to identify specific sites along county roads and facilities that are contributing sediment to waterways and to develop and prioritize implementation treatments (5C Program, 2007). The DIRT program will support Siskiyou County's implementation of actions identified in the voluntary TMDL Action Plan (Sumner, 2007).

It is reasonably foreseeable that Siskiyou County will continue to implement sediment control practices related to bridge maintenance, road redesign and reconstruction, as well as remediation of fish passage barriers. However, it is too early to determine the range and location of projects that would be implemented. DPW plans to prioritize roads using findings from the inventory in the near future.

Siskiyou Resource Conservation District Projects

In addition to developing the Program with CDFG, SQRCD has been conducting a variety of conservation and restoration projects over the years on public and private lands within the District by providing technical, financial, and educational support to willing landowners. In order to do so, SQRCD has sought funding from a variety of sources, including CDFG, to implement on-the-ground restoration and habitat enhancement projects.

Table 4-4 provides a summary of recently completed and current, ongoing SQRCD activities. This table provides a clear picture of the current on-the-ground implementation work that SQRCD is engaged in, in addition to the upcoming Klamath River Restoration Grant Program projects discussed above (and shown in Table 4-3).

SQRCD will continue to implement projects similar to these listed above. The range and scope of Covered Activities of this kind are defined in the proposed Incidental Take Permit (ITP). The general categories include flow enhancement, habitat improvement, and barrier removal/fish passage, and are described in detail in Chapter 2. The mitigation measures required as part of the Program would be the responsibility of the SQRCD and have been evaluated in Chapter 3. The Covered Activities and associated avoidance, minimization and mitigation measures, are the focus of the Program's cumulative contribution.

TABLE 4-4
RECENTLY COMPLETED AND ONGOING SQRCD PROJECTS (2005-2008)

Project Name	Project Type	Project Partner/ Funding Source
Recently Completed Projects		
French Creek Riparian Protection & Enhancement	Habitat Restoration	SWRCB / Proposition 13
Moffett Creek Road Abandonment & Decommission	Land Management	CDFG
Newton Enhancement Project Task 1	Water Quality	Pacific States Marine Fisheries Commission / CDFG
NRCS - Irrigation Water Management I and II	Water Supply/Irrigation Efficiency	NRCS Farm Bill
Scott Gage	Water Supply/Irrigation Efficiency	USFWS
French Creek Riparian Protection & Enhancement	Habitat Restoration	SWRCB/Prop 13
Sugar Creek Flow Enhancement Through Diversion Piping	Water Supply Efficiency	CDFG/CCSRP
Scott River Watershed Fish Screening Program	Fisheries Protection	Wildlife Conservation Board
Mid-Klamath River Chinook Spawner Escapement Survey	Fisheries Studies	USFWS
Implementation of Scott River Water Trust Program (Phase II)	Water Supply Studies	CDFG
Newton Enhancement Project Task II	Habitat Restoration	CDFG / California Costal Salmon Recovery Program (CCSRP)
Scott River Coho Spawning Assessment	Fisheries Studies	USFWS
Scott River Adult Coho Spawning Ground Surveys	Fisheries Studies	CDFG / CCSRP
Scott River Juvenile Coho Summer Habitat Utilization Surveys	Habitat Studies	USFWS
Scott River Water Balance: Streamflow & Precipitation Gaging	Water Supply Studies	CDFG
Scott River Out-Migrant Trapping of Key Tributaries	Fisheries Studies	CDFG
Scott River Water Balance - Precipitation Gaging	Water Supply Studies	CDFG
Scott River Watershed Monitoring Program	Water Quality	CDFG
Shackleford Creek Diversion Improvement Project	Water Supply Efficiency	CDFG
Scott Mesohabitat Typing	Fisheries Studies	USFWS
Current, Ongoing Projects		
Aquatic Habitat Needs Study Plan for Scott Mainstem & Tributaries	Fisheries Studies	USFWS
Farmer’s Ditch Diversion Improvement	Water Supply Efficiency	CDFG
Farmer's Ditch Alternative Stock Watering System	Water Supply Efficiency	Cantara Trustee Council (CTC), Scott River Watershed Water Quality Improvement Project (SRWWQIP)
Scott River & Major Tributaries Instream Flow Analysis	Water Supply Studies	USFWS
Scott River Riparian Restoration Analysis	Habitat Restoration	USFWS
Wolford Slough Groundwater Retention	Water Supply	CTC, SRWWQIP
Sugar Creek Flow Enhancement	Water Quality	CTC, SRWWQIP
Scott River Emergency Flow Enhancement Project.	Water Supply	DWR

TABLE 4-4 (Continued)
RECENTLY COMPLETED AND ONGOING SQRCD PROJECTS (2005-2008)

Project Name	Project Type	Project Partner/ Funding Source
Current, Ongoing Projects (cont.)		
Scott Valley Community Groundwater Monitoring Program	Water Supply	Siskiyou County
Farmer's Ditch Off-Channel Rearing Project - CDFG Adaptive Management	Fisheries	PSMFC
Cliff Lake Rehabilitation Project	Water Supply	USDA/KNF
Storm Damage Repair of Vortex Boulder Weirs in the Scott River Watershed	Water Supply/Water Quality	CDFG/KRRG
Shackleford Creek Boulder Weir Repair	Water Supply	FWS/PW
Adult Coho Spawning Ground Survey	Fisheries	USFWS
Scott River Fish Screen Construction & Maintenance	Fisheries	CDFG/KRRG
Scott River Water Trust	Water Supply	DWR
Fish Passage-Diversion Improvement in Scott River Watershed	Fisheries	CDFG/KRRG
Scott River Head Gate & Measuring Weir Installation	Water Quality	CDFG/KRRG
KRRP-Shackleford Creek Diversion Structure Improvement	Water Supply	BOR
Fish Passage for Agricultural Diversion in Scott River System	Water Supply	USFWS
Shackleford Creek Confluence Restoration Project-2007-Fishpass-HR-04	Water Supply	USFWS
Scott River Summer Habitat Inventory Mapping	Fisheries	USFWS
Scott River Rearing Habitat Improvement	Fisheries	CDFG/KRRG
Scott River Spawning Gravel Demonstration	Fisheries	CDFG/KRRG
French Creek Riparian Protection & Enhancement II	Riparian	FWS/PW
French Creek Riparian Planting & Fencing	Riparian	CDFG
Jenner-Hurlimann Fish Screens - CDFG Adaptive Management	Fisheries	PSMFC
French Creek Watershed Advisory Group (WAG)	Fisheries	CTC
SRWWQIP: Task 2 - Scott River Watershed Planning & Assessment	Planning	CTC
Sugar Creek Flow Enhancement Project, Phase 2	Water Supply	CDFG/CCSRP
East Fork Water Quality Improvement Project	Water Supply/Water Quality	CDFG
Farmers Ditch Fish Passage	Water Supply/Water Quality	CDFG/KRRG
Scott River Tributary Flow Gaging & Precipitation Monitoring	Water Supply	CDFG/FRGP
Scott River Off-Channel Habitat Enhancement	Fisheries	CDFG/FRGP
Scott River Instream Transfer of Water Rights	Water Supply	Bella Vista Foundation

SOURCE: SQRCD, 2006; Yokel, 2008.

Scott River Watershed Council

The Scott River Watershed Council provides a multi-interest effort to cooperatively seek solutions, to help manage local resources, and to solve related problems. The primary role is to inform the community on resource issues, to aid in resource management, and to recommend to SQRCD prioritized project opportunities in the Scott River Watershed for funding and implementation. Together with the SQRCD, the Council works cooperatively to monitor the effectiveness of implemented programs, plans, and projects (SRWC, 2008).

French Creek Watershed Advisory Group

The French Creek Watershed Advisory Group (WAG) was formed in 1990 at the advisement of the State Board of Forestry to address cumulative watershed effects and road-related discharges of sediment in the French Creek watershed, a sub-watershed located within the Program Area (NCRWQCB, 2005). This non-regulatory body initially focused on reducing sediment yield in the local drainage by preparing the French Creek Watershed Road Management Plan and Monitoring Plan. Subsequently, WAG members facilitated implementation of recommended actions including road improvements (out-sloping, rocking, and modifying drainage systems) and monitoring actions (measuring fine sediments and other water quality indicators). French Creek WAG participants include local, state, and federal agencies representatives from Siskiyou County, SQRCD, CDFG, California Department of Forestry and Fire Protection, NCRWQCB, the Klamath Basin Ecosystem Restoration Office of the USFWS, NRCS, and USFS, as well as SRWC, timber representatives from Fruit Grower’s Supply Company, Roseburg Resources Company, Sierra Pacific Timber Products, the Audubon Society, and the French Creek Drainage Property Owners’ Association. In 1996, the French Creek WAG received the Conservation Fund (CF) Industries/ CF National Watershed Award for voluntary initiatives (SRWC, 2004 cited in NCRWQCB, 2005). Voluntary measures guided by WAG are ongoing.

From 2002 to the present, NRCS has allocated approximately $4.1 million to projects in the Scott Valley, primarily from two funding sources: the Klamath sub-fund, and the general EQIP fund (Patterson, 2008). Klamath sub-fund projects have included improved water delivery systems (e.g., shifting from flood irrigation to pivot sprinkler systems) and improved irrigation water management (e.g., installing soil moisture sensors and providing technical assistance to use them). In 2006, NRCS distributed $548,000 toward 10 contracts to implement water conservation and water quality projects in high-priority streams in the Scott Valley. Only two of these 10 contracts have been completed and the rest are ongoing. In 2007, $263,000 was disbursed for implementation of similar projects (Patterson, 2007). No Klamath sub-fund allocations were made in 2008 (Patterson, 2008).

Under the general EQIP program, a wider variety of contracts have been issued to implement grazing, open space, and wildlife habitat improvements. These contracts have been a complement to the more focused Klamath sub-fund projects (Patterson, 2007). Most recently, general EQIP funds have been allocated to forest/fuel load management contracts. In 2006 and 2007, approximately $120,000 was distributed each year throughout the Scott Valley. In 2008, $187,000 was distributed (Patterson, 2008). NRCS is currently developing a consolidated report that identifies the number of projects (including current and ongoing), total funds obligated, and performance measures for western Siskiyou County.

In addition to EQIP, Conservation Reserve Program[6] contracts are available to farmers to convert highly erodible cropland or other environmentally sensitive acreage to vegetative cover, such as native and non-native grasses, trees, filterstrips, and riparian buffers (Patterson, 2007). Farmers receive an annual rental payment for the term of the multi-year contract. Cost sharing is provided to establish the vegetative cover practices (NRCS, 2007b). These activities contribute to improved water quality, habitat enhancement, and water usage efficiency.

U.S. Fish and Wildlife Service Klamath Restoration Program

USFWS administers the Klamath Restoration Program, which funds projects that provide fish passage improvements, fish screen repairs, habitat restoration, and community education. These projects benefit federal trust species (such as salmon, trout, and other species important to Tribal traditions), as well as recreational and commercial fisheries (USFWS, 2006). Projects are funded through three funding streams: Jobs in the Woods (JITW), Partners for Fish and Wildlife, and the Fish Passage Program. JITW program was the USFWS' contribution to the NWFP's watershed restoration activities. The Partners for Fish and Wildlife Program provides technical and financial assistance to private landowners for riparian and in-stream habitat restoration, and the Fish Passage Program provides funds to improve fish passage through waterways. The program continues to fund restoration projects despite the expiration of the Klamath Act as a funding source (Eastman, 2008). **Table 4-5** shows the projects that were funded in the Program Area.

4.1.4 Other Activities

In addition to the activities and projects described above, there are four ongoing projects that in combination with the Covered Activities could make the impacts from those activities cumulatively considerable.[7] They include: 1) the Federal Energy Regulatory Commission's (FERC) re-licensing of the Klamath Hydroelectric Project; 2) Fruit Growers Supply Company's (FGSC) preparation of a multispecies Habitat Conservation Plan (HCP); 3) recent changes to the State Watermaster Program by the State Legislature and DWR; and 4) the companion Shasta River Watershed-wide Permitting Program.

FERC Relicensing of the Klamath Hydroelectric Project

FERC is currently considering PacifiCorp's application to relicense its Klamath Hydroelectric Project. PacifiCorp is a subsidiary of MidAmerican Energy Holdings Company. The Klamath Hydroelectric Project encompasses six hydropower dams in Oregon and California, including Irongate, Copco No. 1, Copco No. 2, and J.C. Boyle on the mainstem Klamath River in

6 The Conservation Reserve Program is administered through the Farm Service Agency, a partner organization of NRCS.

7 "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future project projects (CEQA *Guidelines,* § 15065).

TABLE 4-5
SCOTT RIVER WATERSHED PROJECTS FUNDED BY
USFWS KLAMATH RESTORATION PROGRAM (2001–2008)

Project Name	Project Type	Location
2001		
Patterson Creek Enhancement Project	Habitat Restoration	Patterson Creek
Bosch Habitat Improvement Project	Habitat Restoration	Pond adjacent to Moffett Creek
2002		
Scott River Fish Passage Project	Fish Passage	Scott River
Landowner Riparian Planting and Fencing Project	Habitat Restoration	Scott River Basin
Plank Ranch Habitat Diversity	Habitat Restoration	Plank Ranch
2004		
Scott River Watershed Education & Communication	Education	Scott River Basin
French Creek Drainage Protection & Enhancement Project	Habitat Restoration and Protection	French Creek
2006		
Scott River Water Quality and Wildlife Corridor Improvement	Water Quality and Habitat Restoration	Scott River
2007		
Shackleford Creek Confluence Restoration Project	Habitat Restoration	Scott River
Shackleford Creek Boulder Weir Repair	Fish Passage and Water Quality	Scott River
2008		
Rail Creek Fish Passage and Diversion Improvement Project	Fish Passage and Water Quality	Scott River

NOTE: This table includes on-the-ground projects only. It does not include USFWS-funding for planning, coordination, fisheries studies nor habitat analyses. This table overlaps with projects identified in Table 4-3 that were implemented by the SQRCD.

SOURCE: USFWS, 2007

California, all of which block passage of anadromous fish to spawning and rearing areas in the upper Klamath Basin. Water quality problems in the Klamath River have also been implicated in the decline of the Klamath River's anadromous fish runs. The Klamath is included on California's 2002 section 303d list of impaired water bodies for nutrients, organic enrichment/low dissolved oxygen, and temperature (SWRCB, 2003). Water quality problems are associated with polluted runoff and massive changes to the natural hydrology of the Upper Klamath Basin, and with the effects of the PacifiCorp reservoirs themselves, including the growth of the blue-green algae *Microcystis aeruginosa*, which produces a toxin that is harmful to both fish and human health (CalEPA, 2005). In addition, recent studies have documented significant mortality in juvenile salmon and steelhead populations in the Klamath River downstream of Irongate Dam due to infectious disease, primarily caused by the endemic parasites. In 2004, infection rates in juvenile Chinook salmon ranged from about 20 to 70 percent for *Ceratomyxa shasta* and from 40 to 96 percent for *Parvicapsula minibicornis.* In 2005, dual infection rates at or near

100 percent were observed for consecutive weeks in April, a critical period for outmigration of juvenile anadromous fishes[8] (USFWS, 2007).

Adult salmonids have also been susceptible to infectious disease in the Klamath River. As described in Chapter 3.3, Biological Resources: Fisheries and Aquatic Habitat, a major adult salmonid mortality event occurred in 2002. At least 33,000 adult salmonids died in the lower 36 miles of the Klamath River between mid- to late-September (CDFG, 2004b). Fall-run Chinook salmon were the primary species affected, but coho salmon, steelhead, and other fish species also suffered losses.

The decline of the fishery has had a severe impact on local economies dependent on the salmon runs, including the Klamath River Tribes (the Yurok, Karuk, Hoopa) and the Klamath Tribes of Oregon; commercial fishing and related enterprises on the California and Oregon coasts; and the sports fishing industry (FERC, 2007).

FERC released a Final Environmental Impact Statement (EIS) for relicensing of the Klamath Hydroelectric Project on November 16, 2007, pursuant to the National Environmental Policy Act (FERC, 2007). According to the Final EIS, the project currently has a generating capacity of 161 megawatts and generates on average 716,820 megawatt-hours of electricity annually. In the Final EIS, FERC assessed the environmental and economic effects of the project as proposed by PacifiCorp and identified the following five alternatives:

1. Continuing to operate the project with no changes or enhancements (no-action alternative);
2. Operating the project as proposed by PacifiCorp with additional or modified environmental measures (staff alternative);
3. Staff alternative with conditions filed by the Department of the Interior and Department of Commerce;
4. Retirement of the Iron Gate and Copco No. 1 developments with additional or modified measures for the remaining developments; and
5. Retirement of the Iron Gate, Copco No. 2, Copco No. 1, and J.C. Boyle developments, with additional or modified measures for the remaining developments.

Based on the analysis in the Final EIS, FERC staff concluded that the best alternative for the Klamath Hydroelectric Project would be to issue a new license consistent with the environmental measures specified in the Staff Alternative, but the Commission itself has not yet made a licensing decision.

[8] USFWS, in cooperation with the Hoopa, Yurok, and Karuk Tribes, is conducting ongoing studies of pathogen infection and anadromous fish health in the Klamath River.

The Klamath Settlement Group, a coalition of tribal, commercial and sports fishing, agricultural, and environmental interests, working with state, local, and federal government agencies, released for public review the "Proposed Klamath Basin Restoration Agreement" on January 15, 2008 (Klamath Settlement Group, 2008).[9,10] The agreement seeks to rebuild fisheries, sustain agricultural communities, and resolve other longstanding disputes related to the allocation of water resources in the Klamath Basin. Key provisions of the Proposed Agreement include:

- A comprehensive program to rebuild Klamath River fish populations sufficient for sustainable tribal, recreational, and commercial fisheries. Elements include actions to restore fish populations and habitats, including a program to reintroduce anadromous species in currently-blocked parts of the Basin; actions to improve fish survival by enhancing the amount of water available for fish, particularly in drier years; and other efforts to support tribes in fisheries reintroduction and restoration efforts;

- A reliable and certain allocation of water sufficient for a sustainable agricultural community and national wildlife refuges;

- A program to stabilize power costs for the Upper Basin's family farms, ranches, and for the two national wildlife refuges; and,

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9 The proposed agreement lists the following as parties to the agreement:

United States
U.S. Department of Agriculture, Forest Service
U.S. Department of Commerce's National Marine Fisheries Service
U.S. Department of the Interior, including Bureau of Indian Affairs, Bureau of Land Management, Bureau of Reclamation, and Fish and Wildlife Service

State of California
California Department of Fish and Game

State of Oregon
Oregon Department of Environmental Quality
Oregon Department of Fish and Wildlife
Oregon Water Resources Department

Tribes
Hoopa Valley Tribe
Karuk Tribe
Klamath Tribes
Yurok Tribe

Counties
Humboldt County, California
Klamath County, Oregon
Siskiyou County, California

Parties Related to Klamath Reclamation Project
Tulelake Irrigation District
Klamath Irrigation District
Klamath Drainage District
Klamath Basin Improvement District
Ady District Improvement Company
Enterprise Irrigation District
Malin Irrigation District
Midland District Improvement Company
Pine Grove Irrigation District
Pioneer District Improvement Company
Poe Valley Improvement District
Shasta View Irrigation District
Sunnyside Irrigation District
Don Johnston & Son
Modoc Lumber Company
Bradley S. Luscombe
Randy Walthall and Inter-County Title Company
Reames Golf and Country Club
Winema Hunting Lodge, Inc.
Van Brimmer Ditch Company
Collins Products, LLC
Plevna District Improvement Company
Klamath Water Users Association
Klamath Water and Power Agency

Klamath Off-Project Water Users Association

Non-Governmental Organizations
American Rivers
California Trout
Friends of the River
Klamath Forest Alliance
National Center for Conservation Science and Policy
Northcoast Environmental Center
Northern California/Nevada Council Federation of Fly Fishers
Pacific Coast Federation of Fishermen's Associations
Salmon River Restoration Council
Trout Unlimited.

10 Federal agencies did not release the Proposed Agreement.

- A program intended to insure mitigation for counties that may be impacted by the removal of the hydroelectric facilities.

The Group is presently negotiating with PacifiCorp in an effort to reach a separate “Hydropower Agreement” that would include removal of the four lower Klamath River dams, as contemplated in the fifth Final EIS alternative. The Group sees dam removal as a necessary part of the overall effort to restore the Klamath River. As of June 2008, PacifiCorp had not signed onto either agreement, and FERC had not yet made a decision on the relicensing of the Klamath Project.

The alternatives analyzed in the Final EIS would result in varying degrees of benefit to the entire Klamath River fishery, including the Program Area. The No-Action Alternative would result in the continued impairment of water quality and the salmonid fishery. This would affect not only the mainstem Klamath and the areas above the dams, but the entire Klamath River watershed including the Program Area. The remaining alternatives represent, in general, progressively more effective means of addressing the existing water quality, flow, and migration barrier issues affecting the Klamath fishery with the likelihood that the greatest benefits would be realized through implementation of the last alternative, which would involve retirement and removal of the four dams.

It is premature at this time to determine which alternative will be selected by FERC. However, to be conservative in the cumulative impact analysis, it is assumed that the No-Action Alternative is implemented.

Fruit Growers Supply Company Multispecies Habitat Conservation Plan

FGSC plans to submit applications to USFWS and NMFS for ITPs authorizing potential incidental take of federal endangered and threatened species during their otherwise lawful timber harvesting activities. FGSC intends to request coverage from NMFS for potential take of coho salmon and unlisted Chinook salmon (*O. tschawytscha*) and steelhead (*O. mykiss*). FGSC also intends to request coverage from USFWS for northern spotted owl, (*Strix occidentalis caurina*) and Yreka phlox (*Phlox hirsute*), although take of listed plant species is not prohibited under ESA. Take authorization for unlisted covered species would become effective upon listing. Pursuant to ESA section 10, FGSC’s ITP applications will include a multispecies HCP which will apply to approximately 154,000 acres of commercial timber land owned by FGSC in Siskiyou County. On February 22, 2008, USFWS and NMFS issued a Notice of Public Scoping and Intent to Prepare a Joint EIS (USFWS-NMFS, 2008) with comments due on or before April 7, 2008.

To comply with CESA, FGSC intends to request a Consistency Determination under Fish and Game Code, § 2080 (see Chapter 5, section 5.1.1 for information on Fish and Game Code, § 2080). FGSC also intends to request a master SAA from CDFG. CDFG has been a party to the discussions between FGSC, USFWS, and NMFS and the best management practices to protect federal and state listed species which will be incorporated into the HCP have been developed in cooperation with CDFG. CDFG intends to use the EIS as a CEQA equivalent document in accordance with Fish and Game Code, § 15221 in its consideration of the master SAA.

Changes to the State Watermaster Program

DWR established the state-wide watermaster program in 1924 to provide for general public welfare and safety after many injuries and some deaths resulted from disputes over adjudicated water rights. The main purpose of the watermaster program is to ensure water is allocated according to established water rights as determined by court adjudications or agreements by an unbiased, qualified person, thereby reducing water rights-related litigation, civil lawsuits, and law enforcement workload. It also helps prevent the waste or unreasonable use of water (DWR, 2007).

Until recently, DWR charged the agricultural producers a total of $85,000 per year to cover one half of the expenses associated with the program in Siskiyou County. A tax assessment was established for water users as the method for collecting payment for these charges. Watermaster charges have historically been assessed among individual water users using a formula of 10 percent based on per capita and 90 percent based on the total water right (Krum, 2007). In the past the state has covered the other half of the total program cost which, up to FY 2003/2004, was reported at $170,000.

In 2003, the California Water Code was amended so that the General Fund no longer pays for half the cost of watermaster service. As a result, the entire cost will become the responsibility of the water users. In addition to this change, DWR has changed its cost allocation procedures, and subsequently DWR has proposed an increase of 2.5–3.5 times the existing watermaster service rate. The combination of the proposed rate increase and new payment structure could ultimately result in a five- to seven-fold cost increase for watermaster service in both the Shasta and the Scott watersheds.

For the past several years, the State Legislature and BOR have provided financial relief from these watermaster service cost increases. Most recently, the State Legislature reversed a decision to increase the tax assessment by 300–500 percent over the historic $85,000 watermaster fee. However, this decision was not permanent and does not provide any legislative guarantees that fees will remain at the current rate. Any future cost increases would apply to all water users receiving watermaster services from DWR. Many landowners feel that increased watermastering costs, in addition to increasing costs associated with environmental regulatory compliance, could present a cumulative contribution to land use change.

The Save our Shasta and Scott Valleys Coalition worked with local legislators to achieve the passage of AB1580 (Chapter 416, Statutes of 2007) which creates a joint Scott Valley and Shasta Valley Watermaster District (District). This bill gives the District the power to act as watermaster over decreed water rights instead of DWR, and gives the District the power to adopt ordinances and regulations, acquire and dispose of property, appoint employees, enter contracts, and charge fees. In February 2008, the Siskiyou County Board of Supervisors appointed the initial Board of Directors for the District, consisting of seven members (henceforth five board directors will be elected and two appointed by the Board of Supervisors). The Board of Directors held its initial organizational meeting in February 2008. Efforts are currently underway to collect the requisite signatures from District members to be presented to the Siskiyou County Superior Court to request transfer of watermaster responsibilities in the Scott and Shasta Valleys from DWR to the

District (Krum, 2008). The minimum legal requirement for the Court to hold a hearing to initiate this change is approval by 15 percent of the "conduits" which in this case is synonymous with "diversions." As of June 2008 the District had obtained signatures from approximately 40 percent of the conduit holders. The District is continuing to collect signatures and it is anticipated that at some time in the near future they will present their request to the Court. The District is capable of fulfilling the watermastering requirements of the three decrees in the Scott River watershed. This cumulative analysis conservatively assumes that individuals receiving watermaster service will be subject to an increase in cost for this service in the near future and that this could have implications for viability of agricultural operations.

Shasta River Watershed-Wide Permitting Program

CDFG and the Shasta Valley Resource Conservation District (SVRCD) have developed a similar watershed-wide permitting program for the Shasta River watershed, also in Siskiyou County. On March 29, 2005, SVRCD submitted an application to CDFG for a watershed-wide incidental take permit (ITP) pursuant to Fish and Game Code, § 2081 (b) and (c). On April 22, 2005, SVRCD submitted a notification to CDFG pursuant to Fish and Game Code, § 1602.Thereafter, CDFG worked with SVRCD and Agricultural Operators to develop the Shasta River Watershed-wide Permitting Program (Shasta River Program) including the ITP (ITP No. 2081-2005-026-01) and MOU and MLTC. Together, the ITP, MOU and MLTC, and individual sub-permits and SAAs comprise the Shasta River Program. Similar to the Program for the Scott River, under the Shasta River Program SVRCD, DWR, and participating Agricultural Operators will conduct Covered Activities in accordance with the conditions in their SAAs to protect fish and wildlife resources, including coho salmon, and the avoidance, minimization, and mitigation measures specified in the ITP and sub-permits. During the first five years of the Program, the original term of any SAA CDFG issues under the Program will be five years. CDFG may extend the term one time for a period of up to five years if the SAA holder requests an extension prior to the SAA's expiration. All SAAs issued or extended after the first five years of the Program will expire on the expiration date of the ITP (i.e., the expiration date of the Program). The term of the ITP will be 10 years and all sub-permits will be written to expire on the expiration date of the ITP. The Shasta River Program is currently undergoing CEQA review. The cumulative analysis conservatively assumes that the Program will be approved and that Covered Activities will be implemented according to the terms and conditions of the SAA MOU and MLTC and ITP throughout the entire Shasta River watershed.

4.2 Cumulative Impacts and Mitigation Measures

Potential cumulative impacts of the Program on the resources described in Chapters 3.1 through 3.7 are described below. As explained in Section 4.1 above, the purpose of this analysis is to determine whether the impacts of the Program will be cumulatively considerable in combination with the potential impacts of past, present, and probable future government regulatory initiatives and similar past, present, and probable future activities similar to the activities the Program covers, including restoration activities, and their related impacts.

4.2.1 Land Use and Agriculture

The following analysis seeks to determine whether Impact 3.1.1 ("The Program could result in the conversion of agricultural land within the Scott River watershed to non-agricultural uses") from Chapter 3.1, Land Use and Agriculture, which is found to be less than significant, could combine with impacts of other recent and related regulatory actions to cause a cumulatively considerable impact on land use, particularly whether these actions taken together would likely result in a conversion of agricultural land to non-agricultural uses.

Today, the resource-based economy of the Scott River watershed is primarily ranching and farming. Historically, however, gold mining, farming, ranching and logging were mainstays of the Scott Valley economy (Charnley et al., 2006). Mining diminished in the 1950s, with only small-scale operations continuing to occur near Scott Bar. In the 1970s, the downturn in the timber economy began and timber workers began leaving the local area (Charnley et al., 2006). Further declines in timber production on the KNF, in the years immediately preceding the NWFP, dramatically affected the community's remaining timber workers. Most of the timber workers who still lived in the community chose to leave Siskiyou County with their families in the early 1990s. Then, between 1994 and 2002, two of the remaining timber mills closed. This caused a loss of 145 jobs for Scott Valley residents. During this period of time, manufacturing sector jobs diminished from 14 percent to 4 percent of total employment (Charnley et al., 2006). The timber workers that remained had difficulty finding steady employment, with private timberlands comprising only 18 percent of the watershed's lands (USDA Forest Service Forest Inventory and Analysis data in Charnley et al., 2006).

Ranchers and farmers in the Scott Valley community, whose families have been ranching and cultivating crops for generations, have also experienced economic stress over the last decade and have a difficult time maintaining their way of life. The pressures have many sides: fluctuations in beef, alfalfa, and hay prices in the face of rising labor costs and rising production costs; drought; and the increased cost, responsibility, and liability associated with complying with new environmental regulations imposed to protect endangered species and improve water quality. These regulations have modified land management practices on federal lands (including grazing allotments) and resulted in greater restrictions on activities within the bed, banks, and channel of streams. Each of these regulations has its own set of requirements and costs.

As noted in Section 4.1.4., Agricultural Operators who divert water according to the French Creek (1958), Shackleford Creek (1950), and Scott River Decrees (1980) are expected to experience an increased economic burden related to an expected increase in watermaster service costs. Agricultural Operators under the French Creek and Shackleford Creek Decrees currently pay watermaster fees, while Agricultural Operators under the Scott River Decree who choose to participate in the Program will likely be paying costs for water use verification for the first time (with the exception of diverters on Wildcat Creek, Oro Fino Creek and Sniktaw Creek who are currently watermastered). Any water diverter under the Scott River Decree that currently does not receive watermaster services, but chooses to participate in the Program, will be required to participate in a verification process for the use of water in accordance with a valid right. Whether this verification is done by the newly-formed district or in some other way, this would be a new cost for Agricultural Operators who do not currently receive watermaster service.

As identified in Impact 3.1-1, the cost to participate in the Program (including performing specific avoidance, minimization and mitigation measures) could potentially reduce net income for participating Agricultural Operators. Future net income reductions could possibly undermine the financial viability of some existing agricultural operations. The cumulative impact of environmental regulations, watermaster fees, and Program-related fees may cause landowners of properties with less viable agricultural operations to feel increased pressure to convert or sell their land. However, the cost and effort for those who choose to comply with Fish and Game Code, § 1600 *et seq*. and CESA outside the Program would likely be much greater than for Program participants. In some cases, this could result in conversion to non-agricultural uses, including attempts to subdivide agricultural land for rural residential or "ranchette" development.

The incremental impact on land use and agriculture from the Program, when combined with impacts from similar past, present, and probable future regulatory programs, will not be cumulatively considerable because the costs and effort associated with complying with these requirements individually, i.e., outside the Program, would likely be much greater than for Program participants; the net effect of the Program compared to existing conditions, is considered beneficial. The Program would therefore not contribute to loss of economic viability of farming and ranching enterprises, and so would not cumulatively contribute to pressures to convert prime farmland, unique farmland, or farmland of statewide importance to non-agricultural uses, and would not be expected to cause new conflicts with existing zoning for agricultural use or Williamson Act contracts.

4.2.2 Geomorphology, Hydrology, and Water Quality

Short-term impacts to water quality, stream channel configuration, and stream flow are identified as significant impacts in Chapter 3.2, Geomorphology, Hydrology, and Water Quality (Impacts 3.2-1 and 3.2-3). These impacts are related to construction activities in and around the bed, banks, and channel of streams, and operation and maintenance of instream structures. While Impacts 3.2-1 and 3.2-3 can be reduced to less than significant with the mitigation measures identified in this report, some residual, short-term impacts would remain. These would include short-term (i.e., during construction and during the first winter after construction) increases in turbidity and sedimentation, short-term alteration of flows, and alterations to the configuration of stream channels. Overall, these residual, short-term impacts would be considered less than significant. Chapter 3.2 also identifies two less than significant impacts on hydrology and water quality: Impacts 3.2.2 (certain instream structures proposed to increase fish habitat as part of the Program would be installed within a flood hazard area and could impede or redirect flood flows) and 3.2.4 (the Program could result in an increase in the extraction of groundwater, which in turn could contribute to decreased baseflows and increased ambient water temperatures in the Scott River and its tributaries).

As described above in this Chapter, there have been 130 projects completed near and in the Scott River, its tributaries, and other rivers and streams in the watershed over the past several years, with more projects currently being implemented or planned. Like construction and maintenance activities associated with the Program, other projects that involve heavy equipment at instream, riparian, or nearby upland locations have the potential to cause short-term increases in erosion, sedimentation, and/ or pollutant loading (i.e., fuels and lubricants, due to spills and accidents) to surface waterways. As a consequence, there can be minor, temporary impacts to water quality, fishery resources, and vegetation. While these projects typically include similar measures to reduce impacts to water quality and streamflow (e.g., through SAA conditions), they, too, may have short-term, residual impacts. Similar to the Program, the impact of these activities is not likely to rise to a level of significance because the effects would not accumulate but rather would be site specific, short-term, and transitory in nature.

The incremental impacts on geomorphology, hydrology, and water quality from the activities the Program covers when combined with similar past, present, and probable future activities will not be cumulatively considerable because:

- Specified terms and conditions contained in SAAs for these activities typically mitigate their impacts to less-than-significant levels;
- Residual impacts after mitigation, if any, tend to be short-term, site-specific and transitory in nature;
- Many instream projects, including many of the Covered Activities, aim to improve water quality and to restore channel structure; short-term impacts are therefore often mitigated by long-term gains;
- The Program (with mitigation measures identified in this Draft EIR) would improve water quality and contribute to restoration of a more natural hydrograph and channel morphology and function in the streams of the Scott River watershed;
- Several other programs, particularly implementation of TMDLs in the watershed, the state and federal listing of coho salmon, the 5C Program, and the NWFP, also serve to protect and improve water quality and stream conditions. In sum, these programmatic and regulatory efforts, in combination with voluntary efforts on the part of individual landowners, the SQRCD, the SRWC, the French Creek WAG, and others, are having, and will continue to have, a cumulative beneficial impact on water quality and hydrology; and
- Mitigation measures specified for Impacts 3.2-1 and 3.2-3 would reduce these impacts to the point that they would not make a considerable contribution to combined impacts of other past, present, and probable future similar or closely related projects.

Based on the above, where activities similar to those covered by the Program will result in impacts to geomorphology, hydrology, and water quality, those caused by the Program when combined with those impacts will not be cumulatively considerable. As a result, no mitigation measures beyond those specified for Impacts 3.2-1 and 3.2-3 are required.

4.2.3 Biological Resources: Fisheries and Aquatic Habitat

Impact 3.3-1 in Chapter 3.3, Biological Resources: Fisheries and Aquatic Habitat, identifies a significant impact of the Program associated with direct and indirect effects of instream and near-stream construction activities on coho salmon and other fish species and their habitat. Impacts could result from such actions as ground clearing, channel and bank excavation, backfilling, earthmoving, stockpiling and/or compaction, grading, and concrete work. These activities could result in the following impacts to coho salmon and CDFG fish species of special concern, which are described more fully in Impact 3.3-1:

- Short-term increases in sedimentation and turbidity;
- Accidental spills and use of hazardous materials;
- Direct injury or mortality resulting from equipment use and dewatering activities; and/or
- Temporary loss, alteration, or reduction of habitat.

As noted in the discussion of Impact 3.3-1, these effects are expected to be reduced to less than significant by complying with the terms and conditions of the SAAs, the ITP, and sub-permits issued under the Program. Chapter 3.3 also identifies one less than significant impact, Impact 3.3-2 (increased extraction of groundwater could contribute to decreased baseflows and increased ambient water temperatures in the Scott River and its tributaries, thereby impacting coldwater fish habitat).

As described in Section 4.1.3 above, there have been 130 projects near or in the Scott River, its tributaries, and other rivers and streams in the watershed in recent years, and more are currently being implemented or planned. These have ranged from stream restoration projects, to emergency repair projects, to construction projects, among others. Most of these projects have the potential to cause impacts like those listed above that could adversely affect fish and aquatic habitat.

However, most of these projects will be subject to mitigation measures similar to those specified in the Program. Further, many of these projects are intended to improve habitat conditions for fish species, particularly coho salmon. These include terms and conditions in SAAs that place limits on season of construction, limits on equipment use, prohibitions against discharging wastes into the stream during construction, procedures to minimize damage from spills and upsets, and requirements for fish removal and exclusion and for erosion control.

The incremental impacts on fisheries and aquatic habitat from the activities in the Program covers when combined with similar past, present, and probable future activities will not be cumulatively considerable for the following reasons:

- Specified terms and conditions contained in SAAs and other permits required for projects of this kind usually mitigate impacts to less-than-significant levels;

- Residual impacts after mitigation tend to be short-term, site-specific, and transitory in nature;

- Many instream projects, including many of the Covered Activities, aim to improve fish habitat and passage, such that short-term impacts are mitigated by long-term gains in habitat quality and access;

- The Program (with mitigation measures identified in this Draft EIR) would reduce take of coho salmon in the Scott River watershed, and would improve habitat (including increased access to and from spawning and rearing areas) for coho salmon and other anadromous fish; and

- Several other regulatory programs, plans and policies, particularly implementation of TMDLs in the Watershed, the state and federal listing of coho salmon, and the implementation of the NWFP, also serve to protect and improve stream habitat and to benefit coho salmon and other anadromous fish. In sum, these regulatory efforts, in combination with voluntary efforts on the part of individual landowners, the SQRCD, the SRWC, the French Creek WAG, Siskiyou County DPW, and others, are having, and will continue to have, a cumulative beneficial impact on anadromous and other fish in the Scott River watershed.

Based on the above, where activities similar to those covered by the Program will result in impacts on fisheries and aquatic habitat, those caused by the Program when combined with those impacts will not be cumulatively considerable. As a result, no mitigation measures beyond those specified for Impacts 3.3-1 are required.

4.2.4 Biological Resources: Botany, Wildlife and Wetlands

Overall, the Program will provide additional protections to riparian and wetland plant and animal species and habitats. Several other regulatory programs identified in this Chapter, in addition to individual actions of private landowners, the SQRCD, the SRWC, the French Creek WAG, and others, have increased protection for such resources, and have restored riparian and wetland areas. The overall impact of these new regulatory programs, combined with protection and restoration projects, is therefore beneficial for botany, wildlife, and wetland resources.

Impacts 3.4-1, 3.4-3, and 3.4-5 identify potentially significant impacts of Covered Activities on sensitive plant and animal species and habitats associated with construction activities and agricultural operations in and around streams and riparian areas. Impacts 3.4-2 and 3.4-4 identify additional impacts that are found to be less than significant. These impacts include effects such as the following:

- Direct mortality to special-status plant species from removal of individual special-status plant species or their seed banks;

- Special-status animals can be killed by vehicles and equipment, their burrows or other retreats may be crushed, or they may be killed if buried by new or maintained instream structures;

- Loss of downstream seasonal ponds due to flow modification; and/or

- Nest abandonment due to noise and human activity during construction periods; and

Although disturbances are temporary and intermittent, movement of livestock and vehicles can mobilize silt and small gravel, decreasing habitat quality for aquatic species, destabilize streambeds and banks, inhibit the growth or reduce the vigor of riparian or instream vegetation. Impacts 3.4-1, 3.4-3, and 3.4-5 can, however, be mitigated to less than significant with the measures described in this Draft EIR. Projects and activities carried out under other programs identified in this Chapter could have impacts of a similar nature. Most of these projects and activities do, however, also include mitigation measures similar to those specified in the Program. These include terms and conditions in SAAs that place limits on season of construction, limits on equipment use, prohibitions against discharging wastes into the stream during construction, procedures to minimize damage from spills and upsets, and requirements for fish removal and exclusion and for erosion control.

The incremental impacts on botany, wildlife, and wetland resources from the activities the Program covers when combined with similar past, present, and probable future activities will not be cumulatively considerable for the following reasons:

- Specified terms and conditions contained in SAAs are intended to mitigate biological resource impacts to less-than-significant levels;

- Habitat quality for fish includes a more robust and complex vegetation assemblage in and adjacent to the Scott River, which in turn will support more riparian-dependent plants and animals; and

- Seasonal restrictions on equipment operations reduce direct effects on breeding birds and special-status species, if present. Pre-construction plant, and nesting bird surveys, and resulting activity restrictions will avoid impacts to these species.

Based on the above, where activities similar to those covered by the Program will result in impacts on botany, wildlife, and wetland resources, those caused by the Program when combined with those impacts will not be cumulatively considerable. As a result, no mitigation measures beyond those specified for Impacts 3.4-1, 3.4-3, and 3.4-5 are required.

4.2.5 Cultural Resources

Impacts 3.5-1, 3.5-2, and 3.5-3 in Chapter 3.5 identify potential impacts on cultural resources associated with construction and operation activities the Program covers; the first two are found to be significant, but can be mitigated; Impact 3.5-3 is found to be less than significant. The impacts are similar to potential impacts from similar past, present, and probable future projects. While both Covered Activities and similar projects could have potential impacts on known and unknown cultural resources, paleontological resources, and buried human remains, the standard mitigation measures specified for these impacts under the Program would mitigate them to less than significant.

The incremental impacts on cultural resources from the activities the Program covers when combined with similar past, present, and probable future activities will not be cumulatively considerable for the following reasons:

- The impacts of the Program are mitigated to less than significant, as described in Chapter 3.5;

- The impacts of related projects would also be mitigated to less than significant, assuming incorporation of similar mitigation measures, which are standard for projects of this kind; and
- Impacts of this nature are usually site-specific, and do not tend to combine in a cumulative sense with impacts at other sites.

The regulatory programs discussed in this Chapter, including TMDLs, the NWFP, and the state and federal listing of coho salmon, bring a broader range of activities under increased regulatory oversight. It is likely that, as a result of these programs, more cultural resources would be identified and preserved or properly recorded.

Based on the above, where activities similar to those covered by the Program will result in impacts on cultural resources, those caused by the Program when combined with those impacts will not be cumulatively considerable. As a result, no mitigation measures beyond those specified for Impacts 3.5-1 and 3.5-2 required.

4.2.6 Hazards and Hazardous Materials

Impacts 3.6-1 and 3.6-2 in Chapter 3.6, Hazards and Hazardous Materials, identify the accidental discovery of hazardous materials and the risk of causing wildfires (e.g., from sparks from heavy equipment operating in areas with dry vegetation on the edge of forest land) as potential Program impacts.

The incremental hazard- and hazardous materials-related impacts from the activities the Program covers when combined with similar past, present, and probable future activities will not be cumulatively considerable for the following reasons:

- Impacts of this nature tend to be site-specific and short-term, and do not tend to combine in a cumulative sense with impacts at other sites;
- The mitigation measures identified for Impacts 3.6-1 and 3.6-2 would mitigate these impacts to less than significant; and
- It is assumed that conditions placed on other related projects would similarly mitigate those impacts to less than significant, and to the degree that, when all cumulative activities are considered collectively, there would be no significant cumulative effect.

The regulatory programs described in this Chapter do not directly affect the regulation of hazardous materials. The NWFP does contain elements related to fuel management to reduce the risk of wildfire and damage caused by wildfire. Because the regulatory actions described in this Chapter bring a broader range of activities under increased regulatory oversight, including the necessity to incorporate basic safeguards into project planning and implementation, it is likely that risks associated with accidental discovery of unknown hazardous materials and the risk of wildfire will be reduced.

Based on the above, where activities similar to those covered by the Program will result in hazard- and hazardous materials-related impacts, those caused by the Program when combined with those impacts will not be cumulatively considerable. As a result, no mitigation measures beyond those specified for Impacts 3.6-1 and 3.6-2 are required.

4.2.7 Public Utilities, Service Systems, and Energy

Impact 3.7-1 in Chapter 3.7, Public Utilities, Service Systems, and Energy (the Program could result in the modification or expansion of existing water supply systems) is found to be less than significant. Because such effects are local in nature, this less than significant impact is not expected to combine with impacts of other programs in a cumulatively considerable manner.

Impact 3.7-2 identifies the consequences of accidental contact with and damage to underground utilities and facilities during construction of projects covered under the Program as less than significant. Similar projects would have the potential for similar impacts.

The incremental impacts on public utilities, service systems, and energy from the activities the Program covers when combined with similar past, present, and probable future activities will not be cumulatively considerable for the following reasons:

- Effects of this kind are site-specific and do not combine with similar effects of related projects in a cumulative sense; and
- As discussed in Impact 3.7-2, Government Code, § 4216 requires notification of the Underground Service Administration between two and 14 days before any activity that could disturb underground utilities.

Impact 3.7-3 identifies a less than significant impact on energy consumption and air emissions related to increased use of pumps for water diversions. Other projects identified in this Chapter would not tend to increase energy consumption, so there is no potential for a cumulative impact on energy consumption. If FERC does not relicense the Klamath Hydroelectric Project, there will be a minor effect on energy supply in the region; however, it is anticipated that this effect can be compensated by existing power generation facilities and likely new generation, including natural-gas fired plants and renewable sources (FERC, 2007).[11]

Impact 3.7-4 identifies the contribution of the Program to global climate change due to emissions of greenhouse gases (GHG) as less than significant. This effect is in itself cumulative in nature, as all such emissions contribute to a build-up of these gases in the atmosphere. The combination of reduced carbon emissions and sequestration of carbon from the atmosphere is expected to outweigh new GHG emissions associated with Program activities, such that the overall effect of the Program on global climate change is expected to be beneficial. Implementation of Mitigation Measures 3.7-4a-b, either voluntarily or by another agency could further reduce GHG.

Based on the above, where activities similar to those covered by the Program will result in impacts on public utilities, service systems, and energy, those caused by the Program when

[11] FERC (2007, Chapter 4) describes in detail the amount of power generation capacity that would be lost with decommissioning of the Klamath Hydroelectric Project dams, and also planned and potential new generation sources.

combined with those impacts will not be cumulatively considerable. As a result, no mitigation measures beyond those specified for Impacts 3.7-1 through 3.7-4 are required.

4.2.8 Other Issue Areas

Other issue areas normally considered in an EIR, such as Air Quality, Traffic and Transportation, Population and Housing, Mineral Resources, and Recreation, are not discussed in depth in this Draft EIR because CDFG determined in the Initial Study (see Appendix D) that the Program does not have the potential to cause a significant impact on these resources. Hence, even if other regulatory programs and activities similar to those covered by the Program were to have such impacts, where it was determined that the Program would have no impact, it would not contribute to them, or where it was determined that the Program's impacts would be less than significant, they would be so minor that when combined with the impacts of non-Program activities, they would not be cumulatively considerable.

4.3 Growth-Inducement

CEQA *Guidelines,* § 15126.2(d) requires that an EIR evaluate the growth-inducing impact of a proposed action. That section describes a growth-inducing impact as follows:

> The ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a water treatment plant might, for example, allow for more construction in service areas) … It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

The environmental effects of the growth a proposed project could induce are considered secondary, or indirect, impacts. Secondary effects of growth can result in significant increased demand on community and public service infrastructures, increased traffic, noise, degradation of air and water quality, and the conversion of agricultural and open space land to urbanized uses.

On the basis of the definition above, assessing the growth inducement potential of the Program rests on the following question: would approval and implementation of the Program directly or indirectly support more economic or population growth or residential construction? The Program does not cover activities that involve construction of new homes, businesses, roads or infrastructure. Therefore, it would not induce substantial population growth either directly or indirectly. With respect to employment, the Program would not provide for or result in substantial, long-term employment opportunities. Program participants would be required to comply with specified avoidance, minimization, and mitigation measures in their SAAs, the ITP, and sub-permits when conducting an activity the Program covers. However, most of those activities are related to existing, routine agricultural activities or restoration projects. Some of those projects might require additional workers, but the work would be temporary in nature. Adding temporary workers would not induce substantial population growth either directly or indirectly. Therefore, there would be no impact of this nature as a result of the Program.

4.4 Significant and Irreversible Environmental Changes

CEQA *Guidelines,* § 15126.2(c) states that impacts associated with a proposed project or program may be considered to be significant and irreversible if:

- The project would involve a commitment of non-renewable resources (such as fossil fuels).
- The primary and secondary impacts of a project would generally commit future generations to similar uses (such as a highway improvement that provides access to a previously inaccessible area).
- The project involves uses in which irreversible damage could result from potential environmental accidents associated with the project.

Activities implemented by Program participants would result in irretrievable and irreversible commitment of natural resources through direct consumption of fossil fuels during implementation of the Covered Activities and any related avoidance, minimization, and mitigation measures in the Program Area. However, such consumption would be minor, and therefore the irretrievable and irreversible commitment of natural resource it represents would not be significant.

Activities implemented by Program participants would not commit future generations to undesirable uses and would not involve a use from which irreversible damage could result. Although the activities the Program covers would in some case require the use of petroleum products and hazardous materials, it is unlikely that the amount used would result in an environmental accident or other damage so severe as to be irreversible. Also, as explained in Section 4.2.1 in this Chapter, the Program's incremental impacts in regard to land use conversion when combined with the potential impacts of similar activities would not be cumulatively considerable. Therefore, the Program would not cause a significant irreversible effect in regard to land use conversion.

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CHAPTER 5
Alternatives to the Program

The California Environmental Quality Act (CEQA) requires an evaluation of the comparative effects of a range of reasonable alternatives to a project[1] that would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project (CEQA *Guidelines,* § 15126.6(a)). The environmental impact report (EIR) must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation. The nature and scope of the alternatives to be discussed is governed by the "rule of reason" (CEQA *Guidelines,* § 15126.6(f)). A discussion of alternatives should include alternatives to the project or its location that are capable of avoiding or substantially lessening any of the project's significant effects, even if these alternatives would impede, to some degree, the attainment of the project objectives, or would be more costly (CEQA *Guidelines,* § 15126.6(b)).

The EIR should also identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination (CEQA *Guidelines*, § 15126.6(c)). The EIR should include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the project (CEQA *Guidelines*, § 15126.6(d)). Evaluation of a "no project" alternative is required to allow decision-makers to compare the impacts of approving the project with the impacts of not approving the project. The "no project" alternative analysis should discuss existing conditions at the time the environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved (CEQA *Guidelines*, § 15126.6(e)).

In accordance with the above, the range of potential alternatives to the Scott River Watershed-wide Permitting Program (Program) discussed in this Chapter include those that could feasibly accomplish most of the basic objectives of the Program but could avoid or substantially lessen one or more of the Program's significant adverse effects on the environment. Specifically, the Draft EIR considers two alternatives. Those alternatives and the specific reasons for selecting them are:

Alternative	Reasons for Selection
1. No Program Alternative	Consideration of this alternative is mandatory.
2. Instream Flow Alternative	This alternative provides an analysis of another approach that would include the Program plus some additional measures to reduce potential impacts to coho salmon (*Oncorhynchus kisutch*) through development of surface water storage reservoirs.

1 For purposes of this Draft EIR, the Scott Watershed-wide Permitting Program ("Program") is the project being analyzed pursuant to CEQA.

Each of the alternatives, its potential environmental impacts, and its ability to meet basic Program objectives as compared with the Program is described below. As part of the evaluation and comparison of alternatives, the CEQA *Guidelines* require that if the "no project" alternative is identified as the environmentally superior alternative, the EIR must also identify the environmentally superior alternative among the other alternatives (CEQA *Guidelines*, § 15126.6(e)(2). A lead agency is not compelled to adopt the environmentally superior alternative. However, if a lead agency rejects an alternative that would substantially reduce the environmental impacts of the project under consideration, the lead agency must, when certifying the EIR, make findings that describe the specific reasons for rejecting the alternative. Reasons may include specific economic, legal, social, technological, or other considerations that make the alternative infeasible (CEQA *Guidelines*, § 15091(a)(3)).

5.1 Alternatives Considered but Rejected

In addition to the two alternatives selected for this analysis, the California Department of Fish and Game (CDFG) considered five other possible alternatives. Upon consideration, however, these alternatives were rejected for one of three reasons: the alternative failed to meet most of the basic Program objectives; the alternative was found to be infeasible; or the alternative did not have the ability to avoid or substantially lessen one or more of the Program's significant adverse effects on the environment. The rejected alternatives are discussed briefly, along with the specific reasons they were rejected.

5.1.1 Rejected Alternative 1: Consistency Determination

California Fish and Game Code (Fish and Game Code), § 2080.1[2] provides that no further state authorization or approval is needed for the incidental take of a species listed as endangered or threatened under both the California Endangered Species Act (CESA) and the federal Endangered Species Act (ESA) if a person has obtained an Incidental Take Permit (pursuant to ESA section 10) or Incidental Take Statement (pursuant to ESA section 7) from the Secretary of the Interior or the Secretary of Commerce, and the Director of CDFG determines that the conditions

2 In part, Fish and Game Code, § 2080.1 reads as follows:

"(a) ...[I]f any person obtains from the Secretary of the Interior or the Secretary of Commerce an incidental take statement pursuant to Section 1536 of Title 16 of the United States Code or an incidental take permit pursuant to Section 1539 of Title 16 of the United States Code that authorizes the taking of an endangered species or a threatened species that is listed pursuant to Section 1533 of Title 16 of the United States Code and that is an endangered species, threatened species, or a candidate species pursuant to this chapter, no further authorization or approval is necessary under this chapter for that person to take that endangered species, threatened species, or candidate species identified in, and in accordance with, the incidental take statement or incidental take permit, if that person does both of the following:

(1) Notifies the director in writing that the person has received an incidental take statement or an incidental take permit issued pursuant to the Endangered Species Act of 1973 (16 U.S.C.A. section, 1531 *et seq*.).

(2) Includes in the notice to the director a copy of the incidental take statement or incidental take permit.

(c) Within 30 days after the director has received the notice described in subdivision (a) that an incidental take statement or an incidental take permit has been issued pursuant to the Endangered Species Act of 1973, the director shall determine whether the incidental take statement or incidental take permit is consistent with this chapter. If the director determines within that 30-day period, based upon substantial evidence, that the incidental take statement "or incidental take permit is not consistent with this chapter, then the taking of that species may only be authorized pursuant to this chapter."

of the federal take authorization are consistent with Fish and Game Code, § 2081(b) and (c), including the requirement to fully mitigate the authorized take. If the Director makes such a determination, CDFG would issue a "consistency determination," rather than an incidental take permit (ITP). Under this alternative, CDFG would not issue an ITP and sub-permits under the Program authorizing the incidental for take of coho salmon, but instead, upon written request from each individual project proponent, would review any take authorization issued by the National Marine Fisheries Service (NMFS) for coho salmon that applies to the same project for consistency with CESA. Streambed alteration agreements (SAAs) would still be required for water diversions and other Covered Activities.

CDFG frequently issues consistency determinations for projects that involve incidental take of species dually-listed under CESA and ESA. However, in those instances, a federal permit (e.g., a CWA section 404 permit from the U.S. Army Corps of Engineers) has been issued for the project. In those cases, if the project could result in take of a listed species, the federal agency issuing the permit will have obtained from NMFS or the U.S. Fish and Wildlife Service (USFWS) incidental take authorization in the form of an Incidental Take Statement which NMFS or USFWS will include in its biological opinion. Coho salmon in the Program Area are listed under both CESA and ESA, but in order for the Siskiyou Resource Conservation District (SQRCD) and Agricultural Operators to obtain a consistency determination from CDFG, they would need to first obtain a federal permit for the Covered Activity they want to complete, and the federal agency issuing the permit would need to consult with NMFS and obtain incidental take authorization for the activity the permit covers in accordance with ESA section 7. This assumes, of course, that the Covered Activity would require a federal permit in the first place. If a federal permit were not required and SQRCD and Agricultural Operators wanted to obtain a consistency determination from CDFG, they would need to separately apply for an incidental take permit under ESA section 10 by submitting a Habitat Conservation Plan, obtain the permit, and then seek a consistency determination. Both processes to obtain incidental take authorization under ESA, and thereafter a consistency determination from CDFG would be costly, would take a long time to complete (years in the case of the ESA section 10 process), and would not apply to all Agricultural Operators.

As a result, under this alternative, take authorization under CESA for the activities covered by the Program would be substantially delayed. That delay, in turn, would impede implementation of coho salmon recovery tasks and CESA compliance by Agricultural Operators, among other objectives of the Program. In the meantime, many if not all of the ongoing, historic activities the Program covers would continue along with any impacts they might have on coho salmon. Also, as mentioned above, SAAs would still be required for water diversions and other Covered Activities under this alternative. However, because CDFG may elect not to issue SAAs for projects that are not in compliance with CESA or other provisions in the Fish and Game Code under Fish and Game Code, § 1613, and each SAA issued under the Program will include the general condition that the SAA holder is responsible for complying with all applicable state laws to conduct the activity or activities the SAA covers, under this alternative, obtaining a consistency determination would in effect be a pre-requisite to obtaining a SAA or beginning the activity or activities to which the SAA applies. Such an outcome would only serve to maintain the status quo in the Program Area for a longer period of time, thereby defeating most, if not all of the Program's basic objectives. For the foregoing reasons, this alternative is not considered feasible, and therefore is rejected from further consideration.

5.1.2 Rejected Alternative 2: Adjudication of Water Rights

Statutory adjudication is a process by which the comprehensive determination of all water rights in a stream system is made by the State Water Resources Control Board (SWRCB). The process begins when a claimant petitions SWRCB for an adjudication and the SWRCB finds the action necessary and in the public interest. The California Supreme Court has held that claimants or petitioners may include not only water users, but also those seeking recognition of public trust values on a stream-wide basis. If SWRCB grants the petition, SWRCB staff would investigate the matter and issue a report which would include a draft Order of Determination. A hearing would then be held on objections to the draft report, after which SWRCB would adopt a final Order of Determination and file it with the appropriate superior court. Any objections to SWRCB's final order would be heard by the court, after which the court would render a decision. The final step in the process is a decree by the court that determines all water rights within the disputed system (SWRCB, 2007). Typically, this process takes 10 to 20 years to complete.

Water rights in the Program Area are appropriated under the Shackleford Creek Decree (1950), French Creek Decree (1958), and the Scott River Decree (1980). Under this alternative, the water rights the decrees cover would be re-adjudicated to protect public trust values, particularly the salmonid fishery in the Scott River and its tributaries primarily by reducing the volume and restricting the timing of surface water diversions, as well as interconnected groundwater withdrawals. While this alternative could be effective in avoiding or lessening some of the Program's significant impacts, it would not meet the Program's basic objectives to implement selected key coho salmon recovery tasks (other than increasing streamflow), and to facilitate compliance by SQRCD, Agricultural Operators, and California Department of Water Resources (DWR) with Fish and Game Code, § 1600 *et seq.* and/or CESA, which the Program would accomplish in part by establishing a watershed-wide set of terms, conditions, and mitigation measures for ongoing agricultural operations to ensure that take of coho salmon is avoided, minimized, and mitigated. In order to implement this alternative, there must be at least one willing party affected by the decree to petition the court or SWRCB in the first place, but no party has been identified at this time. As mentioned above, re-opening the decree would be a very time-consuming and expensive alternative that given the multitude of interested parties would be very controversial and uncertain in its outcome. Any expense would substantially increase if SWRCB conducted the re-adjudication, and in doing so were required to comply with CEQA. Finally, it is not certain that any re-adjudication would go far enough to adequately protect public trust resources. For the foregoing reasons, this alternative is rejected from further consideration.

5.1.3 Rejected Alternative 3: Hatcheries

This alternative would involve operating one or more hatcheries on the Scott River to augment or replace natural reproduction of coho salmon. Rather than taking measures to ensure that natural coho salmon spawning and rearing habitat are protected and enhanced, this alternative would substitute natural reproduction and rearing with hatchery reproduction and rearing. The alternative is rejected because it does not meet two basic objectives of the Program: the implementation of selected key coho salmon recovery tasks and compliance with CESA and Fish and Game Code, § 1602 by SQRCD, Agricultural Operators, and DWR in the Program Area.

5.1.4 Rejected Alternative 4: Expanded Program Area

The total area within SQRCD's boundary is considerably larger than the Program Area, as defined for the Program. The Scott River watershed makes up only about half of the District. Under this alternative, the geographic scope of the Program would be expanded to include all areas within the boundaries of SQRCD, including portions of the mainstem Klamath River, portions of the Salmon River watershed, and various other Klamath River tributaries.

This alternative would meet most the Program's objectives because the only difference would be to expand the geographic scope of the Program. However, one of the primary objectives of the Program is to facilitate compliance by SQRCD, Agricultural Operators, and DWR with CESA and Fish and Game Code, § 1602. Because agricultural areas within SQRCD district boundary but outside of the Scott River watershed are few, sparse, and limited in extent, this alternative would have little additional benefit compared to Program. Furthermore, because this alternative simply expands the geographic scope of the Program, it would not avoid or substantially lessen any of the significant impacts of the Program. For the foregoing reasons, this alternative is rejected from further consideration.

5.1.5 Rejected Alternative 5: Expanded Range of Covered Activities Alternative[3]

Under this alternative, the scope of the Program would be increased to include not only the activities of SQRCD, Agricultural Operators, and DWR, but also other types of water diversions (e.g., industrial, municipal, domestic) and other non-agricultural activities within the Scott River watershed, such as timber harvest, forest and ranch road building and maintenance, and grading, that have the potential to result in the take of coho salmon. This alternative would also provide for purchase from willing ranchers and farmers of conservation easements over agricultural lands, lands adjacent to watercourses to establish or widen riparian buffer zones, or other lands that if protected by a conservation easement would benefit fish and wildlife species in the Program Area.

This alternative would greatly increase the number of parties eligible for participation in the Program and result in a major increase in the number of activities CDFG would need to analyze under CEQA, and for which CDFG would need to issue SAAs and sub-permits. This would significantly increase CDFG's and SQRCD's workload under the Program to a degree that could make the Program infeasible. Also, because this alternative would expand the number and types of activities under the Program, it would not serve to avoid or substantially lessen the Program's potential significant effects unless those effects were offset by any conservation easements

[3] This alternative was developed partially to address scoping comments which recommended expanding the Program to acquire easements or strategic parcels to allow all equal protection on all areas supporting coho.

acquired under this alternative. The degree to which the conservation easement element under this alternative would further the objectives of the Program, as well as its feasibility, depends on many variables, including the number of willing sellers; purchase, transaction, and maintenance costs; available monies to cover those costs; and the location of the "conservation lands." Finally, conservation easements currently can be purchased from willing sellers outside the Program. For the foregoing reasons, it is rejected from further consideration.

5.2 Alternatives Considered in the EIR

Both of the alternatives evaluated in this Draft EIR are described and analyzed below. The two tables at the end of this Chapter compare the alternatives with the Program. **Table 5-1** compares the impacts associated with each alternative to the Program's impacts; **Table 5-2** compares the ability of each alternative to meet the Program's objectives.

5.2.1 No Program Alternative

Alternative Description

Discussion of the "no program" alternative (No Program Alternative) must examine the existing conditions and reasonably foreseeable future conditions that would exist if the Program were not approved (CEQA *Guidelines*, § 15126.6(e)). Under the No Program Alternative, CDFG would not issue a watershed-wide ITP or enter into a watershed-wide SAA Memorandum of Understanding (MOU) with a Master List of Terms and Conditions (MLTC). Instead, SQRCD, DWR, and each Agricultural Operator would need to comply with CESA and Fish and Game Code, § 1602 on an individual basis. CDFG would prepare individual ITPs and SAAs as it received notifications and ITP applications. Under this approach, CDFG would need to conduct an appropriate level of CEQA review prior to issuing each individual ITP and SAA.

Individual applicants would be responsible for reimbursing CDFG for the cost of preparing the CEQA document for their ITPs and SAAs. The time required to prepare individual CEQA documents for a large number of agricultural diversions in the Scott River watershed could cause construction delays for Agricultural Operators. It is likely that many Agricultural Operators could not afford or would not choose to go through with an individual permitting process, potentially resulting in some Agricultural Operators operating either out of compliance with CESA and Fish and Game Code, § 1602 or terminating their usual operations.

Environmental Impacts

Aesthetics

The Program would not result in any significant aesthetic impacts. Similarly, the No Program Alternative would not have significant aesthetic impacts.

Air Quality

Neither the Program nor the No Program Alternative would have a significant impact on air quality.

Biological Resources: Fisheries and Aquatic Habitat

The No Program Alternative would not provide a programmatic framework to facilitate implementation of selected key coho salmon recovery tasks, as identified in the Shasta-Scott Recovery Team Recommendations for Coho Salmon, nor feature a watershed-wide set of terms, conditions, and mitigation measures for ongoing agricultural operations. In summary the No Program Alternative would likely result in a higher level of unauthorized and unmitigated take of coho salmon, and more severe impacts on other fish species when compared with the Program as proposed. However, compared to existing conditions without the Program, this alternative's impacts on fisheries and aquatic habitat would be the same.

Biological Resources: Botany, Wildlife, and Wetlands

The No Program Alternative would not provide a watershed-wide set of terms, conditions, and mitigation measures protecting not only coho salmon, but also riparian and terrestrial, and wetland biological resources. The result would likely be more instances of disturbance or destruction of sensitive biological resources, compared with the Program, although conditions protecting resources would be included in individual ITPs and SAAs.

Geology, Soils, and Seismicity

Neither the Program nor the No Program Alternative would be expected to have a substantial adverse impact on geology, soils, or seismicity. See the following section for geophysical effects.

Geomorphology, Hydrology and Water Quality

Because the No Program Alternative would not include watershed-wide measures to restore coho salmon habitat and to modify surface water diversions and other agricultural practices, it is likely that this alternative would involve fewer construction activities than the Program. Construction-related impacts to streams in the Scott River watershed would therefore likely be less widespread under this alternative.

Even if individual SAAs and ITPs issued under this alternative included measures to enhance streamflow, it is unlikely that such measures would be as well-coordinated or as widespread as those that would occur under the Program as proposed. Therefore, such measures would be unlikely to be as effective as they would be under the Program, and compared with the Program as proposed, the resulting conditions of streams and water quality would be worse. They would be the same as with existing conditions.

Land Use and Agriculture

It is likely that compliance with CESA and Fish and Game Code, § 1602 under the No Program Alternative would be more costly and time-consuming for Agricultural Operators. Individual Agricultural Operators would be responsible for submitting an ITP application through the standard process and notifying CDFG of diversions and work in and around the bed, banks, and channel of streams. The No Program Alternative also would not have the Program's advantage of relatively available funding to cover costs of Program requirements. Agricultural Operators and

SQRCD would continue to have to seek funding from a variety of competitive funding sources (CDFG, NMFS, Natural Resources Conservation Service, and USFWS).

It is likely, therefore, that the No Program Alternative would have a greater adverse impact on maintaining a viable agricultural enterprise while simultaneously complying with CESA and Fish and Game Code, § 1600 *et seq*. For this reason, and using the same logic as discussed in Impact 3.1-1 in Chapter 3.1, Land Use and Agriculture, it is likely that the No Program Alternative would result in a more severe impact associated with the potential pressure for agricultural land use conversion. This would be a potentially significant impact of this alternative.

Noise

Neither the Program nor the No Program Alternative would be expected to have a substantial noise impact.

Public Utilities, Service Systems, and Energy

Because the No Program Alternative would not provide incidental take authorization for Covered Activities, or facilitate Agricultural Operators' compliance with Fish and Game Code, § 1600 *et seq*., this alternative would be expected to result in fewer construction projects and fewer alterations to the existing system of diverting and conveying irrigation water. Therefore, this alternative would be expected to have similar, but less severe impacts to public utilities, service systems, and energy as compared with the Program.

Hazards and Hazardous Materials

As stated in the previous paragraph, the No Program Alternative would likely result in fewer construction projects, and would therefore be less likely to encounter previously unknown hazardous materials, or to cause wildfire. On the other hand, more haphazard permitting and implementation of projects under this alternative could result in less uniform and less stringent application of protective measures to prevent or mitigate for such occurrences. On balance, this alternative would have about the same level of impacts of this kind as the Program.

Cultural Resources

Cultural resources impacts of the No Program Alternative would be about the same as the Program: ongoing land disturbance associated with agricultural activities and stream habitat restoration projects could cause significant impacts, but these could be reduced to a less than significant with feasible mitigation measures

Transportation and Traffic

Because this alternative would not generate substantial new traffic or affect existing roadways, it would not be expected to have a substantial adverse impact on traffic.

Mineral Resources

Because this alternative would not affect the ability to recover identified mineral deposits, it would not be expected to have significant impacts on mineral resources.

Population and Housing

There are no population and housing impacts of the Program, or of this alternative.

Public Health and Safety

Neither the Program nor this alternative is expected to have an impact on public health and safety.

Recreation

Neither this alternative nor the Program is expected to affect existing recreational uses in the Program Area, or to generate demand for new recreational uses. Therefore, neither the Program as proposed, nor this alternative, would have an impact on recreation.

Ability of the No Program Alternative to Meet Program Objectives

Although the implementation of the No Program Alternative would meet several of the stated objectives of the Program (see Table 5.2), it would not be as effective or efficient at bringing existing agricultural water diverters into compliance with CESA and Fish and Game Code, § 1600 *et seq.* Most importantly, the No Program Alternative would be less effective at accomplishing or implementing mitigation measures identified in the ITP, accomplishing watershed-wide coordination and implementation of selected key coho salmon recovery tasks, and would not be consistent with commitments identified in the Coho Salmon Recovery Strategy (Recovery Strategy).

5.2.2 Instream Flow Alternative

Alternative Description

The Instream Flow Alternative would include the Program as proposed and would also include the development of surface water storage reservoirs to capture winter runoff. The stored water would be used to benefit the cold water fisheries by increasing streamflow as necessary to assist fish migration, increase rearing habitat, maintain cooler water temperatures, and improve the potential for riparian vegetation survival. All of these issues are identified in the Limiting Factors Analysis in Chapter 3.3, Biological Resources: Fisheries and Aquatic Habitat, as major factors limiting coho salmon production in the Scott River watershed. Where practical, water may be piped or pumped from reservoirs directly into existing water conveyance systems in exchange for reductions in the volume of water diverted from the Scott River and tributaries. The stored water would not be used to increase the existing irrigated acreage or allow for additional water to be diverted for agricultural purposes.

The Program already contains several provisions to increase instream flows, including SQRCD's ITP Flow Enhancement Mitigation Obligations (Article XIII.E.2.(a)), Additional SQRCD and Sub-Permittee Avoidance and Minimization Obligation A: Water Management (Article XV), Additional SQRCD and Sub-Permittee Avoidance and Minimization Obligation J: Maintain Connectivity of Tributaries in the Mainstem (Article XV), and MLTC condition 26 ~~25~~ (bypass flows at diversions).

The Shasta-Scott Pilot Program of the Recovery Strategy also contains additional recommendations for “water augmentation” actions for the Scott River Watershed, including the following:

- If feasible, construct large (off-stream) surface-water storage reservoirs;
- If feasible, raise the level of existing small lakes or create storage using small off-stream reservoirs rather than one large reservoir; and
- If feasible, reshape dredge tailings to provide additional water storage within the remaining tailings.

The Instream Flow Alternative would be identical to the Program except that it would also include the additional measures from the Coho Recovery Strategy listed above. Specifically, this alternative would involve implementing those Coho Recovery Strategy recommendations regarding water augmentation which are found to be feasible and appropriate. While no single alternative water supply may be sufficient to result in significant gains in instream flows, a combination of the potential sources discussed above may provide for more suitable water flows and temperatures for rearing coho during the summer and fall months. Furthermore, until the studies are conducted to determine the feasibility of the various measures considered for development of new water supplies, the type and extent of physical impacts of this alternative cannot be determined. Therefore, the following analysis assumes that all of the additional measures listed above would be found to be feasible and appropriate, and would be implemented under this alternative in addition to all of the flow enhancement provisions of the Program as proposed.

Environmental Impacts

Aesthetics

Some of the aspects of this alternative, such as development of large reservoirs and raising the level of mountain lakes, would alter the visual character of the area, and may cause a significant aesthetic impact not caused by the Program itself; thus, significant aesthetic impacts may be expected to occur under this alternative.

Air Quality

Some aspects of this alternative, particularly construction of a large surface reservoir and reshaping the dredge tailings, could have air quality impacts related to use of heavy equipment and earth-moving, as well as potential effects on air quality of the reservoir itself (notably the potential for production of methane, a potent greenhouse gas), not experienced by the Program. While such impacts could be at least partially mitigated, there is insufficient information available to determine whether, after mitigation, the impacts would remain significant. This alternative’s air quality impacts are, therefore, potentially more severe than those of the Program as proposed, and have the potential to be significant.

Biological Resources: Fisheries and Aquatic Habitat

Several aspects of this alternative, including development of large and small surface reservoirs, and raising the level of mountain lakes, could have an adverse impact on fisheries and aquatic habitat, though the alternative would also be expected to benefit salmonids and other fish species in the Scott River and tributaries by increasing instream flows. The extent of such impacts would be a function of the areas that would be disturbed by these new features. Impacts could be significant and unavoidable. In sum, this alternative could result in beneficial impacts to fisheries and aquatic habitat not associated with the Program as proposed, but could also cause significant impacts not associated with the Program.

Biological Resources: Botany, Wildlife, and Wetlands

This alternative could have an adverse impact on terrestrial and wetland biological resources. Again, most impacts of this nature would be associated with development of large and small surface reservoirs, raising the level of mountain lakes, and construction of conveyance facilities to bring water from reservoirs to existing agricultural ditches (where practical). Some water storage and conveyance features could be constructed to provide habitat features, which could at least partially mitigate adverse effects. Impacts could be significant and unavoidable, and more severe than with the Program.

Geology, Soils, and Seismicity

Several aspects of this alternative, including the development of one or more large reservoirs, small reservoirs, raising the level of mountain lakes, reshaping the dredge tailings, and the construction of conveyance facilities to bring water from reservoirs to existing agricultural ditches (where practical) could cause short-term and long-term erosion problems. Areas where reservoirs would be situated would have to be evaluated for dynamic (seismic) and static stability, risk of landslide, and other geological risks. In all, this alternative poses greater potential for significant impacts of this nature than the Program.

Geomorphology, Hydrology and Water Quality

This alternative would have the potential for restoring the natural hydrologic regime in some tributary streams, and also in the mainstem Scott River. However, it is unclear how high winter and spring flows would be captured for storage. Also unclear is whether such major changes could be effected given existing water rights and adjudication decrees. Because this alternative seeks to replace some existing diversions with other water sources that would have less of an effect on stream flows and water quality, it could be expected to have fewer and less severe impacts of this nature, compared with the Program as proposed. There would, however, be the potential for significant localized impacts not associated with the Program. For example, raising the height of mountain lakes and controlling release of water during the summer could have profound effects on the hydrology and water quality of high mountain lakes and streams.

Land Use and Agriculture

The Instream Flow Alternative could require the alteration of some existing land uses and land use designations in the Scott River watershed, for example, the conversion of agricultural land or forest land to reservoirs and related facilities, and the conversion of mountain lakes to managed reservoirs. This could cause a significant impact not associated with the Program as proposed.

It is unclear what effect this alternative would have on the income of agricultural operations, and by extension on pressures to convert agricultural land to other uses. On the one hand, a large reservoir in the Scott River watershed, a system of smaller reservoirs, or a series of storage ponds in the dredge tailings, could provide a more predictable water supply in most years, and so could increase and stabilize farm income. On the other hand, the new system would be expensive to construct and to operate, perhaps resulting in higher cost to Agricultural Operators for irrigation water, which would increase pressures to convert agricultural land to other uses. In all, this alternative would potentially have more impacts, including potentially significant impacts on existing land uses, including agriculture, than the Program.

Noise

Noise from equipment and activities associated with new reservoir construction and from reshaping the dredge tailings may introduce new noise sources into areas with sensitive receptors, causing a noise impact not associated with the Program.

Public Utilities, Service Systems, and Energy

The Instream Flow Alternative, with its creation of new surface reservoirs would also require, in some areas, construction of new ditches and pipes, or alteration of existing ones, to convey water from the reservoir(s) to any conveyance ditches (where feasible). Overall, there is a potential for this alternative to have significant impacts on Public Utilities, Service Systems, and Energy, but mitigation measures may be available to reduce some or all such impacts. In summary, these impacts are likely to be more extensive and more severe than similar impacts of the Program as proposed, and there is the potential for significant unavoidable impacts.

Hazards and Hazardous Materials

Because the Instream Flow Alternative would potentially disturb more area than the Program, and involve larger, more extensive construction projects, it would have a greater chance of encountering previously unknown hazardous materials or causing wildfire. These impacts would likely be significant, but could be mitigated to a less than significant impact with measures specified for the Program as proposed.

Cultural Resources

Because areas of disturbance under this alternative would be greater, e.g., from constructing one or more surface water impoundments and conveyance facilities, cultural resources impacts of this alternative could potentially be greater than with the Program, and would likely be significant.

Depending on the location of surface water impoundments and conveyance facilities, impacts could be significant and unavoidable.

Transportation and Traffic

Potential transportation and traffic effects associated with the Instream Flow Alternative may include roadway impacts from heavy equipment and materials transport for reservoir construction and the possible need to construct new roads to reservoir sites, including high mountain lakes. Such impacts would likely be significant and unavoidable. If a large surface water impoundment were to have recreational uses, it could cause an increase in traffic over sparsely used Highway 3 and other local roadways in the Scott Valley, which may also cause significant and unavoidable impacts. In sum, transportation and traffic impacts could be significant, and may be expected to be more severe than those associated with the Program as proposed.

Mineral Resources

Neither the Program nor this alternative is expected to have significant impacts on mineral resources.

Public Health and Safety

Neither the Program nor this alternative is expected to have an impact on public health and safety.

Population and Housing

There are no population and housing impacts of the Program, or of this alternative.

Recreation

Development of a large reservoir under this alternative could create new recreational opportunities in the Scott River watershed. On the other hand, development of mountain lakes as reservoirs could impact current recreational use of these lakes, including backpacking, camping, and fishing. In sum, recreational impacts could be significant, and more severe than with the Program as proposed, but could be expected to be mitigated.

Ability of the Alternative to Meet Program Objectives

Under the Instream Flow Alternative, all of the objectives of the Program would be met, and, if feasible, water augmentation measures identified in the Coho Recovery Strategy would be implemented. Where the potential for take of coho salmon still existed, such as ongoing surface water diversions and other agricultural activities and restoration actions undertaken by SQRCD, ITPs and SAAs still would be required. Impacts from this alternative, particularly those associated with reservoir construction, would be greater than for the Program. The feasibility, costs, and funding mechanisms for this alternative, and for its individual elements (including development of new off-stream reservoirs and any conveyance facilities) have not yet been studied, nor have such studies themselves been funded; therefore the feasibility of this alternative is questionable.

5.3 Environmentally Superior Alternative

As part of evaluation and comparison of alternatives, the CEQA *Guidelines* require that if the "no project" alternative is identified as the environmentally superior alternative, the EIR must also identify the environmentally superior alternative among the other alternatives (CEQA *Guidelines*, § 15126.6(e)(2).) The No Program Alternative is not identified in this Draft EIR as the environmentally superior alternative and, as a result, no environmentally superior alternative is identified. However, for the reasons highlighted above, CDFG generally believes the Program is environmentally superior to the alternatives considered here.

TABLE 5-1
IMPACTS AND SIGNIFICANCE LEVELS OF ALTERNATIVES IN COMPARISON WITH THE PROGRAM

Impact and Significance Level with Mitigation Measures Identified in This Report	No Program	Instream Flow
Land Use and Agriculture		
Impact 3.1-1: The Program could result in the conversion of agricultural land within the Scott River Watershed to non-agricultural uses (Less than Significant).	Greater Impact	Greater Impact
Geomorphology, Hydrology and Water Quality		
Impact 3.2-1: Certain construction activities performed under the Program could result in increased erosion and sedimentation and/or pollutant (e.g., fuels and lubricants) loading to surface waterways, which could increase turbidity, suspended solids, settleable solids, or otherwise decrease water quality in surface waterways (Less than Significant with Mitigation).	Lesser Impact	Greater Impact
Impact 3.2-2: Certain instream structures proposed to improve fish habitat as part of the Program would be installed within a flood hazard area and could impede or redirect flood flows (Less than Significant).	Lesser Impact	Same Impact
Impact 3.2-3: Installation and operation of instream structures permitted under the Program could alter channel stability and degrade water quality by increasing turbidity downstream (Less than Significant with Mitigation).	Same Impact	Same Impact
Impact 3.2-4: The Program could result in an increase in the extraction of groundwater, which could contribute to decreased baseflows and increased ambient water temperatures in the Scott River and its tributaries (Less than Significant).	Lesser Impact	Lesser Impact
Biological Resources: Fisheries and Aquatic Habitat		
Impact 3.3-1: Construction, maintenance, and other instream activities associated with various Covered Activities may result in impacts to fisheries resources and their habitat (Less than Significant with Mitigation).	Greater Impact	Same Impact
Impact 3.3-2: Increased extraction of groundwater could contribute to decreased baseflows and increased ambient water temperatures in the Scott River and its tributaries, thereby impacting coldwater fish habitat (Less than Significant with Mitigation).	Lesser Impact	Lesser Impact
Biological Resources: Botany, Wildlife, and Wetlands		
Impact 3.4-1: The Program could result in impacts to special-status plant or animal species (Less than Significant with Mitigation).	Greater Impact	Greater Impact
Impact 3.4-2: Construction of new and maintenance and repair of existing stream access and crossings could result in impacts to special-status plant or animal species (Less than Significant).	Greater Impact	Same Impact
Impact 3.4-3: ITP Covered Activity 10, the grazing of livestock within the riparian exclusion zone ~~bed, bank, or channel~~ of a stream different from current operations (i.e., not part of baseline conditions), could impact sensitive habitat and special-status species (Less than Significant with Mitigation).	Greater Impact	Same Impact
Impact 3.4-4: ITP Covered Activities may result in incidental discharge of fill into wetlands under federal jurisdiction, with temporary, direct and indirect impacts to wetland function (Less than Significant).	Greater Impact	Greater Impact
Impact 3.4-5: Water efficiency measures required by the Program could in some instances adversely affect nesting special-status birds (Less than Significant with Mitigation).	Greater Impact	Same Impact

Comparison of severity of impacts of Alternatives with impacts of the Program, as mitigated in this EIR.

Greater Impact = The alternative would have a greater (or less favorable) impact than under the Program.
Lesser Impact = The alternative would have a lesser (or more favorable) impact than under the Program.
Same Impact = The alternative would have about the same level of impact as the Program.

This table presents a comparison of environmental impacts that were identified under the proposed project with each of the alternatives. Any additional environmental impacts that would potentially occur under each of the alternatives are presented in the text discussion.

TABLE 5-1 (Continued)
IMPACTS AND SIGNIFICANCE LEVELS OF ALTERNATIVES IN COMPARISON WITH THE PROGRAM

Impact and Significance Level with Mitigation Measures Identified in This Report	No Program	Instream Flow
Cultural Resources		
Impact 3.5-1: Impacts to known and unknown cultural resources may result either directly or indirectly during the implementation and operational phases of a Covered Activity under the Program (Less than Significant with Mitigation).	Same Impact	Greater Impact
Impact 3.5-2: Covered Activities could adversely affect known or unknown paleontological resources (Less than Significant with Mitigation).	Same Impact	Greater Impact
Impact 3.5-3: Covered Activities could result in damage to previously unidentified human remains (Less than Significant).	Same Impact	Greater Impact
Hazards and Hazardous Materials		
Impact 3.6-1: Construction activities could result in discovery and release of previously unidentified hazardous materials into the environment (Less than Significant with Mitigation).	Same Impact	Greater Impact
Impact 3.6-2: Program construction activities could ignite dry vegetation and start a wildland fire (Less than Significant with Mitigation).	Same Impact	Greater Impact
Public Utilities, Service Systems and Energy		
Impact 3.7-1: The Program could result in the modification or expansion of existing water supply systems (Less than Significant).	Lesser Impact	Greater Impact
Impact 3.7-2: Construction activities could inadvertently contact underground utility lines and/or facilities during excavation and other ground disturbance, possibly leading to short-term utility service interruptions (Less Than Significant).	Lesser Impact	Greater Impact
Impact 3.7-3: Replacement of gravity-based surface water diversions with diversions or wells utilizing pumps, would increase power consumption and air emissions (Less than Significant).	Lesser Impact	Greater Impact
Impact 3.7-4: Impact 3.7-4: Construction Activities and Water Pumping Associated with Covered Activities and ITP mitigations would generate greenhouse gas emissions that would contribute to global warming (Less than Significant).	Lesser Impact	Greater Impact
Aesthetics	Same Impact	Greater Impact
Program would have no significant impacts		
Air Quality	Same Impact	Greater Impact
Program would have no significant impacts		
Geology, Soils and Seismicity	Same Impact	Greater Impact
Program would have no significant impacts		
Mineral Resources	Same Impact	Same Impact
Program would have no significant impacts		
Noise	Same Impact	Greater Impact
Program would have no significant impacts		
Population and Housing	Same Impact	Same Impact
Program would have no significant impacts		

Comparison of severity of impacts of Alternatives with impacts of the Program, as mitigated in this EIR.

Greater Impact = The alternative would have a greater (or less favorable) impact than under the Program.
Lesser Impact = The alternative would have a lesser (or more favorable) impact than under the Program.
Same Impact = The alternative would have about the same level of impact as the Program.

This table presents a comparison of environmental impacts that were identified under the proposed project with each of the alternatives. Any additional environmental impacts that would potentially occur under each of the alternatives are presented in the text discussion.

TABLE 5-1 (Continued)
IMPACTS AND SIGNIFICANCE LEVELS OF ALTERNATIVES IN COMPARISON WITH THE PROGRAM

Impact and Significance Level with Mitigation Measures Identified in This Report	No Program	Instream Flow
Public Health and Safety Program would have no significant impacts	Same Impact	Same Impact
Recreation Program would have no significant impacts	Same Impact	Greater Impact
Transportation and Traffic Program would have no significant impacts	Same Impact	Greater Impact

Comparison of severity of impacts of Alternatives with impacts of the Program, as mitigated in this EIR.

Greater Impact = The alternative would have a greater (or less favorable) impact than under the Program.
Lesser Impact = The alternative would have a lesser (or more favorable) impact than under the Program.
Same Impact = The alternative would have about the same level of impact as the Program.

This table presents a comparison of environmental impacts that were identified under the proposed project with each of the alternatives. Any additional environmental impacts that would potentially occur under each of the alternatives are presented in the text discussion.

TABLE 5-2
ABILITY OF THE PROGRAM AND ALTERNATIVES TO MEET PROGRAM OBJECTIVES

Ability of Alternatives to Meet Program Objectives	Program	No Program Alternative	Instream Flow Alternative
SQRCD's Objectives			
Support landowner activities (both private and public) in order to enhance the conservation and economic stability of Siskiyou County's natural resources.	Yes	No	Yes
Assist Agricultural Operators in completing projects consistent with the tasks identified in the Coho Recovery Strategy and projects identified in the Scott River Watershed Council Strategic Action Plan (Scott River Watershed Council, 2005).	Yes	No	Yes
Assist Agricultural Operators in meeting the requirements of Fish and Game Code, § 1600 *et seq.* and CESA by working with CDFG to develop a Program that streamlines the process to obtain streambed alteration agreements (SAA) under Fish and Game Code, § 1600 *et seq.* and incidental take authorization under CESA.	Yes	No	Yes
Comply with Fish and Game Code, § 1600 *et seq.* and CESA while performing instream and/or near-stream coho salmon restoration activities.	Yes	No	Yes
Provide incentives for Agricultural Operators in the Scott River watershed to implement coho salmon recovery tasks.	Yes	No	Yes
Increase the viability of coho salmon and other plant, fish, and wildlife resources in the Scott River watershed by improving water quality and riparian habitat, minimizing any adverse effects from agricultural activities, and restoring habitat by providing a clear set of activities and conditions to Agricultural Operators.	Yes	No	Yes
Protect and improve the biological functioning of the Scott River watershed and natural resources while maintaining the economic viability of agriculture.	Yes	No	Yes
Implement the permit conditions identified in the Program for coho salmon and other stream resources in the Scott River watershed.	Yes	No	Yes
CDFG's Objectives			
Fulfill the commitment to develop a permitting framework within the context of the Shasta-Scott Pilot Program in the Coho Recovery Strategy."	Yes	No	**Yes**
Work with SQRCD and Agricultural Operators to develop a watershed-wide permit program that covers agricultural water diversions and other agricultural activities related to those diversions in the Scott River watershed.	Yes	No	**Yes**
Protect and conserve coho salmon when authorizing activities in the Scott River watershed that may affect the species.	Yes	No	**Yes**
Eliminate unauthorized take of coho salmon caused by water diversions in the Scott River watershed and avoid, minimize, and fully mitigate take of coho salmon incidental to diverting water with a valid water right, recovery actions, and other lawful activities.	Yes	No	**Yes**
Implement selected key coho salmon recovery tasks that are essential to improving habitat conditions for coho salmon in the Scott River watershed.	Yes	No	**Yes**

TABLE 5-2 (Continued)
ABILITY OF THE PROGRAM AND ALTERNATIVES TO MEET PROGRAM OBJECTIVES

Ability of Alternatives to Meet Program Objectives	Program	No Program Alternative	Instream Flow Alternative
CDFG's Objectives (cont.)			
Bring existing agricultural water diverters into compliance with Fish and Game Code, § 1600 *et seq*. and CESA.	Yes	No	**Yes**
Agricultural Operators' Objectives			
Protect and conserve coho salmon and other plant, fish, and wildlife resources while maintaining the economic viability of their agricultural operations in the Scott River watershed.	Yes	No	Yes
Comply with Fish and Game Code, § 1600 *et seq.* and CESA in conducting the activities the Program covers subject to those statutes.	Yes	Partly	Yes
Department of Water Resources Objective			
Implement the applicable Decrees pursuant to applicable provisions in the California Water Code.	Yes	Partly	Yes
Ensure watermastering activities are in compliance with CESA.	Yes	Partly	Yes
Verify that watermastered diverters are in compliance with their respective adjudicated water right(s).	Yes	Partly	Yes
Work with CDFG to avoid or minimize the stranding of coho salmon when CDFG determines that a permitted water diversion is causing or will cause stranding.	Yes	Partly	Yes

References

State Water Resources Control Board (SWRCB), *The Water Right Process*, www.waterrights.ca.gov/html/wr_process.htm, accessed online April 2007.

CHAPTER 6
Draft EIR Authors, Persons, and Organizations Contacted

6.1 Lead Agency Authors

California Department of Fish and Game
601 Locust Street
Redding, California 96001

Caitlin Bean, Staff Environmental Scientist
Donna Cobb, Senior Environmental Scientist
Michael Harris, Environmental Scientist
Mark Stopher, Habitat Conservation Program Manager
Bob Williams, Staff Environmental Scientist

California Department of Fish and Game
1625 South Main
Yreka, California 96097

Bill Chesney, Associate Biologist (Marine/Fisheries)
Mark Pisano, Senior Biologist Supervisor
Jim Whelan, Associate Biologist (Marine/Fisheries)

California Department of Fish and Game
1724 Ball Mountain Road
Montague, California 96064

Robert Schaefer, Environmental Scientist

Department of Fish and Game
1416 Ninth Street, 12th Floor
Sacramento, California 95814

Stephen Puccini, Senior Staff Counsel

California Department of Fish and Game
1812 Ninth Street
Sacramento, California 95814

Kris Vyverberg, Senior Engineering Geologist

6.2 EIR Consultants

Environmental Science Associates (ESA)
225 Bush Street, Suite 1700
San Francisco, California 94104

Project Director:	Tom Roberts
Project Manager:	Dan Sicular
Deputy Project Managers:	Leah Katz, Erin Higbee
Project Description:	Dan Sicular, Leah Katz
Land Use and Agriculture Section:	Leah Katz, Nik Carlson, Dan Sicular
Geomorphology, Hydrology & Water Quality Section:	Justin Gragg, Bill Weaver[1]
Biological Resources: Fisheries and Aquatic Habitat Section:	Mike Podlech
Biological Resources: Botany, Wildlife, and Wetlands Section:	Tom Roberts
Cultural Resources Section:	Trudy Vaughn[2]
Hazards and Hazardous Materials Section:	Matt Fagundes, Dan Sicular
Public Utilities, Service Systems, and Energy Section:	Matt Fagundes, Dan Sicular
Cumulative Effects and Other Required Topics:	Leah Katz, Dan Sicular
Alternatives to the Project:	Dan Sicular
GIS:	Bill Boynton, Fletcher Clover
Graphics:	Ron Teitel
Word Processing:	Lisa Bautista, Gus JaFolla
Legal Review:	Anna Shimko[3]
Public Outreach	John Clerici and Carol Glatfelter[4]

6.3 Persons and Organizations Consulted

Other people and organizations consulted are identified in the references at the end of each section.

1 Bill Weaver is with Pacific Watershed Associates of Arcata, California, a subcontractor to ESA.
2 Trudy Vaughn is with Coyote & Fox Enterprises of Redding, California, a subcontractor to ESA.
3 Anna Shimko is with Cassidy Shimko Dawson & Kawakami, PC, a subcontractor to ESA.
4 John Clerici and Carol Glatfelter are with CirclePoint of Sacramento, California, a subcontractor to ESA.

APPENDIX A
Incidental Take Permit

(Current version provided in FEIR Volume 2)

APPENDIX B

Streambed Alteration Agreement MOU and Master List of Terms and Conditions

(Current version provided in FEIR Volume 2)

APPENDIX C
Notice of Preparation

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State of California

Memorandum

To: State Clearinghouse
1400 Tenth Street
Sacramento, California 95814

Date: October 19, 2006

for

From: **DONALD B. KOCH, Regional Manager**
Northern California-North Coast Region
Department of Fish and Game
601 Locust Street
Redding, California 96001

Subject: Notice of Preparation of a Draft Environmental Impact Report for the Scott River Watershed-Wide Permitting Program, Siskiyou County

The California Department of Fish and Game (CDFG) will prepare an environmental impact report (EIR) for a proposed watershedwide permitting program in the Scott River Watershed, Siskiyou County. The Program has been developed by the CDFG in consultation with Siskiyou Resource Conservation District (SQRCD) and implements key coho salmon recovery tasks while facilitating agricultural operators and SQRCD compliance with the California Endangered Species Act and Fish and Game Code Section 1602 by establishing a streamlined process for the issuance of incidental take permits and streambed alteration agreements. The Program's description, covered activities, avoidance, minimization, and mitigation measures, and probable environmental effects are contained in the enclosed initial study. The initial study is also available at: http://www.dfg.ca.gov/hcpb/whatsnew/whatsnew.shtml.

We need to know your views as to the scope and content of the environmental information that is germane to your agency's statutory responsibilities or specific concerns that must be included in the Draft EIR. This includes significant environmental issues, reasonable alternatives, and mitigation measures that a responsible agency will need to have explored in the Draft EIR and whether your agency will be a responsible agency or trustee agency for the proposed program.

Pursuant to Public Resources Code Section 21080.4 (CEQA) and California Code of Regulations Section 15082 (CEQA Guidelines), we request comments by agencies be submitted within 30 days after receipt of this letter. Please send you response to:

Mr. Bob Williams
California Department of Fish and Game
601 Locust Street
Redding, California 96001
bwilliams@dfg.ca.gov
530-225-2365

All comments received, including names and addresses, will become part of the official administrative record

Interested public agencies and members of the public are also invited to a scoping meeting where they may submit oral and written comments and suggestions regarding the scope of the EIR to help identify the range of actions, alternatives, mitigation measures, and significant environmental effects to be analyzed in relation to the proposed project. Prior to the scoping meeting interested parties may attend a workshop providing an overview of the review process under CEQA and information on how the public may participate in that process. The workshop and scoping meeting will be held:

- Wednesday, October 25, 2006
  Location: - Fort Jones Community Center, 11960 East Street, Fort Jones.
  The public workshop will be from 3:00 to 5:00 p.m.
  The public scoping meeting will run from 6:30 to 8:30 p.m.

For more information, please contact Staff Environmental Scientist Bob Williams at 530-225-2365 or bwilliams@dfg.ca.gov.

Enclosures

Williams:pm
R:\Williams\Coho EIR\Scott NOP Memo to Clearing House 10-16-06.doc

NOTICE OF PREPARATION OF A

DRAFT ENVIRONMENTAL IMPACT REPORT

SCOTT RIVER WATERSHED-WIDE PERMITTING PROGRAM

CALIFORNIA DEPARTMENT OF FISH AND GAME

To Responsible and Trustee Agencies and All Interested Parties:

The California Department of Fish and Game (CDFG) and the Siskiyou Resource Conservation District (SQRCD) have developed a watershed-wide permitting program for the Scott River watershed (Program). The Program is designed to implement key coho salmon (*Oncorhynchus kisutch*) recovery tasks while facilitating compliance by agricultural operators and those implementing coho salmon restoration projects with the California Endangered Species Act (CESA) (Fish and G. Code, § 2050 *et seq.*) and Fish and Game Code section 1602 (section 1602). For purposes of the Program, "agricultural operator" means: 1) any person who lawfully diverts water from a stream in the Scott River watershed (Program Area) for an agricultural purpose; and/or 2) any person involved in a lawful agricultural operation on property in the Program Area through which or adjacent to which a stream flows.

CDFG has determined that the Program and the activities authorized under it through a watershed-wide Master Streambed Alteration Agreement (MSAA) and Incidental Take Permit (ITP) have the potential to cause significant adverse environmental effects. As a result, it is preparing an environmental impact report (EIR) pursuant to the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 *et seq.*).

CDFG is the lead agency for the purpose of reviewing the Program and the activities it will authorize under the Program because CDFG has principal responsibility for approving and administering the Program (Cal. Code Regs., tit. 14, § 15367). The activities CDFG will authorize are referred to in the ITP and MSAA as "Covered Activities." CDFG has identified the North Coast Regional Water Quality Control Board as a responsible agency because it may have discretionary approval over some of the Covered Activities the Program will authorize (Cal. Code Regs., tit. 14, § 15381). A "trustee agency" is a state agency that has jurisdiction over natural resources held in trust for the people of the state that could be affected by a project (Cal. Code Regs., tit. 14, § 15386). CDFG has identified the State Lands Commission (SLC) as a trustee agency because the Covered Activities authorized under the Program could affect the beds of navigable waters and other "state owned 'sovereign' land" which are within SLC's jurisdiction (Cal. Code Regs., tit. 14, § 15386, subd. (b)).

CDFG needs to know your views regarding the scope and content of the environmental information in connection with the Program. The initial study that has been prepared for the Program is attached as Attachment 4 and is also available for review at: http://www.dfg.ca.gov/hcpb/whatsnew/whatsnew.shtml.

You may also request a copy of the initial study from CDFG (see below). CEQA requires that you submit any response to CDFG at the earliest possible date, but not later than 30 days after receipt of this notice.

Requests for a copy of the initial study or any other information regarding the Program, and all responses to this notice should be sent to:

Bob Williams, Staff Environmental Scientist
Conservation Planning
California Department of Fish and Game
601 Locust Street
Redding, CA 96001
530-225-2365

Four documents are attached to this notice. Attachment 1 provides an overview of the Program, the scoping process, and the draft EIR schedule. Attachment 2 shows the location of the Scott River Watershed. Attachment 3 shows the environmental factors potentially affected by the Program that the EIR will address. Attachment 4 is the Initial Study.

Date: October 19, 2006

for **DONALD B. KOCH**, Regional Manager
Northern California North Coast Region
California Department of Fish and Game
530-225-2363

ATTACHMENT 1

Background

The Scott River Watershed-wide Permitting Program (Program) is designed to implement key coho salmon (*Oncorhynchus kisutch*) recovery tasks while facilitating compliance by agricultural operators and those implementing coho salmon restoration projects with the California Endangered Species Act (CESA) (Fish and G. Code, § 2050 *et seq.*) and Fish and Game Code section 1602 (section 1602). Compliance with those laws is necessary because both agricultural water diversions and recovery efforts could result in temporary or long-term adverse effects on coho salmon and other stream resources. Currently, agricultural operators in the Scott River watershed (Program Area) can comply with CESA by applying to CDFG for an individual ITP , and with section 1602 by submitting a notification and obtaining a streambed alteration agreement (SAA). To facilitate such compliance, CDFG and the Siskiyou Resource Conservation District (SQRCD) developed the Program as an alternative to the standard process an agricultural operator would need to follow to obtain an ITP and SAA.

On March 29, 2005, SQRCD submitted an application to CDFG for a watershed-wide ITP pursuant to Fish and Game Code section 2081(b) and (c). On April 22, 2005, SQRCD submitted a notification to CDFG for a MSAA. Thereafter, CDFG has worked to prepare a draft watershed-wide ITP and MSAA in cooperation with SQRCD and agricultural operators. The Program will enable agricultural operators and those implementing coho salmon restoration activities, including SQRCD, to obtain coverage for their activities through the issuance of the ITP and sub-permits (for CESA) and individual SAAs (for section 1602). The sub-permits and SAAs will include those conditions in the ITP and MSAA that apply to the activities the ITP and MSAA authorized, referred to as "Covered Activities."

The ITP, MSAA, and individual sub-permits and SAAs comprise the Program. The Program will authorize SQRCD and participating agricultural operators to conduct a range of Covered Activities specified in the ITP and MSAA within and adjacent to the Scott River and its tributaries, provided they conduct the activities in accordance with the avoidance, minimization, and mitigation measures specified in the ITP (for SQRCD only), and the avoidance and minimization measures specified in the sub-permits (for the agricultural operators only), and SAAs (for SQRCD and the agricultural operators) to protect fish and wildlife resources, including coho salmon. The term of the ITP will be 10 years. The term of the MSAA will be 5 years, which CDFG may extend for a second 5 year period.

CDFG and the Shasta Valley Resource Conservation District are developing a similar watershed-wide permitting program for the Shasta River watershed, also in Siskiyou County. That program is the subject of a separate environmental review process under CEQA.

Master Streambed Alteration Agreement

CDFG and SQRCD have developed a Memorandum of Understanding which identifies their roles and responsibilities in administering and implementing the MSAA. The MSAA, which is currently in draft form, will identify specific Covered Activities. The MSAA also will include measures necessary to protect fish and wildlife resources that any of the Covered Activities may substantially adversely affect. Each participating agricultural operator who intends to conduct a Covered Activity will be required to complete an application, referred to as a "notification" with SQRCD's assistance. SQRCD will also be required to notify CDFG to conduct a Covered Activity. After CDFG receives the notification, it will confirm the proposed activity is covered by the MSAA, and thereafter prepare a SAA for the participating agricultural operator or SQRCD which includes the particular set of protective measures in the MSAA that are assigned to that activity. The EIR will analyze the potential environmental effects of the Covered Activities in the MSAA. Requests for SAAs which include activities not identified within the MSAA may require additional environmental review.

Incidental Take Permit

Under CESA, a person may not "take"[1] a species listed as threatened or endangered unless the take is incidental to an otherwise lawful activity and the person obtains take authorization from CDFG in the form of an incidental take permit. CDFG and SQRCD have worked together to develop a watershed-wide ITP as part of the Program, which is currently in draft form. The ITP will establish a program through which SQRCD and participating agricultural operators will be authorized to take coho salmon incidental to otherwise lawful Covered Activities. Specifically, CDFG would issue sub-permits to participating agricultural operators who intend to complete a Covered Activity, thereby making them sub-permittees. SQRCD will be covered by the ITP rather than by a separate sub-permit. As a condition of the ITP and each sub-permit, SQRCD and sub-permittees will be required to comply with specific avoidance and minimization measures identified in the watershed-wide ITP and sub-permit. In addition, SQRCD will be required to perform the mitigation measures identified in the watershed-wide ITP to fully mitigate take of coho salmon, and to monitor and report on the Covered Activities and avoidance, minimization, and mitigation measures.

Program Advantages

Participation in the Program has many advantages, including the following:

- The Program represents a comprehensive, watershed-wide effort to implement key coho salmon recovery actions.
- The Program will bring existing agricultural water diverters into compliance with CESA and section 1602

[1] Pursuant to Fish and Game Code section 86, "take" means hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.

- SQRCD will have one watershed-wide ITP for their many restoration projects, which will minimize the time and effort needed to obtain individual take authorization on a project-by-project basis. With the MSAA and ITP, it will take much less time for CDFG to develop individual SAAs for each SQRCD project subject to section 1602 and sub-permits for participating agricultural operators. .
- SQRCD will assist participating agricultural operators to prepare their SAA notifications and those operators will not be required to pay a notification fee to CDFG.
- SQCD (through the ITP) and agricultural operators (through their sub-permits) will be authorized to take coho salmon incidental to the Covered Activities in the ITP.
- SQRCD and participating agricultural operators will not be responsible for CDFG's cost to prepare the EIR for the Program and, in most instances; CDFG will not need to prepare an additional environmental document under CEQA before issuing a sub-permit or SAA.
- CDFG will avoid the time needed to prepare multiple incidental take permits for multiple SQRCD activities.
- The Program provides a coordinated approach to implement restoration projects critical for recovering coho salmon.

Scoping and Public Information Meetings

CDFG is seeking input on the scope and content of environmental information relevant to the Program and the Covered Activities authorized under it. To that end, CDFG will hold a public scoping meeting on **October 25, 2006,** from 6:30 to 8:30 p.m. The scoping meeting will provide the public an opportunity to comment on the scope of the environmental analysis in the EIR, and to raise issues, concerns, and ideas regarding potential impacts of the program and the projects authorized under it, feasible mitigation measures, and possible alternatives to the Program.

Prior to the public scoping meeting, CDFG will hold a workshop on techniques for effective participation in the CEQA environmental review process from 3:00 to 5:00 p.m. Workshop topics will include an overview of the environmental review process and information on the many ways the public can participate in the process. Workshop topics will include an overview of the review process under CEQA and information on how the public may participate in that process. It will not necessary to attend the CEQA workshop in order to participate in the public scoping meeting.

The scoping and public information meetings will be held at the Fort Jones Community Center located at 11960 East Street in Fort Jones.

Draft EIR Schedule

The Draft EIR is scheduled for circulation in spring 2007.

Other CDFG Projects

Other significant CDFG projects near the Program Area include the Shasta River watershed-wide permitting program and the petition in front of the Fish and Game Commission to remove the Siskiyou Mountains Salamander from the state list of threatened species under the California Endangered Species Act.

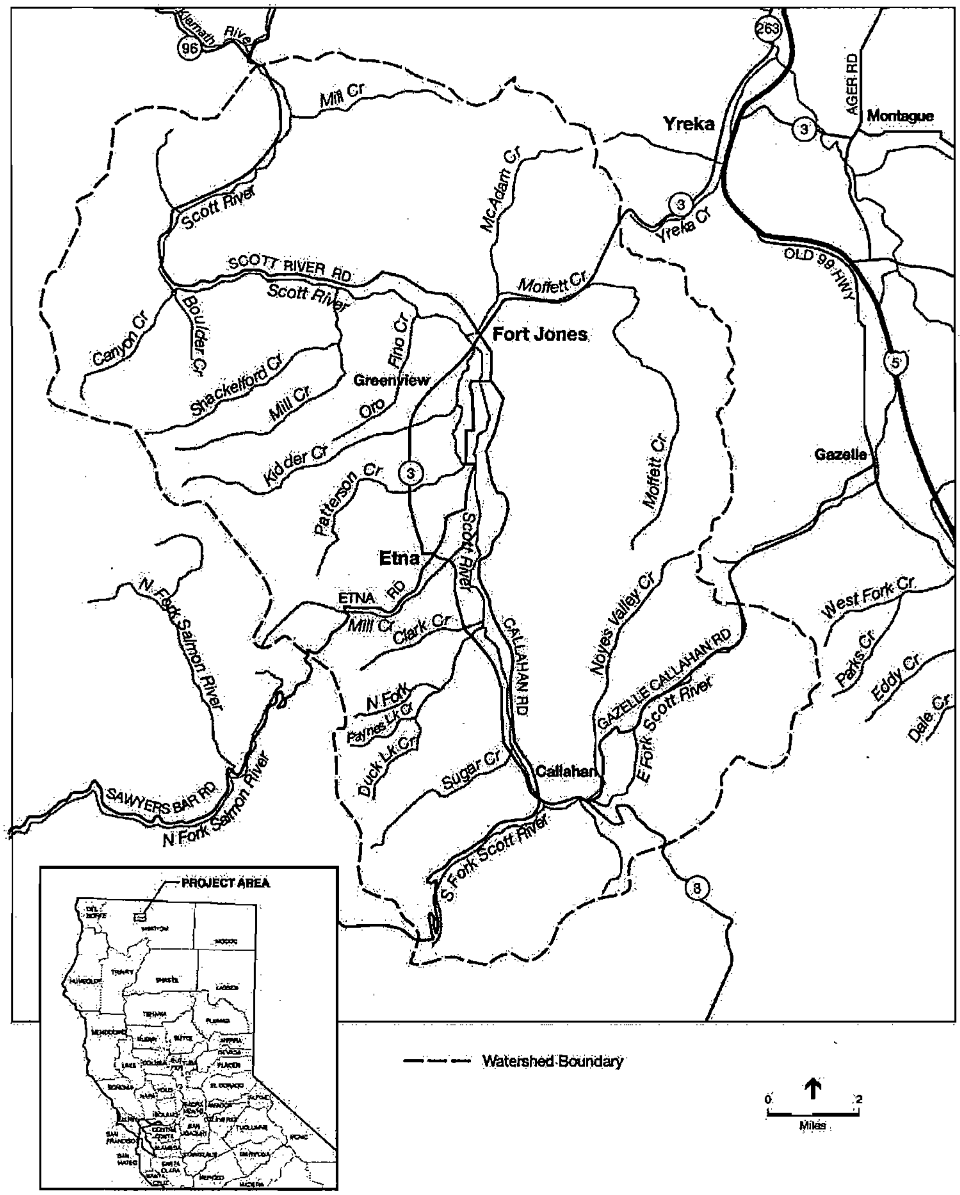
Additional Information

Additional information about the Scott River Watershed-wide Permitting Program may be obtained from CDFG's website at:
http://www.dfg.ca.gov/hcpb/whatsnew/whatsnew.shtml.

CDFG's contact person for any questions regarding the Program is:

Bob Williams, Staff Environmental Scientist
Conservation Planning
California Department of Fish and Game
601 Locust Street
Redding, CA 96001
530-225-2365

ATTACHMENT 2



SOURCE: ESA

Scott River Watershed-Wide Permitting Program . 206063

Figure 1
Project Location

ATTACHMENT 3

Environmental Factors Potentially Affected

The environmental factors checked below involve at least one “potentially significant impact” that could result from the Program and the Covered Activities authorized under it

☐ Aesthetics	☒ Agriculture Resources	☐ Air Quality
☒ Biological Resources	☒ Cultural Resources	☐ Geology, Soils and Seismicity
☒ Hazards and Hazardous Materials	☒ Hydrology and Water Quality	☒ Land Use and Land Use Planning
☐ Mineral Resources	☐ Noise	☐ Population and Housing
☒ Public Services	☐ Recreation	☐ Transportation and Traffic
☐ Utilities and Service Systems	☒ Mandatory Findings of Significance	

Mail to: State Clearinghouse, 1400 Tenth Street, Sacramento, CA 95814 – 916/445-0613

ENVIRONMENTAL DOCUMENT TRANSMITTAL FORM

See *NOTE* BELOW

SCH# ____________

1. Project Title: Scott River Watershed-wide Permitting Program
2. Lead Agency: California Department of Fish and Game
3. Contact Person: Bob Williams
3. Contact Person:
3a. Street Address: 601 Locust Street
3b. City: Redding
3c. County: Shasta
3d. Zip: 96001
3e. Phone: 530-225-2365

PROJECT LOCATION

4. County: Siskiyou
4a. City/Community: NA
4b. Assessor's Parcel No.: NA
4c. Section: NA Twp.: NA Range: NA
5a. Cross Streets: NA
5b. For Rural, Nearest Community:
6. With 2 miles: a. State Hwy# NA b. Airports: NA
c. Railways: NA d. Waterways: Scott River and its tributaries

7. Document Type

CEQA 01. ☒ NOP 02. ☐ Early Cons 03. ☐ Neg Dec 04. ☐ Draft EIR 05. ☐ Supplement/Subsequent EIR (Prior SCH No.: ________) 06: ☐ NOE 07: ☐ NOC 08. ☐ NOD

NEPA 09. ☐ NOI 10. ☐ FONSI 11. ☐ Draft EIS 12. ☐ EA

OTHER 13. ☐ Joint Document 14. ☐ Final Document 15. ☐ Other ________

8. Local Action Type

01. ☐ General Plan Update
02. ☐ New Element
03. ☐ General Plan Amendment
04. ☐ Master Plan
05. ☐ Annexation
06. ☐ Specific Plan
07. ☐ Community Plan
08. ☐ Redevelopment
09. ☐ Rezone
10. ☐ Land Division (Subdivision, Parcel Map, Tract Map, etc.)
11. ☐ Use Permit
12. ☐ Waste Mgmt Plan
13. ☐ Cancel Ag Preserve
14. ☒ Other

9. Development Type

01. ☐ Residential: Units ____ Acres ____
02. ☐ Office: Sq.ft. ____ Acres ____ Employees ____
03. ☐ Shopping/Commercial: Sq.ft. ____ Acres ____ Employees ____
04. ☐ Industrial: Sq.ft. ____ Acres ____ Employees ____
05. ☐ Water Facilities: MGD ____
06. ☐ Transportation: Type ____
07. ☐ Mining: Mineral ____
08. ☐ Power: Type ____ Watts ____
09. ☐ Waste Treatment: Type ____
10. ☐ OCS Related
11. ☒ Other: Incidental Take Permit
Streambed Alteration Agreement

10. TOTAL ACRES: Approximately 1,176,160 acres

11. Total Jobs Created: *NA*

12. Project Issues Discussed in Document

01. ☐ Aesthetic/Visual
02. ☒ Agricultural Land
03. ☐ Air Quality
04. ☒ Archaeological/Historical
05. ☐ Coastal Zone
06. ☐ Economic
07. ☐ Fire Hazard
08. ☐ Flooding/Drainage
09 ☐ Geologic/Seismic
10. ☐ Jobs/Housing Balance
11. ☐ Minerals
12. ☐ Noise
13. ☒ Public Services
14. ☐ Schools
15. ☐ Septic Systems
16. ☐ Sewer Capacity
17. ☐ Social
18. ☒ Soil Erosion
19. ☐ Solid Waste
20. ☒ Toxic/Hazardous
21. ☐ Traffic/Circulation
22. ☒ Vegetation
23. ☒ Water Quality
24. ☒ Water Supply
25. ☒ Wetland/Riparian
26. ☒ Wildlife
27. ☐ Growth Inducing
28. ☐ Incompatible Land Use
29. ☒ Cumulative Effects
30. ☐ Other ________

13. FUNDING (**APPROX.**) ***Federal $*** **0** ***State $*** **0** ***Total $*** ____

Form Revised 4/86 – Replaces CA 189 Mark Distribution on Reverse

14. Present Land Use and Zoning

Varies. Most of the Program Area is mapped as Prime Agricultural Soils in the Siskiyou County General Plan (1980).

15. Project Description

The name of the project is the Scott River Watershed-Wide Permitting Program (Program). The Program is designed to implement key coho salmon (*Oncorhynchus kisutch*) recovery tasks while facilitating compliance by agricultural operators and those implementing coho salmon restoration projects with the California Endangered Species Act (CESA) (Fish and G. Code, § 2050 *et seq.*) and Fish and Game Code section 1602 (section 1602). Compliance with those laws is necessary because both agricultural water diversions and recovery efforts could result in temporary or long-term adverse effects on coho salmon and other stream resources. Currently, agricultural operators in the Scott River watershed (Program Area) can comply with CESA by applying to CDFG for an individual incidental take permit, and with section 1602 by submitting a notification and obtaining a streambed alteration agreement (SAA). To facilitate such compliance, CDFG and the Siskiyou Resource Conservation District (SQRCD) developed the Program as an alternative to the standard process an agricultural operator would need to follow to obtain an incidental take permit and SAA.

On March 29, 2005, SQRCD submitted an application to CDFG for a watershed-wide incidental take permit (ITP) pursuant to Fish and Game Code section 2081(b) and (c). On April 22, 2005, SQRCD submitted a notification to CDFG for a Master Streambed Alteration Agreement (MSAA). Thereafter, CDFG prepared a draft ITP and MSAA in cooperation with SQRCD and worked with SQRCD and agricultural operators to develop a Program. The Program will enable agricultural operators and those implementing coho salmon restoration projects, including SQRCD, to obtain coverage for the activities covered by the ITP and MSAA, referred to as "Covered Activities," through the issuance of the ITP and sub-permits (for CESA) and SAAs (for section 1602). The sub-permits and SAAs will include those conditions in the ITP and MSAA that apply to the Covered Activities being authorized.

The ITP, MSAA, and individual sub-permits and SAAs comprise the Program. The Program will authorize SQRCD and participating agricultural operators to conduct a range of Covered Activities specified in the ITP and MSAA within and adjacent to the Scott River and its tributaries, provided they conduct the Covered Activities in accordance with the avoidance, minimization, and mitigation measures specified in the ITP (for SQRCD), sub-permits (for agricultural operators), and SAAs (for SQRCD and agricultural operators) to protect fish and wildlife resources, including coho salmon. The term of the ITP will 10 years. The term of the MSAA will be 5 years, which CDFG may extend for a second 5 year period prior to its expiration.

16. SIGNATURE OF LEAD AGENCY REPRESENTATIVE

Date October 19, 2006

for **DONALD B. KOCH**, Regional Manager

NOTE: Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g., from a Notice of Preparation or previous draft document) please fill it in.

Form Revised 4/86 – Replaces CA 189 Mark Distribution on Reverse

REVIEWING AGENCIES

- ☒ Resources
- ☐ Boating / Waterways
- ☒ Conservation
- ☒ Fish and Game
- ☒ Forestry
- ☐ Colorado River Board
- ☒ Dept. Water Resources
- ☐ Reclamation
- ☐ Parks and Recreation
- ☒ Office of Historic Preservation
- ☒ Native American Heritage Commission
- ☐ S.F. Bay Conservation and Development Commission
- ☐ Coastal Commission
- ☐ Energy Commission
- ☒ State Lands Commission
- ☐ Air Resources Board
- ☐ Solid Waste Management Board
- ☒ SWRCB: Sacramento
- ☒ RWQCB: Region #1 North Coast
- ☒ Water Rights
- ☒ Water Quality
- ☐ Caltrans District #4
- ☐ Dept. of Transportation Planning
- ☐ Aeronautics
- ☐ California Highway Patrol
- ☐ Housing and Community Development
- ☐ Statewide Health Planning
- ☐ Health
- ☐ Food and Agriculture
- ☐ Public Utilities Commission
- ☐ Public Works
- ☐ Corrections
- ☐ General Services
- ☐ OLA
- ☐ Santa Monica Mountains
- ☐ TRPA
- ☐ OPR – OLGA
- ☐ OPR – Coastal
- ☐ Bureau of Land Management
- ☐ Forest Service
- ☐ Other
- ☐ Other

For SCH Use Only:

Date Received at SCH ________ Catalog Number ________

Date Review Starts ________ Applicant ________

Date to Agencies ________ Consultant ________

Date to SCH ________ Contact ________ Phone ________

Clearance Date ________ Address ________

Notes: ________

APPENDIX D
Initial Study

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ENVIRONMENTAL CHECKLIST
Initial Study

1. Project Title:	Scott River Watershed-Wide Permitting Program
2. Lead Agency Name and Address:	California Department of Fish and Game 601 Locust Street Redding, CA 96001
3. Contact Person and Phone Number:	Bob Williams Staff Environmental Scientist Conservation Planning Department of Fish and Game 530-225-2365
4. Project Location:	Scott River Watershed, Siskiyou County
5. Project Sponsor's Name and Address:	Siskiyou Resource Conservation District 450 Main Street Etna, CA 96027
6. General Plan Designation(s):	Various. Most lands within the Program Area are mapped as Prime Agricultural Soils in the Siskiyou County General Plan (1980)
7. Zoning Designation(s):	Various. Mostly AG-I

8. Project Description

8.1 Project Overview

This section describes the California Department of Fish and Game's (CDFG) Scott River Watershed-Wide Permitting Program (Program). CDFG developed the Program in consultation with the Siskiyou Resource Conservation District (SQRCD) and agricultural operators[1] within the Scott River watershed (Program Area). The Program is designed to implement key coho salmon (*Oncorhynchus kisutch*) recovery tasks while facilitating compliance by agricultural operators and those implementing coho salmon restoration projects with the California Endangered Species Act (CESA) (Fish and G. Code, §2050 *et seq.*) and Fish and Game Code section 1602 (section 1602). Compliance with those laws is necessary because both agricultural water diversions and recovery efforts could result in temporary or long-term adverse effects on coho salmon and other stream resources. Currently, agricultural operators in the Scott River watershed can comply with CESA by applying to CDFG for an individual incidental take permit, and with section 1602 by submitting a notification and obtaining a streambed alteration agreement (SAA). To facilitate such compliance, CDFG and the Siskiyou Resource Conservation District (SQRCD) developed the Program as an alternative to the standard process an agricultural operator would need to follow to obtain an incidental take permit and SAA.

On March 29, 2005, SQRCD submitted an application to CDFG for a watershed-wide incidental take permit (ITP) pursuant to Fish and Game Code section 2081(b) and (c). On April 22, 2005, SQRCD submitted a notification to CDFG for a Master Streambed Alteration Agreement (MSAA). Thereafter, CDFG prepared an ITP and MSAA in cooperation with SQRCD and worked with SQRCD and agricultural operators to develop a Program. The Program, if implemented, will enable agricultural operators and those implementing coho salmon restoration activities, including SQRCD, to obtain coverage for their activities through the issuance of sub-permits (for CESA) and SAAs (for section 1602). The sub-permits and SAAs will include those conditions in the ITP and MSAA that apply to the activities the ITP and MSAA cover, referred to in each as "Covered Activities."

The ITP, MSAA, and individual sub-permits and SAAs comprise the Program. The Program will authorize SQRCD and participating agricultural operators to conduct a range of Covered Activities specified in the ITP and MSAA within and adjacent to the Scott River and its tributaries, provided they conduct the activities in accordance with the avoidance, minimization, and mitigation measures specified in the ITP and the conditions specified in the MSAA to protect fish and wildlife resources, including coho salmon. The term of the ITP will be ten years. The term of the MSAA will be five years, which CDFG may extend for a second five-year period prior to its expiration.

CDFG and the Shasta Valley Resource Conservation District are developing a similar watershed-wide permitting program for the Shasta River watershed, also in Siskiyou County. That program is the subject of a separate environmental review process under CEQA.

Master Streambed Alteration Agreement

CDFG and SQRCD have developed a Memorandum of Understanding which identifies their roles and responsibilities in administering and implementing the MSAA. The MSAA, which is currently in draft form, will identify the activities it will cover, referred to in the MSAA as "Covered Activities." The MSAA also will include measures necessary to protect fish and wildlife resources that any of the Covered Activities could substantially adversely affect. Each participating agricultural operator and SQRCD will be required to complete an application, referred to as a "notification," for the implementation of any Covered Activity. SQRCD will assist agricultural operators with the preparation of their notifications. After CDFG receives a notification, it will confirm the activity is covered by the MSAA, and thereafter prepare a SAA for SQRCD or the participating agricultural operator which includes the particular set of protective measures in the MSAA that are assigned to that

[1] "Agricultural operator" means: 1) any person who lawfully diverts water from a stream in the Program Area for an agricultural purpose; and/or 2) any person involved in a lawful agricultural operation on property in the Program Area through which or adjacent to which a stream flows.

activity. The EIR will analyze the potential environmental effects of the Covered Activities in the MSAA. Requests for SAAs which may have site specific impacts not analyzed in the EIR or which includes activities not identified within the MSAA may require additional environmental review.

Incidental Take Permit

Under CESA, a person may not "take"[2] a species listed as threatened or endangered unless the take is incidental to an otherwise lawful activity and the person obtains take authorization from the Department in the form of an incidental take permit. CDFG and SQRCD have worked together to develop an ITP as part of the Program, which is currently in draft form. The ITP will establish a program through which SQRCD and participating agricultural operators will be authorized to take coho salmon incidental to otherwise lawful activities identified as "Covered Activities" in the ITP. Specifically, CDFG would issue sub-permits to participating agricultural operators who intend to complete a Covered Activity, thereby making them sub-permittees. SQRCD will be covered by the ITP. As a condition of the ITP and each sub-permit, SQRCD and sub-permittees will be required to comply with the specific minimization and avoidance measures included in the ITP and sub-permits for their own projects, and SQRCD will be required to perform the mitigation measures identified in the ITP to fully mitigate take of coho salmon, and to monitor and report on the Covered Activities and avoidance, minimization, and mitigation measures.

Program Advantages

Participation in the Program has many advantages, including the following:

- The Program represents a comprehensive, watershed-wide effort to implement key coho salmon recovery actions.
- The Program will bring existing agricultural water diverters into compliance with CESA and section 1602
- SQRCD will have one watershed-wide ITP for their many restoration projects, which will minimize the time and effort needed to obtain individual take authorization on a project-by-project basis. With the MSAA and ITP, it will take much less time for CDFG to develop individual SAAs for each SQRCD project subject to section 1602 and sub-permits for participating agricultural operators. .
- SQRCD will assist participating agricultural operators to prepare their SAA notifications and those operators will not be required to pay a notification fee to CDFG.
- SQRCD (through the ITP) and agricultural operators (through their sub-permits) will be authorized to take coho salmon incidental to the Covered Activities in the ITP.
- SQRCD and participating agricultural operators will not be responsible for CDFG's cost to prepare the EIR for the Program and, in most instances, CDFG will not need to prepare an additional environmental document under CEQA before issuing a sub-permit or SAA.

[2] "Take" means hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill. (Fish & G. Code, § 86.)

- CDFG will avoid the time needed to prepare multiple incidental take permits for multiple SQRCD activities.

- The Program provides a coordinated approach to implement restoration projects critical for recovering coho salmon..

Role of SQRCD

SQRCD will play a central role in assisting agricultural operators to obtain sub-permits and SAAs. SQRCD also will be responsible for implementing the mitigation and monitoring requirements specified in the ITP and conducting an education program on coho salmon, CESA, and the terms of the ITP.

8.2 Program Need and Objectives

8.2.1 Background and Need for the Program

In early 2002, the Salmon and Steelhead Recovery Coalition petitioned the Fish and Game Commission (Commission) to list coho salmon north of San Francisco as an endangered species under the CESA. In response, CDFG issued a coho salmon status report to the Commission, recommending that coho salmon from San Francisco north to Punta Gorda be listed as endangered, and that coho salmon from Punta Gorda north to the Oregon border be listed as threatened pursuant to CESA (CDFG, 2004).[3] The Commission found that coho salmon warranted listing in accordance with CDFG's recommendations. These recommendations and subsequent decision were based on the best available information, which indicated that coho salmon have experienced a significant decline in the last half century.

In February 2004, the Commission adopted the Recovery Strategy for California Coho Salmon (Recovery Strategy). The Recovery Strategy emphasizes cooperation and collaboration, and recognizes the need for funding, public and private support for restoration actions, and maintaining a balance between regulatory and voluntary efforts to meet the goals of the Recovery Strategy. The Shasta and Scott River watersheds were identified for a pilot program to address coho salmon recovery issues and solutions related to agriculture and agricultural water use in Siskiyou County. In addition to identifying recommendations for the pilot program, the Shasta-Scott Recovery Team identified the need to develop a programmatic implementation framework (i.e., an ITP program) that works toward the recovery of coho salmon, while providing authorization to take coho incidental to otherwise lawful activities in the Shasta and Scott watersheds. The avoidance, minimization, and mitigation measures included in the ITP are consistent with the recovery tasks identified in the Shasta-Scott Pilot Program of the Recovery Strategy.

8.2.2 Program Objectives

Objectives differ for the different parties involved in the Program: SQRCD, CDFG, and participating agricultural operators.

[3] Coho salmon north of Punta Gorda are within the Southern Oregon-Northern California Coasts (SONCC) Coho Evolutionarily Significant Unit (ESU).

Siskiyou Resource Conservation District's Objectives

SQRCD is a non-profit public agency, organized under Division 9 of the California Public Resources Code. The mission of SQRCD is to recognize, identify, and meet conservation and restoration needs through voluntary landowner/manager and resource user participation by providing technical, financial, and educational leadership within the bounds of SQRCD. The vision of SQRCD is to meet the natural resource conservation and restoration needs of SQRCD by providing a means for the development of projects from the design phase through project implementation, and on an as needed basis, the assessment of projects and programs (SQRCD, 2005).

SQRCD's objectives for the Program are as follows:

- Support landowner activities (both private and public) in order to enhance the conservation and economic stability of Siskiyou County's natural resources;
- Assist agricultural operators in completing projects consistent with the tasks identified in the Recovery Strategy and projects identified in the Scott River Watershed Council Strategic Action Plan (Scott River Watershed Council, 2005);
- Facilitate the development of the Program to streamline the process for the agricultural operators it serves to obtain incidental take permits and SAAs;
- Comply with CESA and section 1602 while performing instream and/or near stream coho salmon restoration measures;
- Assist agricultural operators in complying with CESA and section 1602;
- Provide incentives for agricultural operators in the Scott River watershed to implement coho salmon recovery tasks;
- Increase the viability of coho salmon and other plant, fish, and wildlife resources in the Scott River watershed by improving water quality and riparian habitat, minimizing any adverse effects from agricultural activities, and restoring habitat by providing a clear set of activities and conditions to agricultural operators;
- Protect and improve the biological functioning of the Scott River watershed and natural resources while maintaining the economic viability of agriculture; and
- Implement the permit conditions identified in the watershed-wide ITP and MSAA for coho salmon in the Scott River watershed.

California Department of Fish and Game's Objectives

CDFG is responsible for conserving, protecting, and managing California's fish, wildlife, and native plant resources. CDFG seeks to issue an ITP, sub-permits and SAAs as part of a watershed-wide program to minimize impacts to coho salmon from agricultural activities in the Scott River watershed and to enhance coho salmon habitat through the implementation of key coho salmon recovery tasks in the Scott River watershed with SQRCD's assistance. CDFG's objectives in developing the Program are as follows:

- Fulfill the commitment to develop a permitting framework within the context of the Shasta-Scott Pilot Program in the Recovery Strategy;
- Work with SQRCD and agricultural operators to develop a watershed-wide permit program that covers agricultural water diversions and other agricultural activities in the Scott River watershed;
- Protect and conserve coho salmon when authorizing activities in the Scott River watershed that may result in the incidental take of coho salmon and/or are subject to section 1602;
- Implement key coho salmon recovery tasks essential to improving habitat conditions for coho salmon in the Scott River watershed;
- Eliminate unauthorized take of coho salmon caused by water diversions in the Scott River watershed and minimize and fully mitigate take of coho salmon incidental to legal water diversions, recovery actions, and other lawful activities;
- Establish mitigation measures that are proportionate to the level of impact from existing legal water diversions; and
- Bring existing agricultural water diverters into compliance with CESA and section 1602.

Agricultural Operators' Objectives

The objectives of agricultural operators' participating in the Program are as follows:

- Protect and conserve coho salmon and other plant, fish, and wildlife resources while maintaining the economic viability of agricultural operations in the Scott River watershed; and
- Comply with CESA and section 1602 in conducting Covered Activities subject to those statutes.
- Participation in the Program assists small family owned farms and ranches in meeting the financial and regulatory requirements of CESA and Section 1602.

8.3 Environmental Baseline

Environmental review under CEQA analyzes the difference in environmental effects between baseline conditions and the likely conditions that would be realized if the Program were approved and implemented. The environmental analysis is restricted to those effects that spring from the incremental increase in activity or action that would result from Program implementation. CDFG has determined the physical environmental conditions in the Program Area as they existed at the time SQRCD submitted its application for an ITP and MSAA notification constitute the baseline physical conditions by which a determination will be made as to whether an impact is significant. For the purposes of the EIR, these conditions include legal agricultural operations, including legal water diversions, which were occurring in the Program Area at that time.

8.4 Program Characteristics

The proposed ITP and MSAA cover specific activities that typically occur within the Program Area, which the ITP and MSAA refer to as "Covered Activities". Those activities include agricultural operations, including water diversions, and actions to restore or improve coho salmon habitat. The first nine Covered Activities listed below are included in both the ITP and MSAA. The five remaining Covered Activities are included only in the ITP because they have the potential to impact coho salmon but are not activities subject to Section 1602.[4]

Both the ITP and MSAA include conditions of approval. For the ITP, the conditions include general conditions to avoid and minimize take of coho salmon which pertain to both the SQRCD and the sub-permittees. It also contains mitigation, monitoring, and reporting requirements that SQRCD must implement. Conditions in the MSAA include general conditions that apply to all Covered Activities, and specific conditions that apply to a specific Covered Activity. In writing a SAA for the SQRCD or an agricultural operator, DFG will include the general conditions and the conditions which apply to the specific Covered Activity being performed.

8.4.1 Covered Activities

Below is a summary of the activities that are covered by the ITP and MSAA....

ITP and MSAA Covered Activity 1: Water Diversion Pursuant to a Legal Water Right. This activity includes the active or passive diversion of surface water through a conduit from streams, channels, or sloughs in the Scott River watershed by an agricultural operator for agricultural or domestic uses in accordance with a legal water right specified in the decrees determining the rights to the waters of Shackleford Creek (1950), French Creek (1958), and the Scott River (1980).

ITP and MSAA Covered Activity 2: Water Diversion Structures. This activity includes ongoing management/maintenance and the installation and removal of structures used to control or divert water, including:

- ***Ongoing management/maintenance of existing flashboard dams.*** This activity includes the placement of boards into concrete abutments across the wetted channel to build head to divert water.

- ***Gravel push-up dams.*** This activity includes use of loaders, backhoes, excavators, or hand work to move gravel/rock within the stream channel to form a flow barrier that seasonally blocks the flow of the stream/river.

- ***Other temporary structures.*** This activity includes the installation of those dams that are made of hay bales, hand-stacked rocks/cobble, and/or tarps, and those temporary dams that are otherwise not gravel push-up dams.

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[4] Section 1602 requires an entity to notify the Department before substantially diverting or obstructing the natural flow of, or substantially changing or using any material from the bed, channel, or bank of, any river, stream, or lake, or depositing or disposing of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

- ***Pumps and sump ponds.*** This activity includes placement of pumps and maintenance of existing sumps within or adjacent to the active channel. Maintenance activities include the potential use of large machinery within the bed, bank or channel.

- ***Headgates***. This activity includes the installation of head gates on the bank of the channel. Generally, the site is excavated to proper elevation with large machinery, the head gate, which must meet Department of Water Resources (DWR) standards, is positioned at the appropriate elevation, and rock armoring is often installed around the head gate to protect the structure.

ITP and MSAA Covered Activity 3: Fish Screens. Installation and maintenance of fish screens meeting CDFG/National Marine Fisheries Service (NMFS) criteria for coho salmon as they exist at the time the screen will be installed at stream diversions or pumping locations. These include:

- ***Self-cleaning screens,*** including flat plate self-cleaning screens, and other self-cleaning designs, including rotary drum screens and cone screens with a variety of cleaning mechanisms.

- ***Non-self cleaning screens***, including tubular, box, and other designs consistent with CDFG/NMFS screening criteria.

Generally, the installation of a fish screen includes site excavation for the fish screen and a bypass pipe or channel at proper elevation using large machinery along the banks of the creek. If fish screen placement is within or near flood prone areas, rock armoring is installed to protect the structure. Activity within the bed or bank of the stream is usually limited to the installation of the bypass pipe. Disturbance from installing the bypass pipe or channel is limited to an estimated average of 40 square feet and no more than 100 square feet of stream bank.

ITP and MSAA Covered Activity 4: Construction and Maintenance of Stream Access and Crossings. This activity includes the movement of livestock and vehicles across flowing streams or intermittent channels and/or constructing stream crossings at designated locations where potential spawning gravels, incubating eggs or fry are not present based on repeated site specific surveys.

ITP and MSAA Covered Activity 5: Installation of Fencing. This activity includes the installation and maintenance of livestock exclusion fencing and associated stock watering lanes to protect the riparian zone of the rivers and streams in the Scott River watershed.

ITP and MSAA Covered Activity 6: Riparian Restoration and Revegetation. This activity includes riparian restoration or revegetation, activities that are consistent with CDFG's *Salmonid Stream Habitat Restoration Manual, 3rd Edition*, or are otherwise specifically approved in writing by CDFG.

ITP and MSAA Covered Activity 7: Instream Structures. This activity includes the installation, maintenance, and repair of instream structures intended to provide habitat for coho salmon, and are consistent with the methods specified in CDFG's *Salmonid Stream Habitat Restoration Manual, 3rd Edition.*

Typical instream structures include the following:

- streambed and bank protection;
- installation of bioengineered habitat structures;
- installation of deflectors;
- installation of boulder clusters;
- installation of boulder weirs for instream habitat or to replace flashboard dams, gravel push up dams and other temporary diversion structures;
- placement of large woody debris; and.
- placement of gravel for spawning habitat enhancement.

ITP and MSAA Covered Activity 8: Installation and Maintenance of Stream Gages. This activity includes the placement and maintenance of an approximately 2- to 6-inch diameter pipe into the active stream channel. The pipe is secured to the bank by attachment to the bedrock, a boulder, or a concrete buttress. The use of heavy equipment is generally not necessary for this activity.

ITP and MSAA Covered Activity 9: Barrier Removal Projects/Fish Passage. The ITP and MSAA cover several specific projects to remove barriers to fish passage. The projects include the following:

- Installation and maintenance of a fish ladder at the Scott Valley Irrigation District diversion head;
- Installation and maintenance of a boulder weir and improved head works at Farmers Ditch;
- Shackleford Creek confluence gravel aggradation maintenance;
- East Fork Barrier Removal/Fish Passage Projects;
    - Rail Creek fish barrier removal project;
    - Grouse Creek low flow fish passage project;
    - Big Mill Creek fish barrier project;
    - Big Mill Creek channel restoration project; and
- Additional future enhancement projects consistent with the Program.

ITP Covered Activity 10: Grazing Livestock. This activity includes grazing livestock adjacent to the channel or within the bed, bank, or channel of the Scott River or its tributaries in accordance with a grazing management plan approved by CDFG. The grazing plan will address the timing, duration, and intensity of livestock grazing to minimize adverse impacts to the stream ecosystem.

ITP Covered Activity 11: Water Management. This activity includes water management, water monitoring, and watermastering activities, including the operation of headgates in conjunction with measuring devices to assure that each diversion is operated in compliance with its associated water right. Flow measuring weirs are generally placed off stream within the diversion ditch.

ITP Covered Activity 12: Permit Implementation. This includes other activities associated with the implementation of avoidance, minimization, and mitigation measures required by the ITP.

ITP Covered Activity 13: Monitoring. This includes activities associated with the implementation of compliance, implementation, and effectiveness monitoring required by the watershed wide ITP (see below).

ITP Covered Activity 14: Research. This includes activities associated with conducting studies to improve our understanding of salmonid distribution, natural history, and population dynamics in the Scott River watershed.

8.4.2 Conditions of Approval

The proposed ITP includes avoidance and minimization measures that will apply to SQRCD and participating agricultural operators (through their sub-permits) for their own Covered Activities. The ITP also includes measures to mitigate the incidental take of coho salmon for all Covered Activities that SQRCD, rather than individual agricultural operators, will be responsible for implementing. CDFG may include measures in a sub-permit that are not included in the ITP if it determines that the additional measures are necessary to avoid and minimize the take of coho salmon incidental to the activity covered in the sub-permit. The MSAA includes avoidance and minimization measures which the party receiving the SAA will be responsible for implementing when performing their specific Covered Activities.

<u>General Conditions of the ITP</u>

The draft ITP contains general conditions that will apply to both SQRCD and, through their sub-permits, participating agricultural operators, as summarized below.

ITP General Condition A: This condition requires SQRCD to conduct an education program for all sub-permittees within 60 days of the close of each sub-permittee enrollment period (After the ITP takes effect, a 90-day sub-permittee enrollment period will begin. Any agricultural operator who would like to enroll in the Program after the initial enrollment period closes may do so from January 1 to February 28 each year). The education program will consist of a presentation by a person or persons knowledgeable about the biology of coho salmon, the terms of the ITP, and CESA. The education program will include a discussion of the biology of coho salmon, their habitat needs, their threatened status under CESA, and the avoidance, minimization, and mitigation measures required by the ITP.

ITP General Condition B: This condition requires SQRCD and any sub-permittee to immediately stop, contain, and clean-up any fuel, lubricants, or other hazardous materials that leak or spill while engaged in a Covered Activity; to notify CDFG immediately of any leak or spill of hazardous materials into a stream or in a place where it can pass into a stream; and to store and handle hazardous materials at least 150 feet away from the edge of mean high water elevation of any stream, unless adequate containment for an existing facility is provided and approved by CDFG..

ITP General Condition C: This condition requires sub-permittees to provide non-enforcement CDFG representatives written consent to access the sub-permittee's property for the purpose of verifying compliance with, or the effectiveness of, required avoidance, minimization, and mitigation measures and/or for the purpose of fish population monitoring, provided CDFG notifies the sub-permittee at least 48 hours in advance.

ITP General Condition D: Under this condition, each sub-permittee will be solely responsible for any costs the sub-permittee incurs to implement any avoidance or minimization measures required under the ITP, unless CDFG specifies otherwise; and SQRCD shall be solely responsible for any costs it incurs to implement any mitigation and monitoring measures required under the ITP, unless CDFG specifies otherwise.

ITP General Condition E: This condition specifies that SQRCD's obligations under the ITP will end only after CDFG certifies that SQRCD has implemented the avoidance, minimization, and mitigation measures in the ITP for which it is responsible, and CDFG accepts SQRCD's Final Report (described below) as complete.

ITP General Condition F: This condition requires SQRCD to submit to CDFG an irrevocable letter of credit or another form of financial security other than a bond (Security) approved by CDFG's Office of the General Counsel in the principal sum of $100,000. The Security must allow CDFG to draw on the principal sum if CDFG, in its sole discretion, determines that SQRCD or a sub-permittee has failed to comply with any of the avoidance, minimization, mitigation, or monitoring measures for which SQRCD or sub-permittee is responsible.

If CDFG draws on the Security, it must use the amount drawn to implement the measure(s) SQRCD or sub-permittee has failed to implement, or some other measure(s) within the Program Area that will more effectively avoid, minimize, or mitigate impacts on coho salmon caused by a Covered Activity.

ITP General Condition G: This condition allows instream work on structural restoration projects by SQRCD or a sub-permittee to occur only from July 1 to October 31 when coho salmon are least likely to be present and/or when water temperatures exceed the tolerance levels of coho salmon. If the work needs to be completed before July 1 or after October 31, SQRCD or the sub-permittee may request a variance from CDFG in writing. If CDFG grants the request, the work must be completed in accordance with the avoidance, minimization, mitigation, and monitoring measures CDFG might specify in granting the variance.

ITP General Condition H: Under this condition, instream equipment operations by SQRCD or a sub-permittee may occur when coho salmon are least likely to be present and/or when water temperatures exceed the tolerance levels of coho salmon, which is generally from July 1 to October 31. SQRCD must contact CDFG to verify when such operations may begin each year prior to their commencement. The condition also specifies that to the extent possible, all such work must be done from outside the channel. All refueling of machinery must be done no less than 150 feet away from the edge of the mean high water elevation of any stream.

ITP General Condition I: This condition requires SQRCD and each sub-permittee to comply with Fish and Game Code section 1600 *et seq.* before beginning any near-or in-stream work described in section 1602, subdivision (a).

Additional SQRCD and Sub-Permittee Avoidance and Minimization Obligations Under the ITP

In addition to any other obligations, the ITP contains specific obligations that SQRCD and each sub-permittee must implement in order to avoid and minimize the incidental take of adult and juvenile coho salmon in the Scott River and its tributaries when engaged in a Covered Activity. Those obligations are briefly summarized below.

ITP Additional Avoidance and Minimization Obligation A: Water Management. This includes compliance with water rights, verification of the quantity of water diverted, and a requirement to install headgates and water measuring devices on water diversion structures.

ITP Additional Avoidance and Minimization Obligation B: Fish Screens. This includes fitting diversions with fish screens that meet CDFG and NMFS screening criteria for steelhead fry, annual inspection of screens during the irrigation season, provision of a bypass channel or device to enable fish to return to the main stream channel, cleaning and maintenance requirements, and high flow provisions to either prevent fish from being carried past the fish screen or allow them to return to the main stream channel.

ITP Additional Avoidance and Minimization Obligation C: Fish Passage Improvements. SQRCD and each sub-permittee with fish passage issues will implement specified requirements in an effort to eliminate 100% of the fish barriers on a scheduled basis over the term of the ITP. This obligation requires SQRCD to create a priority list of diversions that impede fish passage, and to submit this list to CDFG for review and approval within one year of the effective date of the ITP. SQRCD must also coordinate with CDFG to develop and conduct a fish passage workshop for those who own, operate, or use diversions that are likely to obstruct fish passage. The workshop will be held within one year of the effective date of the ITP.

In addition to the above, each sub-permittee will be required to provide permanent volitional fish passage for both adult and juvenile coho salmon, both upstream and downstream, at each diversion prior to the expiration of the ITP. Where such passage appears to be inadequate, the sub-permittee must submit plans to CDFG for review and approval. As a part of the review, CDFG will make a determination regarding whether or not engineered drawings are necessary for the project. If engineered drawings are deemed necessary, they will be submitted for review and approval prior to implementing the project. Annual reports that document progress to provide adequate fish passage at these diversions will be provided to SQRCD by the owner of the diversion.

ITP Additional Avoidance and Minimization Obligation D: Livestock and Vehicle Crossings. The draft ITP contains several "Avoidance and Minimization Obligations" to reduce the potential for take of coho salmon from livestock and vehicles crossing streams. Those obligations include: a prohibition on livestock and vehicles crossing flowing streams between October 15 and May 15, except in designated, CDFG-approved crossing lanes; criteria for site selection and crossing design, construction, periodic inspection, and maintenance.

ITP Additional Avoidance and Minimization Obligation E. **Riparian Fencing/Grazing of Livestock in Riparian Areas.** The draft ITP includes several provisions for riparian fencing and restriction of livestock from riparian areas intended to improve the condition of the riparian vegetation for the benefit of coho salmon. Those include a requirement that SQRCD develop a Riparian Fencing Plan for CDFG review and approval that prioritizes areas for riparian protection; a requirement for sub-permittees to install, maintain, and repair exclusion fencing in accordance with the Riparian Fencing Plan; a requirement for sub-permittees to allow the planting of riparian revegetation and installation of exclusion fencing along designated stream reaches located on their property, and restrictions on sub-permittees' grazing of livestock within a fenced riparian area.

ITP Additional Avoidance and Minimization Obligation F: Gravel Push-Up Dams. The draft ITP requires SQRCD to consult with CDFG to prepare and adopt a set of Best Management Practices (BMPs) that govern the construction, operation, and removal of gravel push-up dams. The BMPs will specify the conditions under which such dams may be constructed, including work windows and the type of equipment that may be used for construction and removal; provisions to allow fish passage; and measures to minimize stream sedimentation and other water quality issues. Within two years of the effective date of the ITP, any sub-permittee who uses gravel push-up dams in the Scott River or its tributaries will be required to request SQRCD and CDFG to assess the dam. If CDFG determines that a gravel push-up dam is the best method to divert water and complies with the Fish and Game Code, specific BMPs will be added to the sub-permit to minimize dam-related impacts. Within four years of the effective date of their sub-permit, sub-permittees will be required to replace their gravel push-up dams with vortex weirs or other structures, provided it is technically feasible to do so and CDFG approves the structure.

ITP Additional Avoidance and Minimization Obligation G: Bioengineered Bank Stabilization. In areas where the slopes of stream banks on a sub-permittee's property have become unstable and stabilization measures are necessary to re-establish vegetation, the sub-permittee will be required to implement bioengineered bank stabilization techniques[5] to prevent additional erosion from occurring. The techniques to be implemented must be consistent with methods identified in the most recent version of the CDFG's California Salmonid Stream Habitat Restoration Manual, and must be approved by CDFG on a site-by-site basis.

ITP Additional Avoidance and Minimization Obligation H: Irrigation Tailwater Reduction and/or Capture. Under the ITP, SQRCD will be required to assist sub-permittees in the design and implementation of tailwater reduction and capture systems. SQRCD will inventory and prioritize tailwater sources for remediation and submit the priority list of sites to CDFG for its review and approval within two years of the effective date of the ITP. Tailwater capture systems will be consistent with the standards contained in U.S. Department of Agriculture's Natural Resources Conservation Service guidelines, and constructed so as not to have negative impacts on the stream either during or after construction. Any sub-permittee whose property is on the priority list must have tailwater reduction and capture systems in place by the expiration of their sub-permit.

[5] Bioengineered bank stabilization structures use a combination of living plants, such as willow or other riparian trees, shrubs, and inert materials such as gravel and rip-rap. Bioengineered structures tend to provide more aquatic and riparian habitat attributes than conventional bank stabilization structures.

ITP Additional Avoidance and Minimization Obligation I: Maintain Connectivity of Tributaries in the Mainstem. A break in connectivity between French and Lower Shackleford Creeks and the Scott River prior to June 15 can impede movement of juvenile coho salmon. In order to address that problem, if such a break is about to occur before June 15, each sub-permittee will be required to refrain from diverting a portion of the water the sub-permittee otherwise would be allowed to divert.

Mitigation Obligations of SQRCD Under the ITP: Flow Enhancement, Habitat Improvement, and Barrier Removal and Fish Passage

The ITP contains mitigation measures that SQRCD will be required to implement. Those mitigation measures are required to mitigate potential take of coho salmon incidental to the Covered Activities. The mitigation measures also require the involvement of sub-permittees, and in some instances other entities. The mitigation measures are summarized below.

A. Flow Enhancement Mitigation Obligations

To mitigate potential take of coho salmon from the diversion of water in streams where coho salmon occur, SQRCD will implement the programs listed below to provide for or support the instream needs of coho salmon at specific life-cycle stages.

Flow Enhancement Mitigation 1: Development and Implementation of Scott River Water Trust. SQRCD will be required to develop a locally-based Scott River Water Trust (Water Trust). The Water Trust will lease or purchase water from sub-permittees for instream beneficial use in accordance with guidelines prepared by SQRCD and approved by CDFG.

Flow Enhancement Mitigation 2: Improve Baseline Instream Flows Via Water Efficiency Improvements. The ITP will require SQRCD to improve baseline instream flows within critical reaches of the Scott River and its tributaries and at critical life stages of coho salmon by installing water efficiency improvement projects on sub-permittees' properties or by changing or adding points of diversion to keep flows instream to point of use. SQRCD will work with the CDFG to develop priority stream reaches based on life stage need, and will work with sub-permittees to upgrade their overall irrigation efficiency and delivery systems to enhance instream flows. Projects that may be implemented to improve instream flows include: 1) the upgrade of water delivery systems to reduce waste; 2) the upgrade of water application systems; and 3) moving or adding points of diversion downstream closer to the point of use. Generally, a water transfer or dedication for instream benefits pursuant to Water Code section 1707 will be an element of water efficiency projects.[6]

Flow Enhancement Mitigation 3: Sugar Creek Flow Enhancement. Sugar Creek provides some of the coldest summer water temperatures in the Scott River watershed and possesses high-quality, over-summering habitat. Flows of up to six cubic feet per second used for irrigation purposes will be dedicated to instream use within one year of the effective date of the ITP.

[6] Water Code section 1707 authorizes the State Water Resources Control Board to approve a petition to change an existing water right specifically for the purpose of preserving or enhancing wetlands, fish and wildlife, or recreation in or on the water. Such a change requires that the original use under the existing right cease or be reduced in the amount of the change.

Flow Enhancement Mitigation 4: Develop and implement a Contingency Plan for Dry and Critically-Dry Water Years. Under the ITP, SQRCD will be required to submit a detailed Contingency Plan for Dry and Critically-Dry Water Years to CDFG for review and approval within one year of the effective date of the ITP. The Contingency Plan will identify the criteria to determine when a year is dry or critically-dry and describe a process by which SQRCD will coordinate with sub-permittees to augment stream flows. SQRCD will determine whether the water year will be dry or critically-dry by April 15. SQRCD shall include the following measures in the Contingency Plan:

- **Contingency Plan Measure 1: Augmentation of Stream Flow.** In dry and critically-dry years, instead of directly diverting water from the stream for irrigation uses, pumping water from wells may be necessary to improve over-summering habitat and migration conditions for coho salmon in the fall. To meet that objective, all sub-permits shall require the sub-permittee to make available to the Program any excess irrigation and stock water well capacity in dry or critically-dry years in accordance with the Contingency Plan, provided the sub-permittee is reimbursed for any pump operation costs the sub-permittee incurs to meet this requirement using funds from the Water Trust, or from some other source.

- **Contingency Plan Measure 2: Develop and Implement a Diversion Ramp-Up Management Plan.** Significant changes in stream flow occur when agricultural water users begin diverting water at the same time. A rapid decrease in flow can result in the stranding of fish in shallow pools and side channels below diversions. To address this problem, SQRCD, in consultation with CDFG and DWR, shall develop and implement a Diversion Ramp-Up Management Plan to coordinate and monitor irrigation so as to minimize rapid reductions in instream flows and the possible stranding of coho salmon at the beginning of, and during the irrigation season. SQRCD shall submit the Management Plan to the CDFG for its review and approval within one year from the effective date of the Permit. SQRCD and the sub-permittees shall begin implementing the Management Plan immediately upon the CDFG's approval.

Flow Enhancement Mitigation 5: Install Alternative Stock Water Systems. A significant amount of water is diverted for stock watering purposes in October, November, and December each year after diversions for irrigation cease. In those years when the seasonal rains arrive late, such stock water diversions can limit the ability of returning adult coho salmon to reach spawning areas. To address that problem, during the term of the ITP, SQRCD will install an average of two alternative stock watering systems per year. The watering systems will use groundwater rather than surface water in order to increase stream flows. Higher stream flows will facilitate adult coho salmon access to spawning areas. For purposes of the ITP, an alternative stock water system means the wells, pumps, water lines, watering troughs, and other physical components used to provide groundwater to livestock.

Flow Enhancement Mitigation 6: East Fork Water Quality and Quantity Improvement Project. The ITP will require SQRCD to undertake the East Fork Water Quality and Quantity Improvement Project. This project will provide instream flows and reduce historical use throughout the irrigation season in the East Fork Scott River. In addition, fish passage will be improved by installing a vortex boulder weir at the head of China Cove Ditch to eliminate the existing gravel dam. That project will be completed within three years of the effective date of the ITP.

B. Habitat Improvement Mitigation Obligations Under the ITP

The ITP will obligate SQRCD to undertake habitat improvement projects to mitigate impacts to coho salmon habitat.

Habitat Improvement Mitigation 1: Spawning Gravel Enhancement. Under the ITP, SQRCD will be required to work with CDFG to develop and implement a Spawning Gravel Enhancement Plan (Gravel Enhancement Plan). The Gravel Enhancement Plan will identify areas where gravel for coho salmon spawning needs to be placed and where gravel can be recruited, and prioritize immediately-needed gravel enhancement projects throughout the Program Area. SQRCD will submit the Gravel Enhancement Plan to CDFG for review and approval within two years from the effective date of the ITP.

SQRCD will design and install constrictors and/or other spawning area enhancement structures at a total of five priority stream reaches where spawning gravels are not plentiful, if deemed necessary in the Gravel Enhancement Plan. SQRCD will complete all gravel enhancement projects prior to the expiration of the ITP.

Habitat Improvement Mitigation 2: Instream habitat improvement structures. SQRCD, in consultation with CDFG, will identify locations in the Program Area where instream habitat improvement structures would benefit coho salmon, and list those locations in order of priority. SQRCD will finalize the list within one year from the effective date the ITP. SQRCD will install at least twenty instream habitat improvement structures at sites identified on the priority list.

Habitat Improvement Mitigation 3: Riparian Planting. The ITP will require SQRCD to submit to CDFG for its review and approval a priority list of areas currently being used by coho salmon for spawning and rearing. The list must be submitted within two years of the effective date of the ITP. Before the ITP expires, SQRCD will plant twenty acres of riparian habitat in the areas included on the priority list to improve instream cover and shade canopy, improve channel stabilization, and trap or hold sediment. Ten of those acres will be planted within five years of the effective date of the ITP.

C. Barrier Removal and Fish Passage Mitigation Obligations Under the ITP

Significant barriers exist in the Scott River system that prevent fish passage or limit historical access. Because removal of fish passage barriers can have short-term negative effects, possibly including take of coho salmon, these mitigation measures are also a Covered Activity (see ITP and MSAA Covered Activities 9 above).

Some older structures that impede fish passage are considered "legacy projects"[7]. Restoring passage at those sites are considered mitigation measures for purposes of the ITP. The ITP requires SQRCD to continue to work toward eliminating the fish passage barriers identified below.

Barrier Removal And Fish Passage Mitigation Obligation 1: Installation of a Fish Ladder at the Scott Valley Irrigation District Diversion Head. The Scott Valley Irrigation District (SVID) diversion structure on the Scott River is the largest diversion in the Scott River watershed. The diversion structure does not provide for upstream passage of juveniles. In order to provide passage for adult and juvenile coho salmon, SQRCD will work with SVID and CDFG to construct a fish ladder at the diversion structure. SVID will be responsible for constructing the fish ladder within one year of the effective date of the ITP.

Barrier Removal and Fish Passage Mitigation Obligations 2: Installation of a Boulder Weir and Improved Head Works at Farmers Ditch. Farmers Ditch is the second largest diversion in the Scott River watershed. A gravel dam is currently used to divert water from the upper portion of the Scott River into the ditch. The annual construction of the dam disturbs the channel and creates turbidity. SQRCD will replace the gravel push-up dam with a boulder vortex weir. The diversion take-out will be relocated upstream and the initial section of the diversion will be piped to reduce ditch loss. The weir will provide for fish passage whenever flow is present. SQRCD will be responsible for installing the boulder weir within one year of the effective date of the ITP.

Barrier Removal and Fish Passage Mitigation Obligations 3: Development of Fish Passage – East Fork of the Scott River. The East Fork of the Scott River is an important coho salmon tributary. While the summer water temperatures of the East Fork are very warm, the tributaries to the East Fork are cold, and historically provided over-summering habitat for coho salmon. Currently, two of the five coldest tributaries have year-round fish barriers and a third may prevent juvenile access during low flow. In order to improve access to cold water tributaries, the ITP will obligate SQRCD to work with property owners to provide year-round fish passage on at least one of the tributaries to the East Fork.

8.5.3 Monitoring and Adaptive Management Program Under the ITP

The draft ITP requires SQRCD and sub-permittees to participate in a program to monitor compliance with the conditions of the ITP, the implementation of mitigation, minimization, and avoidance measures, and the effectiveness of those measures in protecting coho salmon.

Under the terms of the ITP, SQRCD will be responsible for monitoring the sub-permittees' compliance with the terms and conditions of their sub-permits by instituting a comprehensive compliance monitoring program. The monitoring program will include a means to: (1) confirm and monitor the implementation of the minimization and avoidance measures for which the sub-permittees are responsible; and (2) identify sub-permittees who are not in compliance with the terms and conditions of their sub-permits. SQRCD will be required to

[7]Legacy projects are defined as those projects that address historic management practices that have been usurped by new laws and regulations. An example of a legacy project is a water association dam that has been in place since the 1920's. No single person is accountable for the dam and the restoration value of improving passage exceeds the value of non-legacy projects.

notify CDFG immediately of sub-permittees who are not in compliance with a term or condition of their sub-permit, or who are unlikely or unwilling to implement required avoidance and minimization measures within the time periods specified in the sub-permit. SQRCD will not be responsible for enforcement; that responsibility is reserved to CDFG.

SQRCD's monitoring program will also be used to determine the effectiveness of the avoidance, minimization, and mitigation measures required by the ITP, and the extent to which the objectives of those measures have been met. The results of the effectiveness monitoring would be used as a basis for an adaptive management program, to refine future avoidance, minimization, and mitigation measures.

8.5.4 Reporting Requirements of SQRCD Under the ITP

The draft ITP includes several reporting requirements that SQRCD would be subject to. This includes an Annual Report for each year that the ITP is in effect, a Five-Year Report, and a Final Report.

Each Annual Report will include the following information: 1) a general description of the status of the Program, including a description of all avoidance, minimization, and mitigation measures that were implemented during the previous year; 2) a copy of an implementation database with notes showing the current implementation status of each avoidance, minimization, and mitigation measure; 3) the results of all compliance, implementation, and effectiveness monitoring conducted pursuant to the ITP; and 4) all monitoring data.

Five years after the effective date of the ITP, SQRCD will be required to conduct a comprehensive review of the Program and submit its findings in the form of a Five-Year Report to CDFG. As part of its review, SQRCD will evaluate coho salmon recovery task implementation and community participation. The Five-Year Report will include an analysis of the Program beginning on the effective date of the ITP, as well as the activities that have been implemented since that time. The Five-Year Report would include recommended adaptive management actions to improve operations.

No later than six months after the expiration of the ITP, SQRCD will be required to submit a Final Report to CDFG. The Final Report will include: 1) a copy of the implementation database with notes showing when each avoidance, minimization, and mitigation measure was implemented; 2) all available information about the incidental take of coho salmon the ITP covers; 3) information about the impacts the Covered Activities have had on coho salmon, notwithstanding the implementation of the avoidance, minimization, and mitigation measures; 4) the beginning and ending dates of all construction activities the ITP or any sub-permit covers; 5) an assessment of the effectiveness of the ITP's and sub-permits' terms and conditions to avoid, minimize, and mitigate impacts on coho salmon; 6) recommendations on how those terms and conditions might be changed to more effectively avoid, minimize, and mitigate such impacts in the future; and 7) any other pertinent information.

General Conditions of the MSAA

The draft MSAA contains several general conditions that will apply to the SQRCD and all agricultural operators who obtain SAAs. Most of the general conditions are compatible with those contained in the draft ITP. In addition, the MSAA states SQRCD and any agricultural operator who obtains a SAA must comply with all local, state, and federal laws to conduct a Covered Activity, including CESA, and, where applicable, possess a valid water right.

Specific Conditions of the MSAA

Under the MSAA, specific conditions of approval are termed "Specific Project Activity Conditions" and will be apply to the SQRCD's and agricultural operator's SAA when conducting a particular Covered Activity. In general, the conditions are similar to or compatible with the avoidance and minimization measures in the draft ITP

8.5.5 Department of Water Resources (DWR) Sub-Permit Obligations

The draft ITP includes special provisions for DWR, under the assumption that DWR will be a sub-permittee. As such, DWR will be responsible for complying with the following terms and conditions:

1. To assist with the implementation of the ITP and sub-permits, DWR will provide to CDFG water use data for all diversions with watermaster service in the Program Area, including, but not limited to, the name of the diverter, the location of the diversion, the quantity of water that may lawfully be diverted and used, the dates the watermaster visits each diversion, and the estimated or measured quantity of water diverted by the watermaster on each visit. DWR will provide the data in the form of a database on a monthly basis from April to November each year by the second week of each month following data collection.

2. DWR will implement the Scott River, French Creek, and Shackleford Creek court decrees pursuant to provisions of the Water Code in the adjudicated portions of the Scott River watershed. As part of that responsibility, the DWR watermaster, or a functional equivalent, will verify that each sub-permittee is in compliance with their respective water right(s). The watermaster will create a database of all diversions visited on a monthly basis to verify compliance with water rights and will provide those data monthly to CDFG.

3. Notwithstanding the above, DWR will implement the provisions of the Scott River decree consistent with CESA.

References

California Department of Fish and Game, *Salmonid Stream Habitat Restoration Manual, 3rd Edition*, Flosi *et al.*, Sacramento, CA, revised and updated in 2003.

California Department of Fish and Game, *Recovery Strategy for California Coho Salmon.* Report to the Fish and Game Commission, February 4, 2004.

California State Water Resources Control Board, *Water Transfer Issues in California*. Final report of the Water Transfer Workgroup to the SWRCB. Sacramento, June, 2002.

Scott River Watershed Council, *Initial Phase of the Scott River Watershed Council Action Plan: Update.* Etna, CA, October, 2005.

Siskiyou County Resource Conservation District, *Incidental Take Permit Application for Coho Salmon.* Submitted to California Department of Fish and Game on March 29, 2005.

9. Surrounding Land Uses and Setting.

The Program Area is the Scott River watershed, including the Scott River and its tributaries, in Siskiyou County. The Scott River[8] is one of four main tributaries to the Klamath River, the others being the Trinity, Salmon, and Shasta Rivers. The Scott River is formed at the confluence of the East Fork and South Fork Scott River at the base of Scott Mountain, southeast of Callahan. The river then flows for about 58 miles, first through the broad, alluvial Scott Valley, then for its last 20 miles through a bedrock canyon, to its confluence with the Klamath River. The Scott River watershed, defined as the lands that drain to the Scott River, encompasses 520,617 acres (812.2 square miles). The Scott River watershed is completely within Siskiyou County, California.

The Scott Valley is flanked on the west by high mountains, including the Scott Mountains, Salmon Mountains, and Marble Mountains, all of which have peaks above 8,000 feet. To the east are lower hills collectively known as the Mineral Range. The Klamath-Siskiyou area features one the richest temperate coniferous forests in the world. Much of the extraordinary biodiversity is due to the fact that the region escaped extensive continual glaciation during recent ice ages. This provided both a refuge for many species and long periods of favorable conditions for species to specialize. The mosaic of habitats in this region includes isolated islands of serpentine, which produce highly toxic soils. Many rare plants have special adaptations that allow them to thrive there. The Klamath-Siskiyou Wilderness also contains the largest concentration of un-dammed wild and scenic rivers in the United States. Over millions of years they have been responsible for cutting the steep, v-shaped valleys that shape the area's rugged terrain.

The floor of the Scott Valley covers nearly 60,000 acres. Precipitation ranges from 10-35 inches annually. The primary land use is agriculture. There are approximately 32,000 irrigated acres in the Scott Valley, with alfalfa hay, other hay, grain, and irrigated pasture the primary crops. Raising of livestock, particularly cattle, is also prevalent. There are two incorporated towns in the Valley: Etna (population 781 in the 2000 Census) and Fort Jones (population 660 in the 2000 Census), both of which have commercial areas and numerous residences; smaller communities are Callahan and Greenview. The Quartz Valley is located near the north end of the Scott Valley, and includes the Quartz Valley Reservation, home to members of the Klamath, Karuk, and Shasta Tribes. State Highway 3 is the main transportation route through the Scott Valley.

All riparian water rights claims and appropriative water rights within the Scott basin are included in one of three court-adjudicated water decrees: the Shackleford Creek Decree (Decree No. 13775, completed in 1950 and including approximately 45 water rights holders), the French Creek Decree (Decree No. 14478, completed in 1958 and including approximately 50 water rights holders), and the Scott River Decree (Decree No. 30662, completed in 1960 and including approximately 680 water rights holders) (SQRCD, 2005).

[8] The description of the Scott River Watershed relies heavily on Scott River Watershed Council, 2005.

DWR provides Watermaster Service for diverters under the French Creek and Shackleford Creek decrees and for Sniktaw, Wildcat and Oro Fino Creeks under the Scott River decree. There currently is no watermaster service for the balance of users diverting under the rights identified in the Scott River decree. Most of the irrigation diverters on the Scott River and its tributaries have rights to divert from April 1 through either October 1, October 15, or October 31, pursuant to the terms of the applicable Decree. Diversion from streams for stockwatering are also allocated under the decrees (SQRCD, 2005).

10. Other Public Agencies Whose Approval is Required

The primary discretionary actions for the Program are CDFG's issuance of the ITP to the SVRCD and approval of the MOU which includes the MSAA. After the ITP is issued and the MOU signed, CDFG may issue the ITP to the SVRCD and individual sub-permits and SAAs to the SVRCD and participating agricultural operators. The sub-permits and individual SAAs include general and specific measures included in the ITP and MSAA based on the Covered Activity to be complete. It is these discretionary actions which trigger requirements for environmental review under CEQA. Additional discretionary actions by state and local agencies may include actions to allow activities within the waters of the state by the Regional Water Quality Control Board and the State Lands Commission. Water transfers pursuant to Water Code section 1707 would require approval by the State Water Resources Control Board. If any of the Covered Activities could disturb historic or cultural resources, approval by the State Historic Officer may be required.

Environmental Factors Potentially Affected

The Program and the Covered Activities authorized under it could potentially affect the environmental factors checked below. A more detailed checklist and discussion of each environmental factor follows the checklist below. "Project" or "proposed project" in any of the checklists below means the Program, and hereafter, "Program" includes the Covered Activities authorized under it.

☐ Aesthetics	☒ Agriculture Resources	☐ Air Quality
☒ Biological Resources	☒ Cultural Resources	☐ Geology, Soils and Seismicity
☒ Hazards and Hazardous Materials	☒ Hydrology and Water Quality	☒ Land Use and Land Use Planning
☐ Mineral Resources	☐ Noise	☐ Population and Housing
☐ Public Services	☐ Recreation	☐ Transportation and Traffic
☒ Utilities and Service Systems	☒ Mandatory Findings of Significance	

DETERMINATION

On the basis of this initial study:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☒ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect; 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, no further environmental documentation is required.

Signature	October 19, 2006 Date
Mark C. Stopher Printed Name	Donald B. Koch, Regional Manager For

Section 15128 of the CEQA Guidelines (Cal. Code Regs., tit. 14, §15000 *et seq.*) requires that an environmental impact report (EIR) contain a statement briefly indicating why various possible effects were found "not to be significant and were therefore not discussed in detail in the EIR." The CEQA Guidelines also generally encourage agencies to prepare EIRs that focus on issues and effects that are potentially significant and to minimize other discussions that are clearly less important.

In preparing this initial study, CDFG considered the potential for significant impacts to a variety of environmental factors. It was determined that many of those factors would not be affected or, if impacts could potentially occur, would be affected at a less than significant level. Many of the environmental factors falling in the "less than significant" category are further analyzed in this initial study to enable the reader to better understand CDFG's determination regarding impacts. Unless comments received during the comment period indicate additional analysis is necessary, those environmental factors will not be discussed in additional detail in the EIR. For purposes of the analysis below, "Covered Activities" includes the activities authorized under the ITP and MSAA, as well as the general and specific avoidance, minimization, and mitigation measures included in the ITP and MSAA.

Environmental Checklist

Aesthetics

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
1, AESTHETICS–Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway corridor?	☐	☐	☒	☐
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	☐	☐	☒	☐

Discussion

a) The Program covers specified, lawful activities that are typical within a working agricultural landscape, such as the installation of instream structures to divert water. It also requires actions to restore and improve coho salmon habitat, such as the installation of fish-screens and exclusionary riparian fencing. Most of such structures are or will be located either in or near the stream channel. They would not impede scenic vistas, and typically would be visible at medium- (>20 feet) to close-range (10-20 feet). In most cases, after the construction has been completed, a project site might contain a diversion structure, exclusionary fencing, or riparian vegetation that is relatively indistinguishable from other baseline agricultural operations occurring throughout the landscape. Therefore, the Program would have a less-than-significant impact on a scenic vista.

b) The Scott River watershed, and Siskiyou County in general, do not contain officially designated state scenic highways. However there are state scenic highways throughout the county that are eligible for state designation. These eligible state scenic highways are also identified in the Siskiyou General Plan (1980) Scenic Roads Element. State Route 3 is listed as an eligible highway as it traverses the Scott River watershed. Most Covered Activities will take place either in or near the stream channel and will not damage resources within a scenic corridor. In some cases, Covered Activities, such as riparian revegetation, will be a long-term improvement to the visual landscape. While there is potential for vegetation removal during construction activities, including clearing and grubbing to remove fish passage barriers or to install fish screens, conditions of approval in the ITP and MSAA would minimize and mitigate for vegetation disturbance. There are also potential aesthetic improvements resulting from ITP Covered Activity 6: Riparian Restoration and Revegetation. Riparian planting is commonly conducted within or adjacent to the active channel and often near the wetted channel. For these reasons, the Program would have a less-significant-impact on scenic resources such as trees, rock outcroppings, and historic buildings within a state scenic highway corridor.

c) Covered Activities would have an appearance similar to other baseline activities (e.g., water diversion structures, installation of fish screens, fencing installation) or would have no visual impact (e.g., monitoring, research, permit implementation). Covered Activities that involve heavy equipment, such as loaders, backhoes, and excavators, would introduce changes to the visual landscape; however, those effects would be temporary during construction of Covered Activities, and would not significantly affect the visual character of the area. Once construction has been completed, there would be structures (e.g., livestock fencing, instream diversion structure) that would be virtually indistinguishable from the rest of the working agricultural landscape. In some cases, Covered Activities such as replacement of gravel push-up dams with boulder weirs or other, more natural-appearing structures, as well as riparian revegetation, would result in long-term aesthetic improvements to areas in and along waterways. Therefore, the Program would have a less-than-significant impact on the existing visual character.

d) Most Covered Activities involve natural materials (e.g., boulders, hay bales, rocks/cobble, large woody debris, gravel, bio-engineered habitat structures, riparian plantings, and quarry rock) that would blend in with the natural environment. Fish screens and livestock exclusion fencing are matte in color and do not contribute substantial glare that would adversely affect daytime or nighttime views in the area. There are no Covered Activities that require either nighttime construction lighting or illumination once a structure has been installed. Therefore, the Program would have a less-than-significant impact of creating new light or glare.

References

Caltrans, *California Scenic Highway Mapping System, Siskiyou County,* accessed on September 25, 2006: http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm

Siskiyou County, *Siskiyou County General Plan, Scenic Highways Element*, 1980.

Agricultural Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
2. AGRICULTURAL RESOURCES– Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☒	☐	☐	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☒	☐	☐	☐
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland of Statewide Importance to non-agricultural use?	☒	☐	☐	☐

Discussion

a,b,c) The Program provides participants take authorization under CESA and coverage under section 1602 for specific Covered Activities. Those activities include, but are not limited, to water diversions and actions to restore coho salmon habitat (see ITP and MSAA Covered Activities above). The ITP requires specific avoidance, minimization, and mitigation measures to protect coho salmon and to implement key coho salmon recovery tasks (see Conditions of Approval above). Implementation of the Program has the potential to affect agricultural resources and will be evaluated in the EIR.

References

Siskiyou County, *Siskiyou County General Plan, Land Use and Circulation Element,* 1980.

Air Quality

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
3. AIR QUALITY–Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☐	☒
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Setting

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features that influence pollutant movement and dispersal. Atmospheric conditions such as wind speed, wind direction, atmospheric stability, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants, which affects air quality.

Regional Topography, Meteorology, and Climate

The potential for high pollutant concentrations developing at a given location depends upon the quantity of pollutants emitted into the atmosphere in the surrounding area or upwind, and the ability of the atmosphere to disperse the air pollutants. The atmospheric pollution potential, as the term is used in this initial study, is independent of the location of emission sources and is instead a function of factors such as topography and meteorology.

The Program Area is the Scott Valley watershed, located in central Siskiyou County, California, within the Klamath Mountains in the Northeast Plateau Air Basin. In this area of California, the Klamath Mountains merge with the Cascade Range to create an extensive area of rugged mountain terrain more than 200 miles in width. The Scott Mountains, Salmon Mountains, and Marble Mountains surround the valley to the west and south with peaks over 8,000 feet above mean sea level (amsl). The elevation of Scott Valley averages between 2,700 and 2,800 feet amsl. This unique variation of elevation and rugged terrain contributes to the fluctuating climate in the Program area.

With increasing distance from the California coast, the maritime influence decreases. Areas that are well protected from the ocean, such as the Scott River watershed, experience a more continental climate type with warmer summers, colder winters, greater daily and seasonal temperature ranges, and generally lower relative humidity.

The northern part of the Scott Valley near Fort Jones typically has average maximum and minimum winter (i.e., January) temperatures of 42 ° F and 23 ° F, respectively, while average summer (i.e., July) maximum and minimum temperatures are 92 ° F and 48 ° F, respectively. The southern part of the Scott Valley near Callahan typically has average maximum and minimum winter (i.e., January) temperatures of 45 ° F and 26 ° F, respectively, while average summer (i.e., July) maximum and minimum temperatures are 89 ° F and 49 ° F, respectively. Precipitation in Fort Jones averages approximately 21 inches per year, with 19 inches of snowfall, while precipitation in Callahan averages approximately 22 inches per year, with 14 inches of snowfall (WRCC, 2006).

Existing Air Quality

The Siskiyou County Air Pollution Control District (SCAPCD) operates a regional monitoring network that measures the ambient concentrations of criteria pollutants. There are no SCAPCD monitoring stations in Scott Valley. The closest monitoring station to the Program Area is located in Yreka, approximately 15 miles to the northeast of the northern end of Scott Valley. Although geographically separated from Yreka, existing air quality conditions in the Program Area can generally be inferred from ambient air quality measurements conducted by SCAPCD at its Yreka – Foothill Drive monitoring station. The Yreka monitoring station measures ozone, particulate matter equal to or less than 10 microns (PM_{10}), and particulate matter less than 2.5 microns ($PM_{2.5}$) concentrations.

Background ambient concentrations of pollutants are determined by pollutant emissions in a given area as well as wind patterns and meteorological conditions for that area. As a result, background concentrations can vary among different locations within an area. However, areas located close together and exposed to similar wind conditions can be expected to have similar background pollutant concentrations. Table 3-1 shows a five-year (2001 – 2005) summary of monitoring data collected from the Yreka station, compared with California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS). As indicated in the table, no exceedences of the ozone or $PM_{2.5}$ standards were recorded in Yreka during the five year study period. However, there were an estimated six days during 2002 when the PM_{10} 24-hour standard was exceeded.

TABLE 3-1
AIR QUALITY DATA SUMMARY (2001–2005) FOR THE PROGRAM AREA

		Monitoring Data by Year				
Pollutant	**Standard**	**2001**	**2002**	**2003**	**2004**	**2005**
Ozone						
Highest 1 Hour Average (ppm)		0.049	0.087	0.089	0.077	0.070
Days over State Standard	0.09	0	0	0	0	0
Days over National Standard	0.12	0	0	0	0	0
Highest 8 Hour Average (ppm)		NA	0.075	NA	0.071	0.064
Days over National Standard	0.08	---	0	---	0	0
Particulate Matter ($PM_{2.5}$)						
Highest 24 Hour Average (μg/m^3)		NA	NA	NA	NA	26.0
Days over National Standard	65	---	---	---	---	0
Particulate Matter (PM_{10}):						
Highest 24 Hour Average (μg/m^3)		33.0	**69.0**	31.0	26.0	27.0
Estimated Days over State Standard	50	0	**6**	0	0	0
Annual Average (μg/m^3)	30	NA	17.5	12.8	12.8	13.3

NOTES: Values in **bold** are in excess of applicable standard. NA = Data not available. ppm = parts per million; μg/m^3 = micrograms per cubic meter
SOURCE: CARB 2006a

Sensitive Receptors

For the purposes of air quality and public health and safety, sensitive receptors are generally defined as land uses with population concentrations that would be particularly susceptible to disturbance from dust and air pollutant concentrations, or other disruptions associated with project construction and/or operation. Sensitive receptor land uses generally include schools, day care centers, libraries, hospitals, residential area, and parks. Some sensitive receptors are considered to be more sensitive than others to air pollutants. The reasons for greater than average sensitivity include pre-existing health problems, proximity to emissions sources, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality-related health problems than the general public. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with associated greater exposure to ambient air quality. Recreational uses are also considered sensitive due to the greater exposure to ambient air quality conditions because vigorous exercise associated with recreation places a high demand on the human respiratory system.

Regulatory Context

Air quality within the air basin is addressed through the efforts of various federal, State, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The air pollutants of concern, agencies primarily responsible for improving the air quality within the air basin, and the pertinent regulations are discussed below.

Criteria Air Pollutants

Regulation of air pollution is achieved through both national and state ambient air quality standards and emission limits for individual sources of air pollutants. As required by the federal Clean Air Act, the U.S. Environmental Protection Agency (EPA) has identified criteria pollutants and has established the NAAQS to protect public health and welfare. The NAAQS have been established for ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), PM_{10}, $PM_{2.5}$, and lead (Pb). These pollutants are called "criteria" air pollutants because standards have been established for each of them to meet specific public health and welfare criteria.

To protect human health and the environment, the EPA has set "primary" and "secondary" maximum ambient thresholds for all seven criteria pollutants. Primary thresholds were set to protect human health, particularly sensitive receptors such as children, the elderly, and individuals suffering from chronic lung conditions, such as asthma and emphysema. Secondary standards were set to protect the natural environment and prevent further deterioration of animals, crops, vegetation, and buildings.

The NAAQS are defined as the maximum acceptable concentrations that may be reached, but not exceeded more than once per year. California has adopted more stringent ambient air quality standards for most of the criteria air pollutants. Table 3-2 presents both sets of ambient air quality standards (i.e., national and state) and provides a brief discussion of the related health effects and principal sources for each pollutant. California has also established state ambient air quality standards for sulfates, hydrogen sulfide, and vinyl chloride; however, air emissions of these pollutants are not expected under the Program, and therefore there is no further mention of these pollutants in this initial study. The Northeast Plateau Air Basin generally has very good air quality and is in attainment or unclassified for all federal and state ambient air quality standards.

TABLE 3-2
STATE AND NATIONAL CRITERIA AIR POLLUTANT STANDARDS, EFFECTS, AND SOURCES

Pollutant	Averaging Time	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone	1 Hour 8 Hour	0.09 ppm 0.07 ppm	– 0.08 ppm	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Formed when reactive organic gases and NO_x react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial / industrial mobile equipment.
Carbon Monoxide	1 Hour 8 Hour	20 ppm 9.0 ppm	35 ppm 9 ppm	Classified as a chemical asphyxiant, CO interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
Nitrogen Dioxide	1 Hour Annual	0.25 ppm –	– 0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads.
Sulfur Dioxide	1 Hour 3 Hour 24 Hour Annual	0.25 ppm – 0.04 ppm –	– 0.5 ppm 0.14 ppm 0.03 ppm	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
Respirable Particulate Matter (PM_{10})	24 Hour Annual	50 μg/m^3 20 μg/m^3	150 μg/m^3 50 μg/m^3	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
Fine Particulate Matter ($PM_{2.5}$)	24 Hour Annual	– 12 μg/m^3	65 μg/m^3 15 μg/m^3	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and results in surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; Also, formed from photochemical reactions of other pollutants, including NO_x, SO_2, and organics.
Lead	Monthly Quarterly	1.5 μg/m^3 –	– 1.5 μg/m^3	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurological dysfunction.	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.

ppm = parts per million
μg/m^3 = micrograms per cubic meter

SOURCE: CARB 2006b and SCAQMD, 1993

Regulatory Agencies

Federal

EPA is responsible for implementing the myriad programs established under the federal Clean Air Act, such as establishing and reviewing the NAAQS and judging the adequacy of State Implementation Plans (SIPs), but has delegated the authority to implement many of the federal programs to the states, while retaining an oversight role to ensure that the programs continue to be implemented.

State

The California Air Resources Board (CARB) is responsible for establishing and reviewing the state standards, compiling the California SIP, securing approval of that plan from EPA, and identifying toxic air contaminants. CARB also regulates mobile sources of emissions in California, such as construction equipment, trucks, and automobiles, and oversees the activities of California's air quality management districts, which are organized at the county or regional level. County or regional air quality management districts are primarily responsible for regulating stationary sources at industrial and commercial facilities within their geographic areas and for preparing the air quality plans that are required under the federal Clean Air Act and California Clean Air Act.

The regional air quality plans prepared by air districts throughout the state are compiled by CARB to form the SIP. The local air districts also have the responsibility and authority to adopt transportation control and emission reduction programs for indirect and area-wide emission sources.

Siskiyou County

The Program Area is within the jurisdiction of the SCAPCD, which regulates air pollutant emissions for all sources other than motor vehicles throughout Siskiyou County. The SCAPCD enforces regulations and administers permits governing stationary sources.

As required by the Federal Clean Air Act and the California Clean Air Act, air basins or portions thereof have been classified as either "attainment" or "nonattainment" for each criteria air pollutant, based on whether or not the standards have been achieved. Jurisdictions of nonattainment areas are also required to prepare air quality plans that include strategies for achieving attainment. Siskiyou County is in attainment or unclassified status for all of the NAAQS and the CAAQS (SCAPCD, 2006).

The Siskiyou County General Plan does not address any requirements regarding the protection and enhancement of air quality in the region and does not have any air quality protection policies that are applicable to the Program.

Discussion

a) Siskiyou County is in attainment or unclassified status for all of the NAAQS and the CAAQS, so there is no air quality plan that is applicable to the Program Area. Therefore, the Program would not conflict with or obstruct an applicable air quality plan. No impact would occur.

b) Construction associated with some of the Covered Activities (e.g., installation of water diversion structures, fish screens, and removal of stream barriers) would generate emissions of criteria pollutants, including suspended and inhalable particulate matter and equipment exhaust emissions. However, implementation of the Program would result in only minor changes to existing, ongoing, legal water diversions and other in-stream and near-stream activities. Therefore, there would be little change in overall emissions associated with the Program. Nonetheless, this analysis includes Program emission estimates even though the emissions are technically part of the Program baseline and do not represent emission increases.

SCAPCD does not have established significance criteria to determine the significance of projects subject to CEQA, such as the Program. However, SCAPCD does have criteria pollutant significance thresholds for new or modified stationary source projects in Siskiyou County. In lieu of significance thresholds for construction emissions, SCAPCD has recommended comparing estimated Program emissions to its new or modified stationary source significance thresholds, which are 40 tons/year for ROG, NO_2, and SO_2, 100 tons/year for CO, and 15 tons/year for PM_{10} (SCAPCD, 2006).

Onsite emissions would include equipment exhaust from construction equipment used to complete some of the Covered Activities. Onsite fugitive dust emissions are related to ground disturbance (conservatively assumed to be one acre/day) that would occur at the various activity sites. Offsite emissions are those that would be generated by worker vehicles that would be used to commute to the various sites associated with the Program, and those that would be emitted by trucks and other equipment hauling materials and debris to and from construction sites.

Projected construction emissions are presented in Table 3-3, broken down by onsite and offsite emissions (Refer to Appendix AQ for the detailed assumptions that were used to estimate the worst case Program emissions). Because SCAPCD does not maintain construction equipment emission factors, the South Coast Air Quality Management District (SCAQMD) emission factors for off road construction equipment were used to estimate onsite emissions sources. For the purposes of this analysis, it was assumed that three pieces of heavy construction equipment–one dozer, loader, and backhoe–would operate simultaneously within the Program Area eight hours per day, five days per week, from July 1 through October 31. This assumption represents daily concurrent construction associated with three Covered Activities that require heavy equipment.

CARB's EMFAC2002 model was used to develop emission factors for on-road vehicles, including pickup and diesel semi-trucks. Using the three concurrent Covered Activities scenario, it is assumed that 30 workers (10 per site) would each commute to the various activity sites and nine semi-tractor truck trips (three per site) would be required.

Fugitive dust emissions were developed based on guidance from the Bay Area Air Quality Management District (BAAQMD). Based on approximate emission factors developed by EPA for construction emissions, uncontrolled project construction-related PM_{10} emissions are 0.77 tons per acre per month and 51 pounds per acre per day (BAAQMD, 1999).

TABLE 3-3
ESTIMATED PROGRAM CONSTRUCTION EMISSIONS (tons/year)

Activity and Equipment	ROG	CO	NO_2	SO_2	PM_{10}
Onsite					
Equipment Exhaust	0.63	1.59	0.09	0.26	0.15
Fugitive Dust	---	---	3.08	---	---
Offsite					
Worker Vehicle and Haul Truck Trips	5.25	2.21	0.01	0.01	0.22
TOTAL	5.88	3.80	3.18	0.27	0.37
Significance Thresholds (tons/year)	40	100	40	40	15
Significant Impact?	No	No	No	No	No

As shown in Table 3-3, estimated emissions that would be associated with the Program would be well below the significance thresholds recommended by SCAPCD. Therefore construction emissions associated with the Program would be less than significant, and would not violate any air quality standard or contribute substantially to a projected or existing violation.

c) Siskiyou County is in attainment or unclassified status for all of the NAAQS and the CAAQS. Therefore, there would be no cumulatively considerable net increase of a criteria pollutant that is non-attainment in the Program Area and no impact related to a criteria pollutant that is non-attainment in the area would occur.

d) It is anticipated that construction activities associated with the Program would occur almost exclusively on private agricultural property in the rural areas of central Siskiyou County. Sensitive receptors in the vicinity of Program activity sites would likely include scattered ranch and farm houses associated with the agricultural uses of the area.

Construction activities would generate emissions of criteria pollutants, including suspended and inhalable particulate matter and equipment exhaust emissions. These emissions could expose sensitive receptors to pollutant concentrations. However, impacts to regional air quality would be less than significant (see discussion under (b), above) and because emissions would be dispersed throughout the rural agricultural areas of the Program Area, impacts to sensitive receptors would also be less than significant.

e) Completion of some of the Covered Activities would include potential short-term odor sources, such as diesel equipment operation, which could result in the creation of objectionable odors. Since the Covered Activities would be temporary, spatially dispersed, and generally take place in rural areas, those activities would not affect a substantial number of people. The Covered Activities would not create objectionable odors affecting a substantial number of people. Impacts would be less than significant.

References

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Biological Resources

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
4. BIOLOGICAL RESOURCES–				
Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☒	☐	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☒	☐	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☒	☐	☐	☐

Discussion

Affected Environment

The Program is within the Klamath Bioregion,[9] which extends from the Pacific Coast eastward more than halfway across California to the Modoc Plateau and the Sacramento Valley floor. Forest types change from old-growth redwoods, white fir, and Douglas fir along the coast to drier types in the mountain ranges of Siskiyou County: mixed conifer–pine and mixed conifer–fir, then to Ponderosa pine and a variety of shrub communities (e.g., bitterbrush-rabbitbrush and juniper-sagebrush). The region is drained by rivers including the Eel, Trinity, Klamath, and Russian. The Klamath is a major river of the Pacific coast (250 miles long), and two of its tributaries, the Shasta and the Scott, drain arid interior valleys characterized by extensively utilized annual grasslands.

[9] California bioregions were developed by the Inter-agency Natural Areas Coordinating Committee (California Department of Forestry and Fire Protection, 1992. California Bioregions http://www.frap.cdf.ca.gov/data/frapgisdata/select.asp).

These watersheds are used by listed anadromous fish and a variety of threatened or endangered wildlife and sensitive plants, including California red-legged frog, western yellow-billed cuckoo, Swainson's hawk, and sandhill crane.

a, d) Many "special-status"[10] wildlife and plant species known to occur in the Program Area are associated with riparian habitats or those in closely adjacent uplands: e.g., Pickering's ivesia, bank swallow, and northwestern pond turtle. Many of the Covered Activities involve operating machinery in riparian zones, manipulating habitat, and fencing streambanks. Impacts on these plants and animals are potentially significant.

Coho salmon are among the protected and special status animal species known to occur within the Program Area. Although one of the primary goals of the Program is to protect and restore coho salmon in the Scott River watershed, the Program has the potential for adversely affecting coho salmon, their habitat, and their movement.

The EIR will evaluate the potential impacts of the Covered Activities in the ITP and MSAA on these species and their habitat, including, most importantly, potential impacts on coho salmon migration, spawning, and rearing.

b) Although enhancement of existing riparian habitat is a component of the Program, restoration activities, such as bank stabilization or the removal of migration barriers, may have short-term adverse impacts on riparian habitat along the Scott River and its tributaries.

The EIR will evaluate the potential impacts of the Covered Activities in the ITP and MSAA on riparian habitats, and identify impacts and mitigation measures on riparian and other sensitive natural communities.[11]

c) Beyond the riparian habitats of the waterways themselves, the valleys support emergent wetlands, wet meadows and ponds, mostly seasonal in nature. All are part of the watershed system and most are under the jurisdiction of the Clean Water Act and are "waters of the state" regulated by the Regional Water Quality Control Board and, in some cases, CDFG. Recovery and compensatory actions prescribed by the ITP and MSAA will involve alteration of, working within, crossing, and/or minor filling of wetlands.

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[10] The term "special status species" includes those that are listed and receive specific protection defined in federal or state endangered species legislation, as well as species not formally listed as threatened or endangered, but designated as "rare" or "sensitive" on the basis of adopted policies and expertise of state resource agencies or organizations, or policies adopted by local agencies such as counties, cities, and special districts to meet local conservation objectives.

[11] Several specific native vegetative communities within California (as distinct from the organisms they support) have been identified as rare and/or sensitive. These natural communities are of special significance because the present rate of loss indicates that acreage reductions or habitat degradation could threaten the viability of dependent plant and wildlife species.

The EIR will evaluate the potential impacts of the Covered Activities in the ITP and MSAA on waters of the U.S. and the state, and prescribe appropriate mitigation measures.

e) The *Conservation Element of the Siskiyou County General Plan* is the principle policy document for natural resource protection and stipulates "maintaining all species of fish and wildlife for their intrinsic and ecological values." The Program would not conflict with any local policies or ordinances protecting biological resources.

f) Subsequent to the listing of coho salmon as a threatened species in the Southern Oregon/Northern California Coast Evolutionarily Significant Unit (ESU), and as an endangered species in the Central California Coast ESU, the California Fish and Game Commission directed CDFG to develop a Recovery Strategy for coho salmon in California. Planning for coho salmon recovery involves both state and federal actions because it is listed under both the federal ESA and CESA. The Recovery Strategy is the preliminary step toward a state recovery plan.

The Department initiated a multi-stakeholder, statewide Coho Recovery Team (CRT) to make recommendations on components of a plan to recover the species. Additionally, a team was created to focus on agricultural water and land issues in the Shasta and Scott River valleys. This team is known as the Shasta-Scott Coho Recovery Team (SSRT). All of these actions constitute a conservation planning effort underway. The Program is an outcome of these planning efforts, and is thus not in conflict.

In 2005, the U.S. Fish and Wildlife Service published a final critical habitat (CH)[12] designation for 22 vernal pool ecosystem units in California and Oregon, including Siskiyou County. However, the CH units within Siskiyou County are well south of the Program Area.

The Scott River watershed contains federally designated CH for coho salmon. Potential impacts of the Program on these areas will be evaluated in the EIR. The existence and relevance of any other protective plans, policies, and ordinances will also be determined in the EIR.

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[12] Critical habitat designation is a component of species recovery planning as defined by the Federal Endangered Species Act.

Cultural Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
5. CULTURAL RESOURCES— Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☒	☐	☐	☐
b) Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to §15064.5?	☒	☐	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
d) Disturb any human remains, including those interred outside of formal cemeteries?	☒	☐	☐	☐

Discussion

a, b, d) The Program would cover a variety of agricultural activities, as well as avoidance, minimization, and mitigation measures, some of which would entail earthmoving, mostly within stream banks and beds and riparian areas. These may have the potential to disturb historical or archeological resources, or human remains. The potential for such impacts will be evaluated in the EIR.

c) Covered Activities would take place in alluvial valleys of young age, which are unlikely to contain unique paleontological resources or unique geologic features. Therefore, there would be no impact on such resources or features from the Program.

Geology, Soils, and Seismicity

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
6. GEOLOGY, SOILS, AND SEISMICITY— Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)	☐	☐	☐	☒

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☒
c) Be located on geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☐	☒
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

Setting

The Program Area comprises the entire Scott River watershed, which is located in Siskiyou County in central-northern California. The Scott River watershed (812 square miles) lies within the Klamath Mountains geomorphic province. Geomorphic provinces are naturally defined geologic regions that display a distinct landscape or landform; eleven provinces are distinguished in California (CGS, 2002) with each region displaying unique, defining features based on geology, faults, topographic relief and climate.

The Scott River watershed can be described by two general provinces: the Klamath Mountains and the Scott Valley. The portion of the Klamath Mountains encircling the Scott Valley is characterized by complexly folded and faulted metamorphic, sedimentary, volcanic, and ultramafic rocks of Paleozoic age, intrusive plutonic rocks of Mesozoic age, and by marine sandstone and conglomerate of Cretaceous age (Mack, 1960; Wagner and Saucedo, 1987). The most ancient rocks found in the southern Klamath Mountains are the Abrams Mica Schist (Abrams) and the Salmon Hornblende Schist (Salmon) (Mack, 1958). Those formations underlie most of the Scott Valley. In the northern and western parts of the Scott Valley area the Abrams and Salmon schists are overlain by several thousand feet of greenstone (i.e., metavolcanic rock) (Mack, 1958). Throughout the southern part of Scott Valley, the Abrams and Salmon schists are overlain by slightly metamorphosed, strongly folded sedimentary rocks (i.e., metasedimentary rocks). During the Late Jurassic and Early Cretaceous periods, the bedrock within the Klamath Mountains was strongly folded and invaded by a series of magmas. Two rock types of this magmatic sequence are recognized in the Scott Valley area: earlier peridotite, which is now largely metamorphosed to become serpentine, and granodiorite (Mack, 1958). An extensive area of granodioritic rock intruded into schists and greenstone is exposed in the mountains paralleling the west and south sides of Scott Valley (SRWC, 2006).

The alluvial fill in the Scott Valley consists of unconsolidated Pleistocene and Recent deposits (Mack, 1958). In addition, notable glacial outwash deposits are found in some of the headwater canyons of the East Fork and South Fork of the Scott River (Wagner and Saucedo, 1987). The western mountains rise more abruptly from the valley than the mountains to the east; the debris dropped by streams emanating from the mountains to the west has been built up into a series of distinct, steeply sloping coalescing alluvial fans. The western piedmont slope thus developed in marked contrast to the more subdued topography characteristic of the valley floor at the foot of the eastern mountains (Mack, 1958). A line extending northward from the east side of the low hills that rise from alluvium about one mile northeast of Etna, to the northeastern corner of Chaparral Hill marks the approximate western limit of the alluvium deposited by the Scott River in the area between Etna and Fort Jones (SRWC, 2006). Thickness of the recent alluvial deposits reaches a maximum of more than 400 feet in the wide central part of the valley between Etna and Greenview (Mack, 1958). Broad, low natural levees, sloping gently away from the channel banks toward the valley margins, have built up along the Scott River as a result of floods.

Topography

The Scott River watershed slopes north-northwestward, draining to the Klamath River basin. The valley floor lies between altitudes of 2,700 and 3,000 feet amsl. From the edge of the valley, the mountains rise abruptly some 8,000 to 8,500 feet amsl. The headwaters of the East Fork of the Scott River rise on China Mountain, about 6.5 miles northeast of Callahan. The source of the South Fork of the Scott River lies in the mountain lakes about 4.5 miles southwest of Callahan.

Seismicity and Seismic Hazards

There are no known active[13] faults in the Scott River watershed. The nearest known active fault is the north to north-northwest trending Cedar Mountain-Mahogany fault zone (CM-MFZ) mapped approximately 35 miles east of the headwaters of Moffet Creek. The other nearest significant seismic sources are the Hat Creek-McArthur-Mayfield (HC-M-MFZ) and Big Lagoon-Bald Mountain (BL-BMFZ) fault zones mapped approximately 60 miles (southeast) and 48 miles (southwest) from the Scott River watershed, respectively. The assigned maximum earthquakes for the CM-MFZ and the HC-M-MFZ are 7.1 and 7.2, respectively (Cao *et al.*, 2003). The BL-BMFZ has an assigned maximum earthquake magnitude of 7.5. Based on a Probabilistic Seismic Hazard Assessment Model by the U.S. Geological Survey (USGS) and the California Geological Survey (CGS) (2002) horizontal ground accelerations due to earthquakes that range from 0.1g

[13]The term *active*, as used herein, refers to a fault for which there is evidence of displacement during Holocene time (i.e., the last 10,000 years) according to information summarized by Jennings (1994).

(10 percent of the acceleration due to gravity) to 0.2g have a 10 percent probability of exceedance in 50 years in the central Siskiyou County area. This also means that there is a 90 percent probability that these ground accelerations will not be experienced in the next 50 years. The ground accelerations that have 10 percent probability of occurrence in 50 years are usually considered in the seismic design of typical structures. As a comparison, potential ground accelerations that are three to four times higher than those assigned to the central Siskiyou County area, having a similar probability of occurrence, are present in the San Francisco Bay area based on the Probabilistic Seismic Hazard Assessment Model.

Surface Fault Rupture

Seismically induced ground rupture is defined as the physical displacement of surface deposits in response to movement on the fault plane. The magnitude, sense, and nature of fault rupture can vary for different faults or even along different strands of the same fault. Ground rupture is considered more likely along active faults. As described above, because there are no known active faults within the Program Area, the likelihood of surface fault rupture is very low and would not be a design consideration.

Ground Shaking

Ground shaking in the Program area could occur as a result of an earthquake within the greater northern California or southern Oregon region. However, ground motions attenuate with distance from the causative fault and there are no known active faults in the Program area. Generally, Siskiyou County is an area of low seismic activity. There is no record of any death or injury resulting from earthquakes within the region and damage to buildings has been very minor (Siskiyou County, 1976). Accordingly, ground shaking in the Program area can be expected to have low to moderate intensities.

Liquefaction

Liquefaction is a phenomenon in which unconsolidated and/or near saturated soils lose cohesion and are converted to a fluid state as a result of severe vibratory motion. The relatively rapid loss of soil shear strength during strong earthquake shaking results in the temporary fluid-like behavior of the soil. Soil liquefaction causes ground failure that can damage roads, pipelines, underground cables, and buildings with shallow foundations. Liquefaction can occur in areas characterized by water-saturated, cohesionless, granular materials at depths less than 50 feet. Due to the relatively low potential for strong ground motions and lack of structural elements proposed within saturated loose soils, such as alluvium, liquefaction potential is not an issue for the Program.

Landslides

A landslide is the sliding of a mass of loosened rock and/or soil down a hillside or slope. The Scott River watershed is comprised of an array of terrains with varying susceptibility to landslide activity. The steep mountainous terrain areas are naturally susceptible to landslides, but the size and frequency appears to have increased due to impacts from the combination of severe fires, intensive timber harvest, and roads constructed on steeper slopes (USFS, 2000 *as cited by* SRWC, 2006). Steep slopes within the metamorphic rock terrains typically produce more landslides compared to those within the granitic rock terrains (even though the granitic rock terrains are generally more susceptible to erosion due to the presence of weathered granite). Landslide deposits are common in the lower Scott (USFS, 2000 as cited by SRWC, 2006), and Wagner and Saucedo (1987) depict notable landslide deposits within the Boulder Creek, Canyon Creek, and Middle Creek watersheds (all within the lower Scott River watershed).

Volcanic Eruptions

An eruption from Mount Shasta could impact the Program Area. However, implementation of the Program would have no impact on the likelihood of such an event occurring.

Regulatory Context

State

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (formerly the Alquist-Priolo Special Studies Zones Act), signed into law in December 1972, requires the delineation of zones along active faults in California. The main purpose of the Alquist-Priolo Act is to prevent the construction of buildings to be used for human occupancy (2,000 person hours or more per year) on the surface trace of active faults. The Act only addresses the hazard of surface fault rupture and is not directed toward other earthquake hazards. Cities and counties must regulate certain development projects within the zones, which includes withholding permits until geologic investigations demonstrate that development sites are not threatened by future ground surface displacement (Hart and Bryant, 1997). Surface fault rupture is not necessarily restricted to the area within a Fault Rupture Hazard Zone, as designated under the Alquist-Priolo Act.

California Building Code

The California Building Code (CBC) is another name for the body of regulations found in Part 2 in title 24 of the California Code of Regulations, which is part of the California Building Standards Code (CBSC, 2001). Title 24 is assigned to the California Building Standards Commission which, by law, is responsible for coordinating all building standards. Under state law, all building standards must be centralized in title 24 or they are not enforceable. The purpose of the CBC is to provide minimum standards to safeguard life or limb, health, property and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all building and structures within its jurisdiction. Published by the International Conference of Building Officials, the UBC is a widely-adopted model building code in the United States. The CBC incorporates by reference the UBC with necessary California amendments. These amendments include significant building design criteria that have been tailored for California earthquake conditions (CBSC, 2001). The national model code standards adopted into title 24 apply to all occupancies in California except for modifications adopted by state agencies and local governing bodies.

Local

Siskiyou County General Plan

The Siskiyou County General Plan Land Use Element contains the following policies that could be applicable to the Program:

> *Policy 1.* No development will be allowed in identified and potential landslide area unless certified by a licensed California Geologist, as reasonably safe for the development proposed.
>
> *Policy 7.* Specific mitigation measures will be provided that lessen soil erosion, including contour grading, channelization, revegetation of disturbed slope and soils, and project timing (where feasible) to lessen the effect of seasonal factors (rainfall and wind).

Discussion

The Program does not cover the construction of or modifications to any buildings or habitable structures. Hence, the building code regulations discussed above do not apply to the Program. Further, the structures that may be constructed under the Program (e.g., headgates, boulder weirs, and fish screens) are not among those listed by the Siskiyou County Department of Public Works (DPW) Building Department (2006) as requiring an inspection. Therefore, no structural impacts are anticipated as a result of Program implementation.

a.i) There are no known active faults underlying the Scott River watershed and, according to the State of California's Alquist-Priolo Earthquake Fault Zoning Map (Hart and Bryant, 1997), fault-rupture hazard zones have not been established for this area. Therefore, the Program would not have an impact related to exposing people or structures to substantial adverse effects stemming from the rupture of a known earthquake fault.

a.ii) Ground shaking in the Program Area could occur as a result of an earthquake within the greater northern California or southern Oregon region. The nearest active fault (the Cedar Mountain-Mahogany Fault Zone) lies well outside of the Scott River watershed. Ground shaking within the Scott River watershed due to seismic events is expected to have low intensities according to the USGS/CGS Probabilistic Seismic Hazards Assessment Model (2002). Thus, the Program would not expose people or structures to substantial adverse effects involving strong ground shaking and this potential impact would be less than significant.

a.iii) There are no known active faults in the Scott River watershed and ground shaking induced by seismic activity is expected to be minimal. Therefore, the Program would not expose people or structures to substantial adverse effects involving seismic-related ground failure and this potential impact would be less than significant.

a.iv) Most Covered Activities would take place within a stream or upon its banks and not upon hillslope areas (i.e., where most landslides occur). Further, Covered Activities in stream bank areas (e.g., riparian restoration, installation of fencing, and bank stabilization) where shallow landslides and slope failures may occur serve to stabilize these areas and would, if anything, result in a beneficial impact. Therefore, proposed structures and construction activities under the Program would not have an effect on landslides nor expose people or structures to potential substantial adverse effects involving landslides.

b) Soil erosion and loss of topsoil could occur as a result of proposed construction activities within and adjacent to stream channels (i.e., on slopes directly connected to stream channels). In this case (i.e., relatively small scale, construction-related impacts), the principal concern with respect to soil erosion is the potential impact to water quality (i.e., increased turbidity) rather than the actual loss of topsoil from the slope. Disturbed surface soils could be entrained by overland runoff and delivered to adjacent streams or other type of water body. Thus, it is *both* processes (surface runoff and soil disturbance) that typically must be managed in these situations. As such, the potential impact of the Program upon soil erosion is discussed and analyzed in the section, *Hydrology and Water Quality.*

c) Destabilization of natural or constructed slopes would not occur as a result of Program implementation. Most Program activities would take place within a stream or upon its banks and not upon hillslope areas (i.e., where most landslides occur). Further, Covered Activities in stream bank areas (e.g., riparian restoration, installation of fencing, and bank stabilization) where shallow landslides and slope failures may occur serve to stabilize these areas and would, if anything, result in a beneficial impact

d) Shrink-swell or expansive soil behavior is a condition whereby a soil reacts to changes in moisture content by expanding or contracting; this activity may cause subsequent damage to buildings or structures with foundations in this type of soil.

The U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS, 2006) has summarized descriptive and spatial information regarding soils in the central part of Siskiyou County which includes the Program Area. Most of this information was derived from the Soil Survey for Siskiyou County, Central Part, published by the NRCS in 1983. The NRCS has mapped soils within the part of Siskiyou County comprising the Program Area and described the physical properties of the various soil types. Some of the soils have been characterized as having a high[14] shrink-swell potential and some Covered Activities may take place in the vicinity of such soils. However, the structures proposed are relatively minor and locating them within expansive soils would not create a substantial risk to life or property. Therefore, the potential impact concerning the possible location of Program components within expansive soils is considered less than significant.

e) The Program does not include construction of or components related to septic tanks or an alternative wastewater disposal system. Therefore, there would be no impact to soils in the Program Area as a result of wastewater disposal.

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[14]Shrink-swell potential is commonly expressed as the linear extensibility percent (LEP), which is a measure of the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. As used herein, a *high* shrink-swell potential refers to soil types with an LEP greater than 6 percent.

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Hazards and Hazardous Materials

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
7. HAZARDS AND HAZARDOUS MATERIALS– Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☒	☐	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☒	☐	☐	☐

Setting

Regulatory Setting

Definitions

Hazardous Materials

Hazardous materials are substances with certain physical properties that could pose a substantial present or future hazard to human health or the environment when improperly handled, disposed, or otherwise managed. Hazardous materials are grouped into the following four categories, based on their properties: toxic (causes human health effects), ignitable (has the ability to burn), corrosive (causes severe burns or damage to materials), and reactive (causes explosions or generates toxic gases).[15] Hazardous materials have been and are commonly used in commercial, agricultural, and industrial applications, as well as in residential areas to a limited extent.

Hazardous Waste

A hazardous waste is any hazardous material that is discarded, abandoned, or is to be recycled. Hazardous materials and wastes can result in public health hazards if released to the soil, groundwater, or air.

Regulatory Framework

Hazardous Materials Management

Numerous local, state, and federal laws and regulations regulate the use, storage, and disposal of hazardous materials, including management of contaminated soils and groundwater. EPA is the federal agency that administers hazardous materials and waste regulations. State agencies include the California Environmental Protection Agency, which includes the Department of Toxic Substances Control, the North Coast RWQCB, the California Air Resources Board, and other offices. A description of agency jurisdiction and involvement in management of hazardous materials is provided below.

United States Environmental Protection Agency. EPA is the federal agency responsible for enforcement and implementation of federal laws and regulations pertaining to hazardous materials. The legislation includes the Resource Conservation and Recovery Act of 1986 (RCRA), the Superfund Amendments and Reauthorization Acts of 1986 (SARA), and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). The federal regulations are primarily codified in title 40 of the Code of Federal Regulations (40 CFR). EPA provides oversight and supervision for site investigations and remediation projects, and has developed land disposal restrictions and treatment standards for the disposal of certain hazardous wastes.

[15]Title 22 of the California Code of Regulations, Division 4.5, Chapter 11, Article 3.

California Department of Toxic Substances Control. DTSC works in conjunction with EPA to enforce and implement specific laws and regulations pertaining to hazardous wastes. California legislation for which DTSC has primary enforcement authority includes the Hazardous Waste Control Act and the Hazardous Substance Account Act. Most state hazardous waste regulations are contained in title 22 of the California Code of Regulations. DTSC generally acts as the lead agency for soil and groundwater clean-up projects, and establishes clean up and action levels for subsurface contamination that are equal to, or more restrictive than, federal levels.

North Coast Regional Water Quality Control Board. The Program Area is within the jurisdiction of the North Coast RWQCB. RWQCBs are authorized by the California Porter-Cologne Water Quality Act of 1969 to implement water quality protection laws. RWQCBs provide oversight for sites where the quality of groundwater or surface waters is threatened, and has the authority to require investigations and remedial actions.

California Air Resources Board (CARB) and the Siskiyou County Air Pollution Control District (SCAPCD). The Program Area is in the Northeast Plateau Air Basin. CARB and SCAPCD have joint responsibility for developing and enforcing regulations to achieve and maintain state and federal ambient air quality standards in the district. CARB is responsible for enforcing the Clean Air Act and the CAAQs. SCAPCD is responsible for regulating air emissions from stationary sources, monitoring air quality, and reviewing air quality issues in environmental documents. The Air Quality section in this initial study further describes the responsibilities of CARB and SCAPCD, air quality conditions in the Northeast Plateau Air Basin, and potential air quality impacts associated with the Program.

Local Hazardous Materials Management. The agency responsible for local enforcement of state and federal laws controlling hazardous materials management in Siskiyou County is the Environmental Health Division of the County Public Health Department. This agency became the Certified Unified Program Agency (CUPA) for the county on January 1, 1997. The CUPA program regulates underground tanks, hazardous materials (including, but not limited to, hazardous substances, hazardous waste, and any material which a handler or the CUPA has reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment), and any unauthorized release of hazardous material. In addition, the CUPA program regulates medical waste and final disposal/transfer activities of solid waste.

Worker Health and Safety. Worker health and safety is regulated at the federal level by the federal Department of Industrial Relations. Worker health and safety in California is regulated by Cal/OSHA. California standards for workers dealing with hazardous materials are contained in title 8 in the California Code of Regulations, and include practices for all industries (known as "General Industry Safety Orders"), and specific practices for construction, and hazardous waste operations and emergency response. Cal/OSHA conducts on-site evaluations and issues notices of violation to enforce necessary improvements to health and safety practices.

Discussion

a) Covered Activities would not involve the routine transport, use, or disposal of hazardous materials. Therefore, there would be no impact of this kind.

b) Construction activities and ongoing agricultural operations covered under the Program would involve use of heavy equipment and other machinery that use petroleum-based fuels, lubricants, and other fluids classified as hazardous materials. The routine use of such equipment and machinery carries the risk of leaks and spills due to accident, equipment failure, and routine fueling, lubricating, and maintenance. Because activities covered by the Program are not substantially different or more intensive than ongoing agricultural and construction activities already occurring in the Program Area, there would not be a substantial increase in the risk of leaks or spills.

As stated in the project description in this initial study, ITP General Condition B would require SQRCD and any sub-permittee to immediately stop, contain, and clean-up any fuel, lubricants, or other hazardous materials that leak or spill while engaged in a Covered Activity. This condition further requires SQRCD or the sub-permittee to notify CDFG immediately of any leak or spill of hazardous materials into a stream or in a place where it can pass into a stream, and requires SQRCD and all sub-permittees to store and handle hazardous materials at least 150 feet away from the edge of mean high water elevation.

Because the Program would not substantially increase the use or risk of release of hazardous materials, and because ITP General Condition B would further reduce the risk of any release resulting in harmful contamination of the environment, this impact is considered less than significant.

c) As noted in the previous discussion, the Program would not result in an increase in the use or risk of release of hazardous substances. Some Covered Activities may occur within one quarter mile of a school. However, these activities are indistinguishable from other agricultural operations and construction activities already occurring in the Program Area. In addition, ITP General Condition B, discussed above, would further reduce the risk of any release resulting in harmful contamination of the environment or exposure of people to hazardous substances.

d) Government Code section 65962.5 requires several state agencies to compile and report lists of hazardous materials sites. Collectively, these lists are referred to as the "Cortese List" after the author of the enabling legislation. Included in the Cortese List are a list of releases from leaking underground storage tanks (LUSTs) compiled by the State Water Resources Control Board; a list of current Cease and Desist Orders (CDO) and Clean-Up and Abatement Orders (CAO) issued by the same agency; and a list of Hazardous Wastes and Substances sites compiled by DTSC. Within Siskiyou County, there are 62 actives LUST sites; 32 active CDO and CAO sites; and one Hazardous Waste and Substances site. Several of these are located in the Scott River watershed.

Because of the possibility of some Covered Activities occurring in or near one of the Cortese List sites, this issue will be further investigated in the EIR.

e, f) The Program will not introduce new activities or inhabited structures within two miles of a public airport, public use airport, or private airstrip, and therefore would not pose a safety hazard to people residing or working in the Program Area.

g) The Covered Activities under the Program would not interfere with an adopted emergency response plan or emergency evacuation plan.

h) Most of the Covered Activities will occur in agricultural areas within Scott Valley, and as such, there will be little risk of wildfire associated with them. Some activities may occur on the urban or wildland fringe, however, and may result in increased risk of wildfire. The potential for such an impact will be further examined in the EIR.

References

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Siskiyou County, *Siskiyou County Public Health Department, Hazardous Materials Management Program.* http://www.co.siskiyou.ca.us/phs/envhealth/wastecupa.htm. Accessed September 28, 2006.

Hydrology and Water Quality

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
8. HYDROLOGY AND WATER QUALITY— Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☒	☐	☐	☐

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☒	☐	☐	☐
c) Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, in a manner that would result in substantial erosion or siltation on- or off-site?	☒	☐	☐	☐
d) Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river or, by other means, substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	☒	☐	☐	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒
f) Otherwise substantially degrade water quality?	☐	☐	☐	☒
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other authoritative flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☒	☐
i) Expose 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?	☐	☐	☐	☒
j) Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?	☐	☐	☒	☐

Discussion

a) The North Coast RWQCB has included the Scott River in the *2002 CWA Section 303(d) List of Water Quality Limited Segment* (NCRWQCB, 2002), which is a document listing impaired water bodies and the principal pollutants or stressors causing impairment. The Scott River is listed as being impaired by sediment and temperature (NCRWQCB, 2002). Subsequently, the Water Quality Control Plan for the North Coast Region (North Coast Basin Plan) (NCRWQCB, 2006) includes a list of objectives (qualitative and quantitative) related to the different sources of impairment.

Implementation of the Program may increase sedimentation and water temperatures within the Scott River. Potential sedimentation impacts would be related to construction activities covered by the Program (e.g., new or modified water diversion structures, fish screens, stream crossings, instream habitat structures, and barrier removal/fish passage projects) and would be temporary in nature. However, Covered Activities could also result in water quality impacts. For example, any new grazing operations covered by the Program could increase hillslope erosion and lead to increased sedimentation within the Scott River. New or modified water diversions could reduce instream flows by an amount sufficient to result in higher average water temperatures. Further, Covered Activities that include instream structures (e.g., boulder weirs, constrictors, and placement of woody debris) could pond water at low flows and result in warmer water temperatures, depending on the specific location and nature of installation. These water quality impacts could potentially be significant and will be addressed in further detail in an EIR.

b) Implementation of the Program, specifically the practice of an alternative stock watering system (i.e., using groundwater in place of surface water), could impact local groundwater supplies or recharge. Concerning production or irrigation wells, the severity of this potential impact would depend in great part on the proximity of a given project to other planned or existing wells and the hydrogeologic characteristics of the local aquifer. Further, excessive groundwater extraction could reduce groundwater discharge to nearby streams and significantly lower the magnitude and/or reduce the duration of base flow. These groundwater impacts could potentially be significant and will be addressed in further detail in an EIR.

c) Implementation of the Program could alter an existing stream (e.g., the Scott River and/or one or more of its tributaries), such that substantial instream erosion or sedimentation would result. Certain instream components the Program covers could significantly affect stream hydraulics and sediment transport; these components include new or modified water diversion structures, boulder weirs, constrictors, bank protection projects, and gravel augmentation projects. Structures that would span all or most of the stream channel width (i.e., diversions and weirs) could decrease local stream gradient, causing sediment accumulation, and/or result in bed scour immediately downstream of the structure. Bank protection projects would serve to deflect the flow stress exerted on stream banks to the bed, which could increase bed scour and erosion. Gravel augmentation projects could decrease stream sediment transport capacity and/or increase the scour potential of large flows. These impacts on stream hydraulics and sediment transport could potentially be significant and will be addressed in further detail in an EIR.

d) Implementation of the Program could alter an existing stream (e.g., the Scott River and/or one or more of its tributaries), such that increased localized flooding would result. Certain Program components could increase the hydraulic roughness (i.e., boundary resistance to flow) of a stream and subsequently decrease its capacity to convey high flows. Those components include new or modified water diversion structures, boulder weirs or clusters, engineered habitat structures, and placement of large woody debris. For a given flood discharge, if hydraulic roughness is substantially increased (and all other hydraulic parameters remain unchanged) then flow velocity would decrease and the cross-sectional area of the flow would increase. In other words, the flow would have an increased tendency to pool, or back-up, and flood a local area. This consequence would likely only be a concern if a project relevant to this impact was implemented adjacent to an existing road or trail. This impact upon stream channel capacity could potentially be significant and will be addressed in further detail in an EIR.

e) The Program would not create a substantial amount of impervious or altered surfaces, or otherwise create or contribute substantial amounts of additional runoff within the landscape. Therefore, the Program would have no impact upon existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff, other than the potential water quality impacts discussed above.

f) The Program would not otherwise degrade water quality, and therefore would not have an impact upon water quality outside of the potential impacts already discussed above.

g) The Program does not propose new housing and therefore would have no impact upon placement of housing within a 100-year flood hazard area.

h) The Federal Emergency Management Agency (FEMA) is responsible for mapping areas subject to flooding during a 100-year flood event (i.e., a flood with a 1 percent chance of occurring in any given year). FEMA (2004) has designated and mapped the 100-year flood hazard zone for the Scott River watershed and some components of the Program would be implemented within this zone. As discussed above, some instream Program components could impact hydraulic roughness characteristics and stream channel capacity. Those components include new or modified water diversion structures, boulder weirs, constrictors, bank protection projects, and gravel augmentation projects. However, a 100-year flood is often orders of magnitude larger than the annual flood or a flood experienced every few years, on average. Those smaller, more frequent floods are more relevant when considering the scale of the structures proposed as part of the Program; such potential flooding impacts have been discussed above. The structures proposed are not substantial enough to impede or redirect a flow with the magnitude of a 100-year flood event, and therefore this potential impact would be less than significant.

i) The Program would not expose people or structures to a significant risk of loss, injury or death involving flooding and, therefore, would have no impact concerning this criterion.

j) The Program is not located in an area that would be affected by a seiche or tsunami. Parts of the Program Area, particularly the steep uplands, may experience mudflows or be relatively more susceptible to mudflow hazards. Proposed instream structures could be damaged or even destroyed in the event of a mudflow. However, such events are extremely rare and the potential risk of loss involving a mudflow (or debris avalanche) is not a significant one, and therefore the potential impacts associated with mudflows would be less than significant.

References

Federal Emergency Management Agency, 2004. Q3 Flood Data, California. Digital database (ArcGIS), Disc 1.

North Coast Regional Water Quality Control Board,, 2002. *2002 Clean Water Act Section 303(d) List of Water Quality Limited Segment.* Approved by U.S. Environmental Protection Agency in July, 2003. Available online: http://www.swrcb.ca.gov/tmdl/303d_lists.html

North Coast Regional Water Quality Control Board, 2006. *Water Quality Control Plan for the North Coast Region.* September, 2006. Available online: http://www.waterboards.ca.gov/northcoast/programs/basinplan/bpdocs.html

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Land Use and Land Use Planning

Issues (and Supporting Information Sources):		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
9.	**LAND USE AND LAND USE PLANNING— Would the project:**				
a)	Physically divide an established community?	☐	☐	☐	☒
b)	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☒	☐	☐	☐
c)	Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

Discussion

a) The Program would not physically divide an established community. Most or all of the Covered Actvities are located either in or next to a stream channel.

b) As stated under Agricultural Resources above the Program provides take authorization under CESA and coverage under section 1602 for specific "Covered Activities." These include, but are not limited to, water diversions and actions to restore coho salmon habitat (see ITP and MSAA Covered Activities above). The ITP requires specific avoidance; minimization, and mitigation measures to protect coho salmon and to implement key coho salmon recovery tasks (see Conditions of Approval above). Implementation of the Program has the potential to impacts agricultural resources and will be evaluated in the EIR.

c) The Program would not conflict with any applicable habitat conservation plan or natural community conservation plan.

References

Siskiyou County, *Siskiyou County General Plan, Land Use and Circulation Element*, 1980.

Mineral Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
10. MINERAL RESOURCES—Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) 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?	☐	☐	☐	☒

Discussion

a,b) The Program covers only ongoing, legal agricultural activities, and as such would not have an effect on mining or mineral resources.

Noise

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
11. NOISE—Would the project:				
a) Result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e) For a project located within an airport land use plan area, or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?	☐	☐	☐	☒
f) For a project located in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Setting

Noise Exposure and Community Noise

An individual's noise exposure is a measure of the noise experienced by the individual over a period of time. A noise level is a measure of noise at a given instant in time. However, noise levels are rarely persist consistently over a long period of time. In fact, community noise varies continuously with time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. Background noise levels change throughout a typical day, but do so gradually, corresponding with the addition and subtraction of distant noise sources and atmospheric conditions. The addition of short duration single event noise sources (e.g., aircraft flyovers, motor vehicles, sirens) makes community noise constantly variable throughout a day.

These successive additions of sound to the community noise environment vary the community noise level from instant to instant requiring the measurement of noise exposure over a period of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts. This time-varying characteristic of environmental noise is described using statistical noise descriptors. The most frequently used noise descriptors are summarized below:

L_{eq}: The equivalent sound level is used to describe noise over a specified period of time, typically one hour, in terms of a single numerical value. The L_{eq} is the constant sound level which would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).

L_{dn}: The energy average of the A-weighted sound levels occurring during a 24-hour period, and which accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night ("penalizing" nighttime noises). Noise between 10:00 p.m. and 7:00 a.m. is weighted (penalized) by adding 10 dBA to take into account the greater annoyance of nighttime noises.

Effects of Noise on People

The effects of noise on people can be placed into three categories:

- subjective effects of annoyance, nuisance, dissatisfaction;
- interference with activities such as speech, sleep, learning; and
- physiological effects such as hearing loss or sudden startling.

Environmental noise typically produces effects in the first two categories. Workers at industrial plants often experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction. A wide variation exists in the individual thresholds of annoyance, and different tolerances to noise tend to develop based on an individuals past experiences with noise. Noise levels are generally considered low when ambient levels are below 45 dBA, moderate in the 45 to 60 dBA range, and high above 60 dBA. In wilderness areas, the L_{dn} noise levels can be below 35 dBA. In small towns or wooded and lightly used residential areas, the L_{dn} is more likely to around 50 or 60 dBA. Levels around 75 dBA are more common in busy urban areas, and levels up to 85 dBA occur near major freeways and airports.

Noise Attenuation

Point sources of noise, including stationary mobile sources such as idling vehicles or onsite construction equipment, attenuate (lessen) at a rate of 6.0 dBA to 7.5 dBA per doubling of distance from the source, depending upon environmental conditions (e.g., atmospheric conditions, noise barriers, type of ground surface, etc.). Widely distributed noises such as a large industrial facility spread over many acres or a street with moving vehicles (a "line" source) would typically attenuate at a lower rate of approximately 3.0 to 4.5 dBA per doubling distance from the source (also dependent upon environmental conditions) (Caltrans, 1998).

Existing Ambient Noise Environment

The Program Area encompasses rural residential, agricultural, and open space areas in central Siskiyou County. The primary contributors to the noise environment in the Program Area include vehicle traffic on highways and county roads; airplane overflights;

sounds associated with agricultural and construction activities including use of heavy equipment and power tools; sounds emanating from residential neighborhoods, including voices, noises from household appliances, and radio and television broadcasts; and naturally occurring sounds such as wind and wind-generated rustling. Additional noise sources may include electrical and industrial devices and other man-made localized sources. Generally, intermittent short-term noises do not significantly contribute to longer-term noise averages.

Ambient natural noise sources also include wind, which is much more common than calm conditions throughout the Program Area, and is expected to generate noise levels in the range of 45 to 50 dBA. Ambient daytime L_{eq} noise levels in the vicinity of residences and in the agricultural areas of the Program Area can be expected to be between 50 and 55 dBA. Areas close to SR 3 (within 400 feet) can be expected to have daytime L_{eq} noise levels between 55 and 65 dBA.

One general aviation public airport (Scott Valley Airport) is located in the Program Area approximately three miles south of Fort Jones, approximately 1.5 miles east of SR 4. It has one runway that is 3,700 feet long and 50 feet wide (AirNav, 2006). Ambient noise levels in the vicinity of this airport are elevated.

Sensitive Receptors

Human response to noise varies considerably from one individual to another. Effects of noise at various levels can include interference with sleep, concentration, and communication, and can cause physiological and psychological stress and hearing loss. Given these effects, some land uses are considered more sensitive to ambient noise levels than others. In general, residences, schools, hotels, hospitals, and nursing homes are considered to be the most sensitive to noise. Places such as churches, libraries, and cemeteries, where people tend to pray, study, and/or contemplate are also sensitive to noise. Commercial and industrial uses are considered the least noise-sensitive.

The Covered Activities would occur primarily in rural agricultural areas throughout the central portion of the County. It is anticipated that some of the Covered Activities would occur in close proximity to rural residential receptors.

Regulatory Context

Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies. Local regulation of noise involves implementation of general plan policies and noise ordinance standards. Local general plans identify general principles intended to guide and influence development plans; local noise ordinances establish standards and procedures for addressing specific noise sources and activities.

Siskiyou County

The Siskiyou County General Plan Noise Element provides audible noise standards appropriate for the operations of development projects. The General Plan identifies land use compatibility for community noise. According to the General Plan, residences are the most sensitive land use. It sets a noise limit for residential land uses of 60 dBA. For new development within a residential land use area, noise limits range from 60 to 65 dBA with noise abatement features included.

Construction noise sources such as those that would result with implementation of the Program are typically regulated on the local level through enforcement of noise ordinances, implementation of general plan policies, and imposition of conditions of approval for permits. However, Siskiyou County does not have general plan standards or municipal codes that address short-term construction noise (Siskiyou County, 2006).

Discussion

a, d) Covered Activities, such as the installation of water diversion structures, installation of fish screens and boulder weirs, barrier removal projects/fish passage projects (e.g., the East Fork Barrier Removal/Fish Passage Projects), and installation of instream habitat improvement structures may require the use of heavy equipment, such as loaders, backhoes, or excavators and haul trucks. Some of the Covered Activities would also require the operation of stationary pumps within or adjacent to active stream channels. Offsite noise sources would result from commuting workers (anticipated to be less than 10 per day for each Covered Activity during construction) and from heavy truck trips (anticipated to be up to three per day for each Covered Activity during construction).

Covered Activities would occur between July 1 and October 31, pursuant to ITP General Condition G. The majority of the Covered Activities would take place in open agricultural areas, though some construction activities may occur near residences. Sustained construction activities under the Program are expected to last no longer than one to two weeks at each of the activity site.

Noise levels generated by construction activities would vary depending on the particular type and duration of use of various pieces of construction equipment. Typical noise levels of construction equipment that may be used to construct some of the Program activities are listed in Table 11-1.

TABLE 11-1
TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT

Construction Equipment	Noise Level (dBA, L_{eq} at 50 feet)
Truck	88
Dozer	85
Loader	85
Backhoe	80
Generator (compressor)	81

SOURCE: FTA, 2006.

As shown in Table 11-1, intermittent and continuous use of construction equipment could generate noise levels in excess of 85 dBA at 50 feet. This equates to a noise level of approximately 79 dBA at 100 feet or as high as 73 dBA at 200 feet. The duration of noise impacts would be relatively brief, estimated to be no more than approximately one to two weeks at any one location. Given the short duration of impacts at any one location, construction noise would not be considered significant at affected residences if construction would be limited to daytime hours. A general condition will be considered for inclusion to the ITP and MSAA to insure that the impact of construction noise would be less than significant. If a noise reduction condition is not included as a general condition in the ITP and MSAA, the potential impact will be evaluated in the EIR.

It should be noted that the Covered Activities would cause only minor changes to existing, ongoing, legal water diversions and other in-stream and near-stream activities. Because these activities are considered ongoing and also part of the baseline conditions, there would essentially be no change in ambient conditions as a result of Program implementation.

b) The use of blasting and/or pile drivers that typically generate excessive groundborne vibration or groundborne noise would not be included as part of the Covered Activities. Some of the Covered Activities would involve temporary sources of groundborne vibration and groundborne noise during construction from operation of heavy equipment. During construction, operation of heavy equipment would generate localized groundborne vibration and groundborne noise that could be perceptible at residences or other sensitive uses in the immediate vicinity of a given construction area. However, groundborne vibrations attenuate rapidly from their source, and since the duration of impact at any one location would be very brief (estimated to be from one to two weeks) and since the impact would occur during less sensitive daytime hours (i.e., between 7:00 a.m. and 7:00 p.m.), the impact from construction-related groundborne vibration and groundborne noise would be less than significant.

c) As discussed in (d) above, Covered Activities would cause only minor changes to existing, ongoing, legal water diversions and other in-stream and near-stream activities. Because these activities are considered ongoing and also part of the baseline conditions, there would essentially be no change in ambient conditions as a result of the Program implementation. In addition, Covered Activities would consist of short-term construction projects dispersed throughout the Program Area. Therefore, there would be no long-term noise impacts on ambient noise levels. Impacts would be less than significant.

e) The Program would not involve the development of noise-sensitive land uses, and therefore would not expose people to excessive aircraft noise. No impacts would occur.

f) The Program would not involve the development of noise-sensitive land uses, and thus, would not expose people to excessive aircraft noise. No impacts would occur.

References – Noise

AirNav. 2006a. Accessed the AirNav website (http://www.airnav.com/airport/A30) on September 29, 2006.

California Department of Transportation. 1998. *Technical Noise Supplement*, 1998.

Federal Transit Administration. 2006. *Transit Noise and Vibration Impact Assessment*, May 2006.

Siskiyou County. 2006. Personal communication with Pat Matthews of the Siskiyou County Planning Department, July 24, 2006.

Population and Housing

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
12. POPULATION AND HOUSING— Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing units, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion

a,b,c) The Program is limited to activities that are either part of normal, ongoing agricultural operations or involve riparian and streambed restoration. The Program would not induce substantial population growth, displace substantial numbers of existing housing or people, and therefore would not have an adverse affect on population and housing.

Public Services

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
13. PUBLIC SERVICES— Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
i) Fire protection?	☐	☐	☒	☐
ii) Police protection?	☐	☐	☒	☐
iii) Schools?	☐	☐	☐	☒
iv) Parks?	☐	☐	☒	☐
v) Other public facilities?	☐	☐	☐	☒

Discussion

a.i, a.ii, a.v) The Program covers specified, lawful activities, including both agricultural water diversions and other agricultural operations, as well as actions to restore or improve coho salmon habitat, and would not generate the need for additional police or fire protection services or other public facilities or services. Short-term construction activities could result in a temporary, minor increase in the need for emergency response in the event of an accident or fire, but would be within the context of normal public service demands within the Scott River watershed. Because any increase in public service demands would be temporary and short-term in nature, any impact is considered to be less-than-significant.

a.iii) The Program is focused on typical agricultural operations and coho salmon habitat restoration actions within a working agricultural landscape, and would not impact school enrollment numbers, or require provision of additional facilities to maintain acceptable student-teacher ratios.

a.iv) The Program would not result in demand for additional parks or put undue burdens on existing parks. Therefore, there would not be a significant impact related to parks.

Recreation

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
14. RECREATION—Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?	☐	☐	☒	☐
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☒	☐

Discussion

a, b) The Program primarily applies to projects on private lands, either in or near the stream channel. However, there could be some instances within the watershed where Covered Activities take place in a public recreation area, which may require temporary closures or restricted access to recreational facilities (e.g., recreation areas, parks, or trails) during construction activities. However, given that closures or restrictions would be temporary and short-term in nature, the diversion of recreational users to other areas would not result in substantial deterioration of regional parks and public open space, and any impact would be less than significant.

Transportation and Traffic

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
15. TRANSPORTATION AND TRAFFIC— Would the project:				
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	☐	☐	☒	☐

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that would result in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
e) Result in inadequate emergency access?	☐	☐	☐	☒
f) Result in inadequate parking capacity?	☐	☐	☒	☐
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., conflict with policies promoting bus turnouts, bicycle racks, etc.)?	☐	☐	☐	☒

Setting

Covered Activities would primarily occur in the rural, low-density areas of western Siskiyou County. Regional and local access to the activity sites would be provided by several state and local roadways, each of which would be used to transport construction materials, equipment, and workers to the various sites. The Program Area and surrounding roadway network are illustrated in Figure 1. The paragraphs below provide descriptions of the regional and local roadway network.

Regional Roadways

State Route 3 (SR 3) is a two-lane highway that begins in the City of Montague in Siskiyou County and continues to State Route 36 in Trinity County. SR 3 is the only State Route that provides direct access to the Program Area. It is primarily a north-south route in the area that drops into the north end of the valley along Soap Creek and extends down the length of the valley on its west side. South of Callahan, the road climbs out of the valley and over Scott Mountain, then parallels the Trinity River past Clair Engle Lake to Weaverville. South of the Siskiyou/Trinity County Line, SR 3 is referred to as Weaverville Scott Mountain Road and is closed in the winter. Traffic volumes along SR 3 in the area range from ADT levels of between 200 and 400 vehicles per day (vpd) near Callahan, to over 4,300 vpd in Fort Jones (Caltrans, 2006).

Interstate 5 (I-5) is a north-south freeway that extends from the Mexican border to the Canadian border, traversing the states of California, Oregon, and Washington. I-5 is generally a four-lane, limited access freeway that traverses the western side of the Shasta Valley, approximately three miles from the north-eastern portion of the Program Area. SR 3 provides direct access to the Program Area from I-5 in Yreka. Traffic volumes along I-5 in the area are highest south of Weed, with an annual average daily traffic (ADT) level of 22,900 vpd. North of Yreka traffic volumes are lower, with annual ADT levels below 15,000 (Caltrans, 2006).

County Roads. Several two-lane county roads also provide regional access to the Program Area, including Scott River Road, Callahan Road, Eastside Road, Gazelle-Callahan Road, and others.

Local Roadways

The local roadways that would be used to access the activity sites would primarily be county and private roadways in the rural agricultural areas of central Siskiyou County. The majority of the local roads have relatively low to very low traffic volumes, have two-lanes with unimproved shoulders, and may have a dirt or paved surface.

Regulatory Context

The development and regulation of the transportation network in the Program Area primarily involves state and local jurisdictions. All roads within the Program Area are under the jurisdiction of state or local agencies or a private landowner. State jurisdiction includes permitting and regulation of the use of state roads, while local jurisdiction includes implementation of state permitting, policies, and regulations, as well as management and regulation of local roads. It is not anticipated that any construction work that is part of a Covered Activity would occur directly within a public roadway, which would require encroachment permits prior to commencing work in the public ROW from all jurisdictions that manage or maintain the applicable roadway(s). Applicable state and local laws and regulations related to traffic and transportation issues are discussed below.

California Department of Transportation

The California Department of Transportation (Caltrans) manages interregional transportation, including management of construction activities within the California highway system. Caltrans is responsible for permitting and regulating the use of state roadways. Caltrans requires that permits be obtained from its District 2 Office for transportation of oversized loads and certain materials, and for construction-related traffic disturbances in the Program Area. Caltrans permit requirements would apply to the transportation of oversized loads associated with the construction and operation of Covered Activities.

Siskiyou County

The majority of the roads that would provide direct access to activity sites within the Program Area are under the jurisdiction of Siskiyou County. County policies and regulations regarding the design of roadways are contained in the circulation element of the Siskiyou County General Plan. However, because the plan focuses on the design and implementation of circulation system improvements, policies in this element do not directly relate to the Covered Activities.

Similar to Caltrans, the Siskiyou County Public Works Road Department would require Program participants to obtain a Transportation Permit from the county if the Covered Activity required hauling of oversized or heavy loads on county roads. The permit would stipulate which roads would be authorized for use, as well as any other specific conditions or restrictions that would be required.

Transportation and Traffic Issues

a) Covered Activities involving construction would result in short-term increases in traffic volumes (a combination of construction worker vehicles and vehicles carrying material and equipment to and from the various Program activity sites). Traffic levels that would be generated on area roadways would vary depending on the particular type and duration of activity. The most intensive construction activities that would occur under the Program would be associated with building water diversion structures (e.g., boulder weirs, and headgates, and maintenance of sump ponds), installation of fish screens and riparian fencing, barrier removal/fish passage projects (e.g., the East Fork Barrier Removal/Fish Passage Projects), and installation of in-stream habitat improvement structures.

   It is anticipated that each activity covered under the Program would require no more than five to ten days of active construction work and would require less than ten commuting worker trips and an average of up to three heavy truck trips to the activity sites each workday. Covered Activities would occur between July 1 and October 31, pursuant to ITP General Condition G.

   Construction generated traffic in the Program Area would be temporary, and therefore would not result in any long-term, ongoing effects on traffic operating conditions. The impact of construction-related traffic would be a temporary and intermittent lessening of the capacities of Program Area streets because of the slower movements and larger turning radii of construction trucks compared to passenger vehicles. Most construction truck traffic would be dispersed throughout the day and throughout the Program Area. Thus, the temporary increases would not significantly disrupt traffic flow on any of the roadways in the Program Area. Program participants would need to satisfy both Caltrans and Siskiyou County permit requirements for oversized loads, which would include conditions and other requirements designed to alleviate impacts on the local transportation system.

Given the limited and dispersed nature of Program-generated traffic and that Program participants would be required to obtain transportation permits for oversized truck loads, traffic-related impacts associated with the Program would be less than significant.

b) Level-of-service (LOS) standards established by jurisdictions (local, county, and state) for roadways in those jurisdictions are intended to regulate long-term traffic increases from operation of new development and do not apply to temporary construction projects. As such, Covered Activities (with their temporary and intermittent traffic generation, described in (a) above) would not exceed, either individually or cumulatively, LOS standards established by Siskiyou County or other agencies responsible for area roadways.

c) Implementation of the Program would not change air traffic patterns. No impacts would occur.

d) The Covered Activities would not change the configuration (alignment) of area roadways, and would not introduce types of vehicles that are not already traveling on area roads. However, heavy trucks operating on public roads could increase the risk of accidents through interaction with other vehicles. Potential conflicts could also occur between construction traffic and alternative modes of transportation (e.g., bicyclists and buses). However, because of the limited and dispersed nature of Program-generated traffic and because Program participants would be required to obtain transportation permits for oversized truck loads, which would include route restrictions and safety requirements if applicable, traffic-related incompatible use impacts associated with the Program would be less than significant.

e) Implementation of the Program would not result in inadequate emergency access. Covered Activities would not require work directly within a public road and would not result in any other actions that could block emergency access. No impacts would occur.

f) Construction vehicles associated with Program activities that would transport materials and workers to and from the various construction sites would likely be temporarily parked onsite, at the activity locations. Given the dispersed nature and small size of the anticipated construction workforces, implementation of the Program would not generate a substantial number of parked vehicles; therefore, impacts would be less than significant.

g) The Program would have no long-term impact on demand for alternative transportation or on alternative transportation facilities. No impacts would occur.

References – Transportation and Traffic

California Department of Transportation, 2006. 2005 Traffic Volumes on California State Highways. Accessed the Traffic and Vehicle Data Systems Unit website (http://www.dot.ca.gov/hq/traffops//saferesr/trafdata/index.htm) on September 26, 2006.

Utilities and Service Systems

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
16. UTILITIES AND SERVICE SYSTEMS—Would the project:				
a) Conflict with wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Require new or expanded water supply resources or entitlements?	☒	☐	☐	☐
e) Result in a determination by the wastewater treatment provider that would serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

Discussion

a) The Program would not generate wastewater and therefore would not conflict with wastewater treatment requirements of the North Coast RWQCB.

b) The Program would not require in the construction of new water or wastewater treatment facilities or the expansion of existing facilities.

c) The Program would not require the construction of new storm water drainage facilities or expansion of existing facilities.

d) The Program would require SQRCD to improve baseline instream flows within critical reaches of the Scott River and its tributaries and at critical life stages of coho salmon by installing water efficiency improvement projects on sub-permittees' properties or by changing or adding points of diversion to keep flows instream to point of use. Projects that could be implemented to improve instream flows are: 1) the upgrade of agricultural water delivery systems to reduce waste; 2) the upgrade of water application systems; and 3) moving or adding points of diversion downstream near point of use. With these possible baseline instream flow improvements, there may be potential impacts to existing irrigation systems, including those controlled by irrigation districts. This topic requires further evaluation in the EIR.

e) There is not a connection between project implementation and wastewater treatment provision.

f) Covered Activities would not be expected to generate substantial volumes of solid waste, and much of the waste that is generated could be recycled. The Yreka Solid Waste Landfill, the only permitted, operating landfill in Siskiyou County, is owned and operated by the City of Yreka. This landfill has sufficient capacity through approximately 2065 at the projected rate of waste acceptance (CIWMB, 2006).

g) Individual projects under the ITP would be subject to local, state. and federal statutes regarding solid waste.

References

California Integrated Waste Management Board, Solid Waste Information System (database of California landfills and other solid waste facilities), www.ciwmb.ca.gov/SWIS Accessed 9/27/06.

Mandatory Findings of Significance

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
17. MANDATORY FINDINGS OF SIGNIFICANCE— Would the project:				
a) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☐
b) Have impacts that would be individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☒	☐	☐	☐
c) Have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Discussion

a) As discussed under Biological Resources above, the Program has the potential to result in take of coho salmon, a listed species. This potential will be investigated in the EIR.

b) The Program would authorize a potentially large number of individual activities, mostly located in and near fish-bearing streams. The EIR will examine the cumulative impacts of the Covered Activities, assuming that a large number of such activities will be implemented following approval of the Program. The cumulative analysis in the EIR will focus on cumulative effects of the Covered Activities, in addition to other past, current, and probable future projects that may affect stream resources, particularly coho salmon and other anadromous salmonids, on hydrology of the affected streams, and cumulative, indirect effects on land use in the Scott River watershed.

c) The Program would not increase the risk of physical harm to human beings, either directly or indirectly. The potential for the Program to indirectly affect human beings through possible pressures to change land use, notably the potential to induce a shift from agricultural to other uses, will be examined in the EIR.

APPENDIX AQ

			Hours/day	days/year	Emission Factor lbs/hour CO	NOx	PM	SOx	VOC	Annual Emissions lbs CO	NOx	PM	SOx	VOC
ONSITE EMISSIONS														
Dozer			8.00	84.00	1.024	2.817	0.112	0.452	0.211	688.13	1893.02	75.26	303.74	141.79
Loader			8.00	84.00	0.425	1.111	0.063	0.221	0.099	285.60	746.59	42.34	148.51	66.53
Backhoe			8.00	84.00	0.419	0.816	0.083	0.115	0.125	281.57	548.35	55.78	77.28	84.00
								Onsite Total (lbs/year)		**1255.30**	**3187.97**	**173.38**	**529.54**	**292.32**
								Onsite Total (tons/year)		**0.63**	**1.59**	**0.09**	**0.26**	**0.15**
OFFSITE EMISSIONS														
Running Exhause Emissions (grams/mile)														
	days/year	trips/day	miles/trip	grams to lbs	CO	Nox	PM	Sox	VOC	CO	Nox	PM	Sox	VOC
Semi-Truck	84	9	80	0.002205	21.193	18.732	0.018	0.017	0.809	2826.26	2498.07	2.40	2.27	107.89
Pick-Up Truck	84	30	20	0.002205	17.893	2.019	0.0194	0.005	0.73	1988.48	224.38	2.16	0.56	81.13
Starting Emissions (grams/trip)														
Semi-Truck	84	9		0.002205	151.358	4.125	0.004	0.004	14.937	252.31	6.88	0.01	0.01	24.90
Pick-Up Truck	84	30		0.002205	5.938	0.519	0.002	0	0.868	33.00	2.88	0.01	0.00	4.82
Tire Wear (grams/mile)														
Semi-Truck	84	9	80	0.002205			0.027			0.00	0.00	3.60	0.00	0.00
Pick-Up Truck	84	30	20	0.002205			0.008			0.00	0.00	0.89	0.00	0.00
Break Wear (grams/mile)														
Semi-Truck	84	9	80	0.002205			0.013			0.00	0.00	1.73	0.00	0.00
Pick-Up Truck	84	30	20	0.002205			0.013			0.00	0.00	1.44	0.00	0.00
								Offsite Total		**5100.06**	**2732.21**	**12.24**	**2.83**	**218.74**
								Offsite Total (tons/year)		**2.55**	**1.37**	**0.01**	**0.00**	**0.11**
FUGITIVE DUST (PM10)														
emission factor (ton/acre-month)	acres	months	(tons/year)					**Fugitive Dust Total (tons/year)**				**3.08**		
0.77	1	4	3.08											
								Project Total (lb/year)		6355.35	5920.17	6345.62	532.37	511.06
								Project Total (tons/year)		**3.18**	**2.96**	**3.17**	**0.27**	**0.26**
					CO	Nox	PM	Sox	VOC					
			Onsite (tons/year)											
			Equipment Exhaust		**0.63**	**1.59**	**0.09**	**0.26**	**0.15**					
			Fugitive Dust (tons/year)				3.08							
			Onsite Total (tons/year)		**0.63**	**1.59**	**3.17**	**0.26**	**0.15**					
			Offsite Total		**2.55**	**1.37**	**0.01**	**0.00**	**0.11**					
			Project Total (tons/year)		**3.18**	**2.96**	**3.17**	**0.27**	**0.26**					

APPENDIX E

Scoping Comments

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Scoping Comment Summary

During October/November 2006, the California Department of Fish and Game (CDFG) received 26 scoping comment cards and letters in reference to the Notice of Preparation for the Shasta River Watershed-wide Permitting Program and the Scott River Watershed-wide Permitting Program. Fourteen of the 26 comment submissions were considered “general” by CDFG, and therefore were considered in preparation of both Environmental Impact Reports (EIRs). There were eight letters specifically addressing concerns in the Scott River watershed, and four letters that applied to the Shasta River watershed.

Scoping Comments that addressed issues in the Scott River watershed were received from the following:

Federal Agencies

United States Army Corps of Engineers

State Agencies

State Clearinghouse Letter – SCH #2006102095
Quartz Valley Indian Reservation
Yurok Tribe
Native American Heritage Commission
Siskiyou County

Organizations

Ad Hoc Committee – Ann Maurice
Cal Trout – Curtis Knight
Klamath Riverkeeper – Regina Chichizola
North Coast Consumer’s Alliance – Ellen Faulkner
Pacific Coast Federation of Fishermen’s Associations – Vivian Helliwell

Individuals

Gary Black
Jack Cowley
Monique Dixon
Margaret Draper
Dean Estep
Don Gutleben
Justin Ly
John and Jennifer Menke
Danielle Quigley

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
333 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94105-2197

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REPLY TO

DEC 27 2006

Regulatory Branch (1145b)

SUBJECT: File Number 400208 (Shasta River) and 400209 (Scott River)

Mr. Bob Wialliams
California Department of Fish and Game
601 Locust Street
Redding, California 96001

Dear Mr. Williams:

This letter responds to a request for comments on the "Notice of Preparation of a Draft Environmental Report" for establishing watershed wide permitting programs on the Scott and Shasta Rivers. Both the Shasta and Scott Rivers and their tributaries are considered waters of the United States. All proposed discharges of dredged or fill material into waters of the United States must be authorized by the Corps of Engineers (Corps) 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 appears to be within our jurisdiction and a permit may be required for your project. The Corps has a number of permitting options available. Permits may be in the form of a Regional General Permit issued to your office as the sponsor or Individual Permits issued for each project site. Application for Corps authorization should be made to this office. An application Form is available upon request. The application must include plans showing the location, extent, and character of the proposed activity. You should note, in planning your project, 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 and Regional General Permits have already been issued to authorize certain activities provided specified conditions are met. Your completed application will enable us to confirm that your activity is already authorized. You are advised to refrain from starting your proposed activity until we make a determination that the project is covered by an existing permit. Commencement of work before you receive our notification will be interpreted as a violation of our regulations.

Should you have any questions regarding this matter, please call Michael Shirley of our Regulatory Branch at 707-443-0855. Please address all correspondence to the Regulatory Branch and refer to the File Number at the head of this letter.

Sincerely,

for Kelley Reid

Jane M. Hicks
Chief, Regulatory Branch

Copy Furnished:

CA DFG, Redding, CA
CA RWQCB, Redding, CA

County of Siskiyou Planning Department
P.O. Box 1085
Yreka, California 96097

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse and Planning Unit

Arnold Schwarzenegger
Governor

Sean Walsh
Director

Notice of Preparation

October 20, 2006

To: Reviewing Agencies

Re: Scott River Watershed-wide Permitting Program
SCH# 2006102095

Attached for your review and comment is the Notice of Preparation (NOP) for the Scott River Watershed-wide Permitting Program draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Bob Williams
Department of Fish and Game, Region 1
601 Locust Street
Redding, CA 96001

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Senior Planner, State Clearinghouse

Attachments
cc: Lead Agency

Document Details Report
State Clearinghouse Data Base

SCH#	**2006102095**
Project Title	Scott River Watershed-wide Permitting Program
Lead Agency	Fish & Game #1

Type **NOP** Notice of Preparation

Description The project is the Scott River Watershed-Wide Permitting Program. The program is designed to implement key coho salmon (Oncorhynchus kisutch) recovery tasks while facilitating compliance by agricultural operators and those implementing coho salmon restoration projects within the California Endangered Species Act and Fish and Game Code section 1602.

Lead Agency Contact

Name Bob Williams
Agency Department of Fish and Game, Region 1
Phone (530) 225-2365 ***Fax***
email
Address 601 Locust Street
City Redding ***State*** CA ***Zip*** 96001

Project Location

County Siskiyou
City
Region
Cross Streets
Parcel No.
Township ***Range*** ***Section*** ***Base***

Proximity to:

Highways
Airports
Railways
Waterways Scott River and tributaries
Schools
Land Use Various

Project Issues Agricultural Land; Archaeologic-Historic; Public Services; Soil Erosion/Compaction/Grading; Toxic/Hazardous; Vegetation; Water Quality; Water Supply; Wetland/Riparian; Wildlife; Cumulative Effects

Reviewing Agencies Resources Agency; Department of Conservation; Department of Forestry and Fire Protection; Office of Historic Preservation; Department of Parks and Recreation; Department of Water Resources; Department of Health Services; Office of Emergency Services; Native American Heritage Commission; State Lands Commission; Caltrans, District 2; State Water Resources Control Board, Division of Water Quality; State Water Resources Control Board, Division of Water Rights; Regional Water Quality Control Board, Region 1

Date Received 10/20/2006 ***Start of Review*** 10/20/2006 ***End of Review*** 11/20/2006 ıution List

County: Siskiyou

SCH# 2006102095

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- [ ] **Fish & Game Region 3**
  Robert Floerke
- [ ] **Fish & Game Region 4**
  Julie Vance
- [ ] **Fish & Game Region 5**
  Don Chadwick
  Habitat Conservation Program
- [ ] **Fish & Game Region 6**
  Gabrina Gatchel
  Habitat Conservation Program
- [ ] **Fish & Game Region 6 I/M**
  Tammy Allen
  Inyo/Mono, Habitat Conservation Program
- [ ] **Dept. of Fish & Game M**
  George Isaac
  Marine Region

Other Departments

- [ ] **Food & Agriculture**
  Steve Shaffer
  Dept. of Food and Agriculture
- [ ] **Depart. of General Services**
  Public School Construction
- [ ] **Dept. of General Services**
  Robert Sleppy
  Environmental Services Section
- [x] **Dept. of Health Services**
  Veronica Malloy
  Dept. of Health/Drinking Water

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- [ ] **Delta Protection Commission**
  Debby Eddy
- [x] **Office of Emergency Services**
  Dennis Castrillo
- [ ] **Governor's Office of Planning & Research**
  State Clearinghouse
- [x] **Native American Heritage Comm.**
  Debbie Treadway

- [ ] **Public Utilities Commission**
  Ken Lewis
- [x] **State Lands Commission**
  Jean Sarino
- [ ] **Tahoe Regional Planning Agency (TRPA)**
  Cherry Jacques

Business, Trans & Housing

- [ ] **Caltrans - Division of Aeronautics**
  Sandy Hesnard
- [ ] **Caltrans - Planning**
  Terri Pencovic
- [ ] **California Highway Patrol**
  Shirley Kelly
  Office of Special Projects
- [ ] **Housing & Community Development**
  Lisa Nichols
  Housing Policy Division

Dept. of Transportation

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  Rex Jackman
- [x] **Caltrans, District 2**
  Marcelino Gonzalez
- [ ] **Caltrans, District 3**
  Jeff Pulverman
- [ ] **Caltrans, District 4**
  Tim Sable
- [ ] **Caltrans, District 5**
  David Murray
- [ ] **Caltrans, District 6**
  Marc Birnbaum
- [ ] **Caltrans, District 7**
  Cheryl J. Powell

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- [ ] **Caltrans, District 9**
  Gayle Rosander
- [ ] **Caltrans, District 10**
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  Division of Financial Assistance
- [x] **State Water Resources Control Board**
  Student Intern, 401 Water Quality Certification Unit
  Division of Water Quality
- [x] **State Water Resouces Control Board**
  Steven Herrera
  Division of Water Rights
- [ ] **Dept. of Toxic Substances Control**
  CEQA Tracking Center
- [ ] **Department of Pesticide Regulation**

Regional Water Quality Control Board (RWQCB)

- [x] **RWQCB 1**
  Cathleen Hudson
  North Coast Region (1)
- [ ] **RWQCB 2**
  Environmental Document Coordinator
  San Francisco Bay Region (2)
- [ ] **RWQCB 3**
  Central Coast Region (3)
- [ ] **RWQCB 4**
  Teresa Rodgers
  Los Angeles Region (4)
- [ ] **RWQCB 5S**
  Central Valley Region (5)
  - [ ] **RWQCB 5F**
    Central Valley Region (5)
    Fresno Branch Office
  - [ ] **RWQCB 5R**
    Central Valley Region (5)
    Redding Branch Office
- [ ] **RWQCB 6**
  Lahontan Region (6)
  - [ ] **RWQCB 6V**
    Lahontan Region (6)
    Victorville Branch Office
- [ ] **RWQCB 7**
  Colorado River Basin Region (7)
- [ ] **RWQCB 8**
  Santa Ana Region (8)
- [ ] **RWQCB 9**
  San Diego Region (9)

- [ ] Other ____________

Last Updated on 04/28/06

E-8

QUARTZ VALLEY INDIAN RESERVATION
13601 Quartz Valley Road
Fort Jones, CA 96032
ph: 530-468-5907 fax: 530-468-5908

November 17, 2006

Bob Williams, Staff Environmental Scientist
Conservation Planning
California Department of Fish and Game
Northern California - North Coast Region
601 Locust Street
Redding, California 96001

California Department of Fish and Game,

Please find the enclosed the comments submitted by the Quartz Valley Indian Reservation (QVIR). We would like to thank you for this opportunity to provide comments during the DEIS scoping process on the Shasta and Scott ITP and Environmental Check List.

The Reservation is located in both Scott and Shasta Valley's. The health of the fishery in these two water sheds is critical to the health and survival of the way of life of our native people, within the Shasta and Scott and the entire lower-Klamath basin.

We understand the need to compromise and work together with the agricultural community and their established way of life. However, we feel this document is in no way a compromise of two sides and regret that tribe's have not been involved from the beginning of this process.

We will continue to provide our technical comments in a hope that they are considered when preparing the final EIS. If a true desire to restore the fishery in both the Scott and Shasta Valley's exists, then we would expect a final EIS to include some of the issues we have presented.

Thank you.

Sincerely,

Harold Bennett
Tribal Vice-Chairman
Quartz Valley Indian Reservation

On October 11, 2006, Region 1 of the California Department of Fish and Game (CDFG) issued a Notice of Preparation (NOP) of a Draft Environmental Impact Statement (DEIS) for a Scott River Watershed-Wide Coho Salmon Incidental Take Permitting Program. An Incidental Take Permit (ITP) is required by the California Endangered Species Act (CESA) for any land users who may cause harm to any listed species.

Coho salmon (Oncorhynchus kisutch) were found to require protection as a threatened species, under the terms of the federal ESA, throughout their range in northwestern California and southern Oregon, by the National Marine Fisheries Service more than a decade ago (Weitkamp et al., 1995). The California Department of Fish and Game eventually reached a similar conclusion and moved to list coho under the CESA statutes in 2003 (CDFG, 2002). In response to the State's listing, a *Draft Scott Valley Resource Conservation District Master Incidental Take Permit Application* was filed with CDFG in April 2005 (SRCD, 2005).

The comments provided below, draw on both the 2005 *SRCD Draft ITP* and the recently-released *Environmental Check List and Initial Study* (*Initial Study*) (CDFG, 2006). These documents are intertwined. The *Scott River Watershed Sediment and Temperature Total Maximum Daily Loads* (NCRWQCB, 2006) is also referenced here, along with the comments on that document offered last spring by the Quartz Valley Indian Community (QVIC, 2006). The QVIC document is provided as Appendix A to these scoping comments because it provides excellent background information on the factors that limit salmon populations, including their water quality needs, and recommendations for monitoring and restoring cold water fish populations.

Because neither the *SRCD Draft ITP* nor the CDFG *Initial Study* adequately characterize the status of the coho salmon species in northwestern California; streamflow issues related to that status; the role of groundwater extractions on stream habitat; or anything resembling a best-science approach to coho salmon protection and restoration (see: Bradbury et al., 1994), background discussion on these issues is provided here.

AN OVERVIEW OF CDFG'S INCIDENTAL TAKE PERMITTING PROCESS

A fundamental flaw in CDFG's approach to the proposed permitting of the incidental take of coho salmon in the Scott River watershed is that it will not succeed in protecting coho salmon and it will not, therefore, satisfy CDFG's CESA authority for issuing such a permit in the first place.

The basic authority for these incidental take permits (California Fish and Game Code Section 2081) states, in part, that

> (c) No permit may be issued pursuant to subdivision (b) if issuance of the permit would jeopardize the continued existence of the species. The department shall make

> this determination based on the best scientific and other information that is reasonably available, and shall include consideration of the species' capability to survive and reproduce, and any adverse impacts of the taking on those abilities in light of (1) known population trends; (2) known threats to the species; and (3) reasonably foreseeable impacts on the species from other related projects and activities.

The *Initial Study* fails to meet the stated CESA requirements for the use of best available science; it does not properly characterize the true risk of coho salmon extinction; and it does not acknowledge that the continuation of existing land- and water uses in the watershed will, in all likelihood, cause further decline of coho salmon in the Scott River. Because the ITP does not address issues like the excessive diversion of streamflow and the over-extraction of groundwater, flow-related water quality problems in the Scott River will not be resolved and coho salmon will likely continue to decline, or will become extinct altogether. The actions that CDFG would permit will, in fact, jeopardize "the continued existence of the species".

CDFG's use of SRCD Draft ITP submission date as the baseline conditions for the application of CEQA may just meet the minimum requirements of CEQA but it fails altogether to comport with the department's duties under the State and federal endangered species acts and legislative mandates such as the Fisheries Restoration Act of 1985 (CF&G Code Section 2760, et seq.), which contemplates not only the prevention of further salmon population declines in the state, but planning and implementation, by the department, of a doubling of salmon numbers, "primarily through the improvement of stream habitat".

The preponderance of scientific evidence found in 1995 that Scot River basin coho salmon required the protection of State and federal endangered species acts because dams, land use and water extraction activities had so profoundly changed habitat quality that the species was – and it remains to this day -- on the verge of extinction. Maintaining the Scott River coho salmon population at its current depleted level will most likely only postpone their extinction until they are overcome by genetic drift or stochastic events (Rieman et al., 1993).

The *Initial Study* does not reference the *Scott TMDL* (NCRWQCB, 2006) and shows no indication that literature regarding Scott River restoration have been reviewed (Kier Associates, 1991; 1999; NAS, 2003). Ideally the Scott River watershed-wide ITP would work in conjunction with the TMDL because water quality problems are a major reason for coho salmon decline. Given the present tack of the CDFG ITP process, water quality problems are unlikely to be reversed or their remediation may take so long that it will be too late to restore coho salmon.

Actions taken under the *SRCD Draft ITP* and *Initial Study* focus only on coho salmon, which is not the only Pacific salmon species at risk in the Scott River basin nor the species of greatest economic importance. This single species "tunnel vision" results in a lack of protection under the proposed ITP for steelhead trout (O. mykiss) and Chinook salmon (O. tshawytscha) and in fact may pose jeopardy for these species as well.

If CDFG moves forward in its current mode and approves a watershed-wide ITP, it is essentially permitting many activities that are in violation of California and federal laws:

- Lack of flow releases below irrigation dams in the Scott River is not legal under CDFG Code Section 5937

- The listing of the Scott River as impaired under the Clean Water Act (NCRWQCB, 2005) recognizes the river's polluted condition; mandates the need for a TMDL water quality recovery plan; and mandates the cooperation of agencies of State government beyond those with primary responsibility for water pollution abatement.

The issuance of a watershed-wide ITP as proposed by CDFG will shield activities in the Scott River watershed which are inimical to coho salmon protection and restoration from effective and necessary legal challenge.

SUMMARY COMMENTS ON THE *SRCD DRAFT ITP* APPLICATION

The *Initial Study* was written in response to the *SRCD Draft ITP* and refers to it, but does not include detailed information from it on specific actions to be taken. What follows is a brief summary of the *SRCD Draft ITP,* but more details on its stipulations are enfolded in a later section reviewing elements of the CDFG *Initial Study*.

The *SRCD Draft ITP* recommends some measures that would likely improve conditions for coho salmon, but in aggregate the actions recommended would cause jeopardy to the species. Problems exist with water rights, State Watermaster service, groundwater pumping, riparian grazing, fish screens, assessment of coho extinction risk, monitoring and data sharing.

The *SRCD Draft ITP* makes it clear that local stream diverters will only strategically contribute water to improve conditions for coho salmon and only when they are 100% compensated for any lost flow or pumping costs incurred. There is no stated goal of restoring perennial surface flows to the river or its tributaries. The actions outlined in the *SRCD Draft ITP* do not provide flows needed for fall Chinook and winter steelhead, let alone accomplish restoration of flows in the Scott River gorge to aid potential recovery of summer steelhead and spring Chinook.

The *SRCD Draft ITP* lacks scientific rigor in several regards:

1) It uses coho salmon data to infer population increases that the data do not support,
2) It treats recently collected salmon spawning, electrofishing and downstream migrant trapping data as "baseline" conditions, when in fact they present only a recent snap shot,
3) It asserts that increases in coho are related to habitat improvements due to previous local efforts, but supplies no data or information to support that claim,
4) It makes unsubstantiated statements regarding historic stream conditions that are factually questionable (all valley floor tributaries "naturally" went dry), and
5) Raw data to support SRCD report conclusions are not available, which is a requirement for any science-based report or model (Collison et al., 2003).

COHO POPULATION VIABILITY ISSUES AND TARGETS FOR RECOVERY

The *SRCD Draft ITP* states that "CDFG has concluded that the viability of coho salmon runs in the Scott River is uncertain and there is a risk that the proposed activities, without benefit of take avoidance measures, could lead to severe impacts, including possible extirpation of one or more brood years." It suggests that coho have survived despite farming and ranching practices in the past; therefore, with additional conservation measures under the ITP they will at least persist.

Coho salmon almost all spawn at identical intervals of three years, which leads to somewhat isolated year classes. California Department of Fish and Game downstream migrant trapping records (Chesney, 2001; 2002; Chesney and Yokel, 2003) show only one strong year class of Scott River coho salmon. Figure 1 is from the year 2001 when flows were low and trapping conditions ideal, but only 183 coho juveniles were captured because it coincides with a weak year class. Risk of stock loss for coho is high when there are very weak year classes (Rieman et al., 1993; NMFS, 2001; CDFG, 2002).

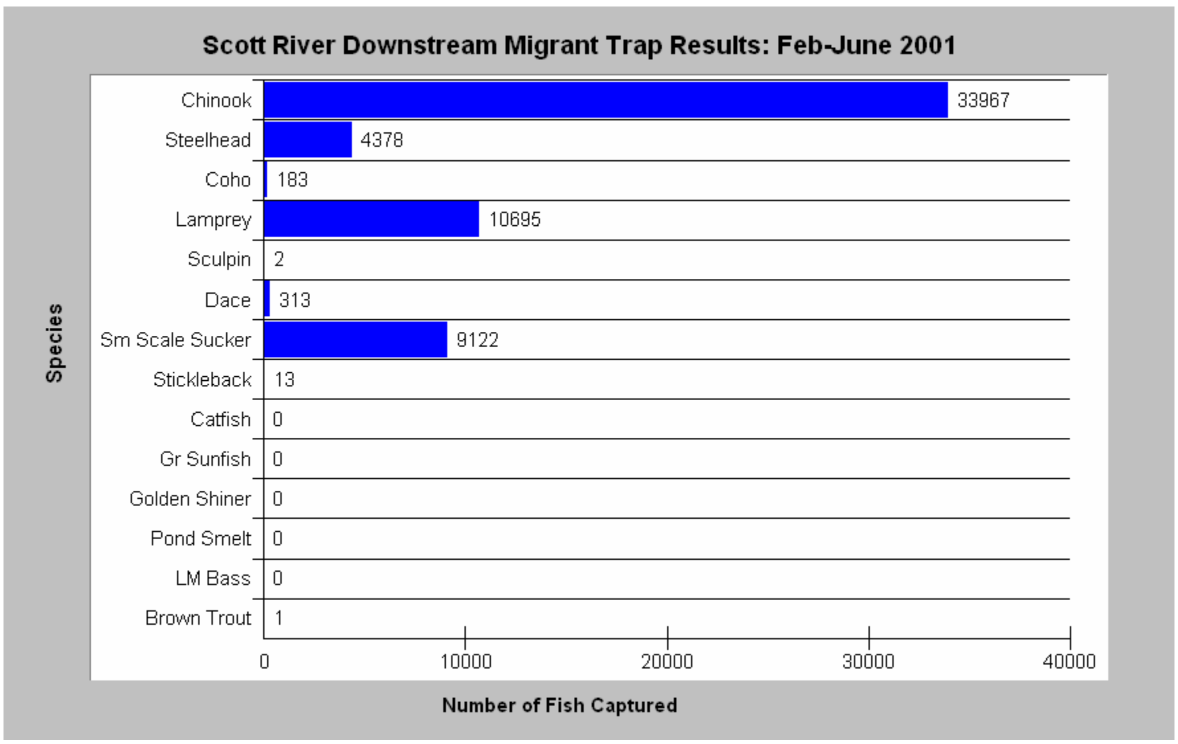

Figure 1. Scott River downstream migrant trapping results from 2001 showing very few coho juveniles. Data from Chesney (2001). Chart from KRIS V 3.0 (TCRCD, 2003).

The *SRCD Draft ITP* defines coho population levels that have been monitored within the last few years as "baseline". While the term baseline may be narrowly correct for conditions at the time of the ITP application under CEQA (see below), baseline usually refers to pre-disturbance conditions in scientific studies. With only one of three year classes at viable population levels, maintaining the current population levels is not acceptable. The DEIS should set a target for annual minimum adult coho population at levels recognized as sufficient for maintaining genetic diversity, which would be at least 500 individuals (Gilpin and

Soule, 1986; Riggs, 1990). The level of returns has in some recent years has exceeded 500, such as 2004-2005 when an estimated 1500 coho returned to the Scott River basin. The challenge is to maintain the strong year class while re-building the two weaker ones, which cannot be done without significant habitat improvement including increased flows.

Recent resurgence of Scott River coho is ascribed to habitat improvements by the SRCD Draft ITP, but may also be associated with improved ocean conditions and wet on-land cycles driven by the Pacific Decadal Oscillation (PDO) cycle (Hare et al., 1999; Collison et al., 2003). Ocean conditions off California, Washington and Oregon switched to more favorable in about 1995 and a shift to unfavorable conditions is likely to occur between 2015 and 2025 (Collison et al, 2003). When ocean conditions become unfavorable and a drier on-land climate returns, freshwater habitat conditions will have to have been improved or risk of Scott River coho extinction will be very high (see Appendix A for more in depth discussion). Consequently, if the CDFG proposed watershed-wide ITP does not increase flows and improve water quality significantly, it will pose jeopardy to the continued existence of Scott River coho.

The *Initial Study* provides no reference to the status or future viability of the Scott River coho salmon population. <u>The DEIS must address this critical issue and include tangible measures for species recovery, including monitoring to support adaptive management</u>. The CDFG DEIS also needs to discuss how a switch of the PDO in 2015-2025 may impact coho salmon and the effect of freshwater habitat quality at that time on their prospects for survival.

The SRCD Draft ITP and Initial Study both target measures for coho salmon only, when Scott River fall Chinook stocks have recently plummeted to an all time low (see Appendix A). As a result, the proposed Scott River watershed-wide coho salmon ITP may pose a risk of jeopardy to Chinook salmon as well (see Biological Resources discussion).

DETAILED COMMENTS ON CDFG'S *INITIAL STUDY*

The CDFG (2006) *Initial Study* for issuance of a Scott River watershed-wide ITP was reviewed and the following comments refer specifically to passages from that document.

<u>Baseline Conditions</u>: The *Initial Study* (p 6) recognizes environmental baseline conditions as those existing at the time the *SRCD Draft ITP* application was filed. Baseline conditions are typically defined in scientific studies as undisturbed conditions such as those that existed prior to human impacts. Numerous tributaries of the mainstem reaches of the Scott River go dry during summer and fall, which is neither their historical condition nor does it comport with a strategy for coho salmon recovery, nor for that of Chinook salmon or steelhead trout. Kier Associates (1991) point out that CDFG (1934; 1974) has battled for decades to prevent the dewatering of the Scott River by agricultural diverters, so the proposed ITP deviates from established CDFG policy. Flows in the Scott River have declined dramatically since the 1970's (see below). The amount of water in late summer and fall has not met needs for maintaining salmonid juvenile rearing habitat in the Scott River canyon on U.S. Forest Service lands as required by the California State Water Resources Control Board (1980) adjudication. Small and large diversion dams in combination also violate CDFG Code 5937:

"The owner of any dam shall allow sufficient water at all times to pass through a fishway, or in the absence of a fishway, allow sufficient water to pass over, around or through the dam, to keep in good condition any fish that may be planted or exist below the dam."

Access for Inspection: The *Initial Study* (p 11) states that non-enforcement personnel must be allowed access to all lands covered under the watershed-wide ITP. The delegation of responsibility to the SRCD of reporting infractions and the need for advance notice before even non-enforcement personnel make inspections calls into question CDFG's willingness to enforce the ITP. This is especially troubling since continuing lack of enforcement of existing law is one of the factors that precipitated the need to list coho salmon.

Avoidance and Minimization of Impacts

Water Management: The *Initial Study* (p. 12) calls only for "compliance with water rights, verification of the quantity of water diverted, and a requirement to install headgates and water measuring devices on diversion structures." To truly mitigate for agricultural activity impacts on coho salmon and other salmonids, flows would have to be increased substantially. Impacts of Scott River salmonids as a result of over-diversion have been apparent since the 1930's (Taft and Shapovalov, 1935) and increasingly depleted over the last two decades. The DEIS must include information provided below on the state of Scott River flows and acknowledge the link between flow depletion and water pollution (see Appendix A).

Ground water pumping in the Scott River valley has been recognized as depleting flows because of interconnections between surface and ground water (Mack, 1958; Kier Associates, 1991; CSWRCB, 1980). Despite the fact that the SWRCB recognized many reaches of the Scott River to be fully allocated, ground water wells have continued to be installed. California Department of Water Resources (CDWR) well log data (Figure 2) show that the highest number of wells were installed from 1971-1980, but that installations decreased between 1981 and 1990. Prolonged drought caused an increase in well installations in the 1990's, but continued at a lower level after 2000. CDWR estimates their record may be 30-50% low as a result of under-reporting. Individual well logs show a decrease in minimum levels consistent with draw down of ground water reserves through pumping (see Appendix A).

Data from the USGS flow gauge at Fort Jones show a substantial decrease in surface flows after ground water pumps began to increase in the 1970's. Figure 3 shows the number of days by water year that average daily Scott River fell below 20 cubic feet per second. The flow of 20 cfs is significant because it is the amount of water legally required under the *Scott River Adjudication* (CSWRCB, 1980) for fish and aquatic ecosystem function on USFS lands in the Scott River gorge (Figure 4). The DWR Watermaster service, however, has never enforced adjudication on mainstem Scott River reaches. The flow data show that even in extremely dry years flow never fell below this threshold prior to 1975, but that now flows frequently fall lower even in moderate or wet years. Low flows contribute to increases in water temperature (NAS, 2003); therefore, they not only reduce the volume of coho juvenile rearing habitat but also the habitat suitability. This area, the Scott River gorge, was also historically used by adult summer steelhead and spring Chinook.

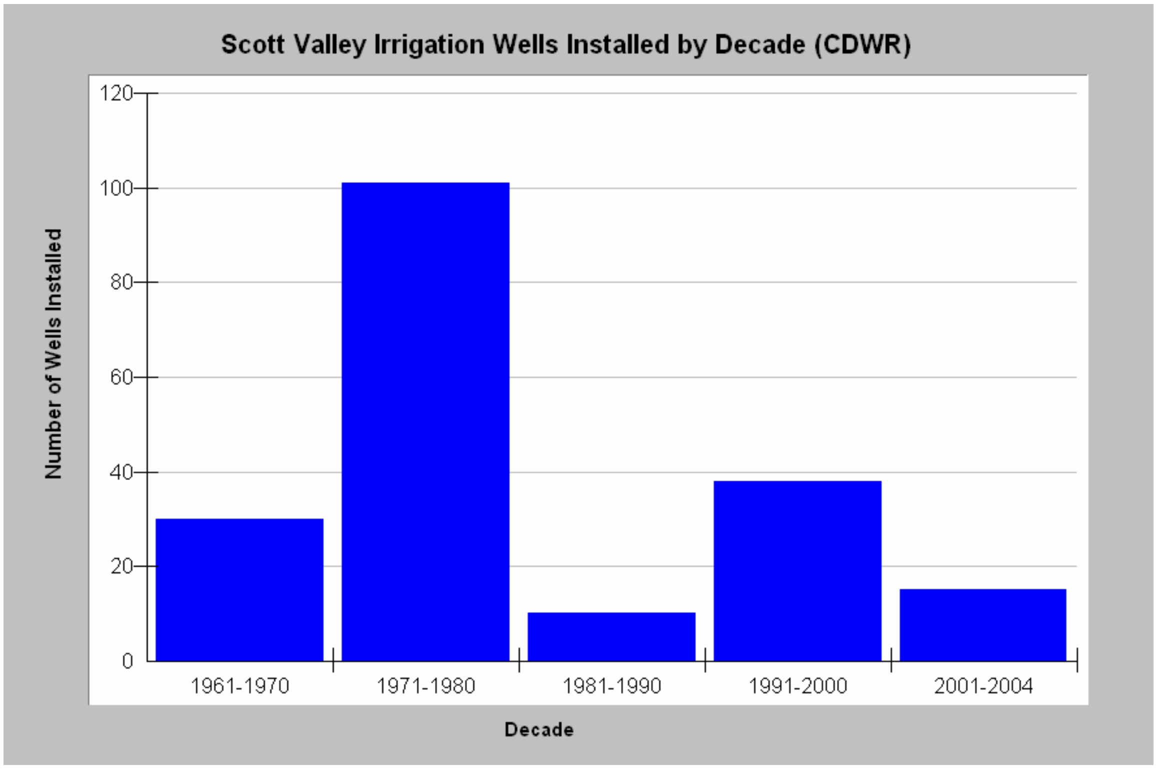

Figure 2. California Department of Water Resources agricultural irrigation wells installed from 1960-2004.

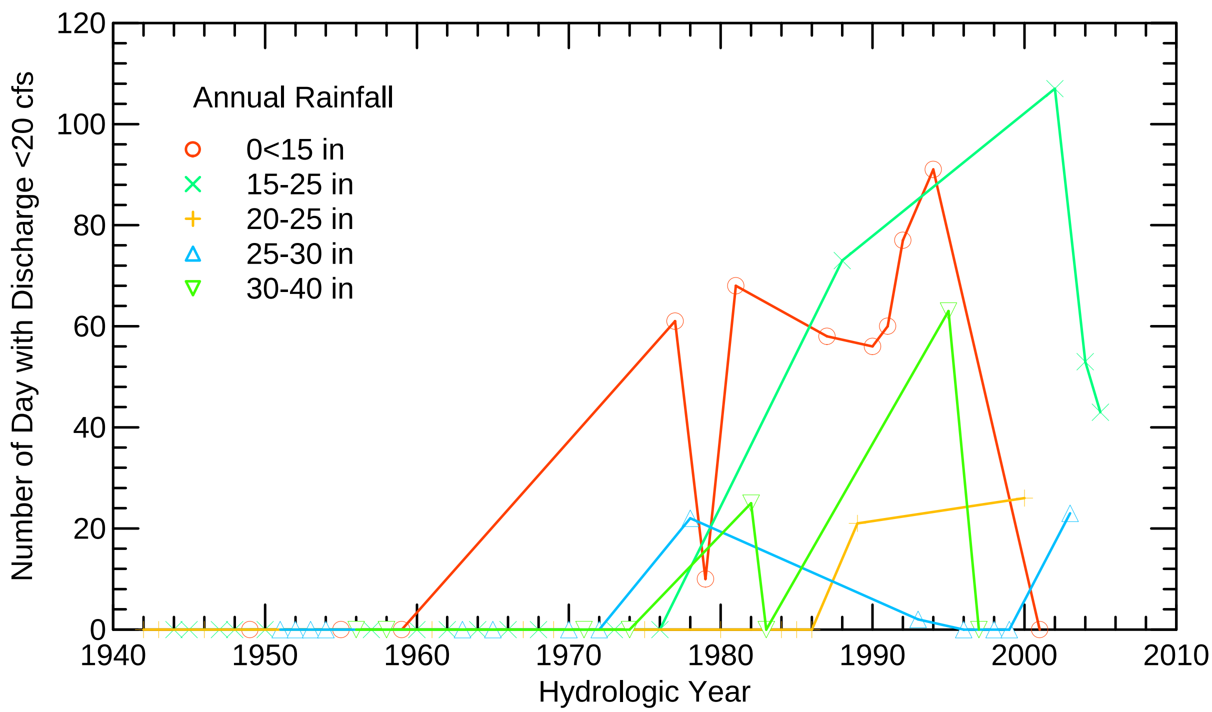

Figure 3. This chart shows the number of days that the Scott River fell below 20 cfs at the USGS gauge below Ft Jones with years with similar annual rainfall grouped together.

Figure 5. Scott River in canyon reach on USFS lands in 2002 showing very depleted flows and very poor fish habitat. Copyrighted photo used courtesy of Michael Hentz.

NAS (2003) gave the following assessment of adequacy of flows for fish in the Scott River: "During the adjudication process, the state and federal governments both failed to negotiate successfully for water that would favor robust populations of fish. There are now no adjudicated rights for fish upstream of the USGS gage in Fort Jones. Below the Fort Jones gage, the U.S. Forest Service (USFS) was allotted flow of 30 cfs during August and September, 40 cfs during October, and 200 cfs from November through March to protect fish. With no Watermaster service, USFS, a junior appropriator, commonly does not receive its adjudicated flows during late summer and fall. Table 1 shows the amount of water required by date at the USGS gauge and Figure 6 shows Scott River flow data from the summer and fall of 2002. Flows fell below minimums required under the adjudication in late July and remained below legal levels until rains began in November.

Table 1. Scott River Adjudication instream flow allotment for U.S. Forest Service needs for instream flow in Scott River canyon (CDWR, 1980 as cited in Kier Assoc., 1991).

Period	**Flow Requirement in Cubic Feet per Second**
November – March	200 cfs
April - June 15	150 cfs
June 16 - June 30	100 cfs
July 1 - July 15	60 cfs
July 16 - July 31	40 cfs
August - September	30 cfs
October	40 cfs

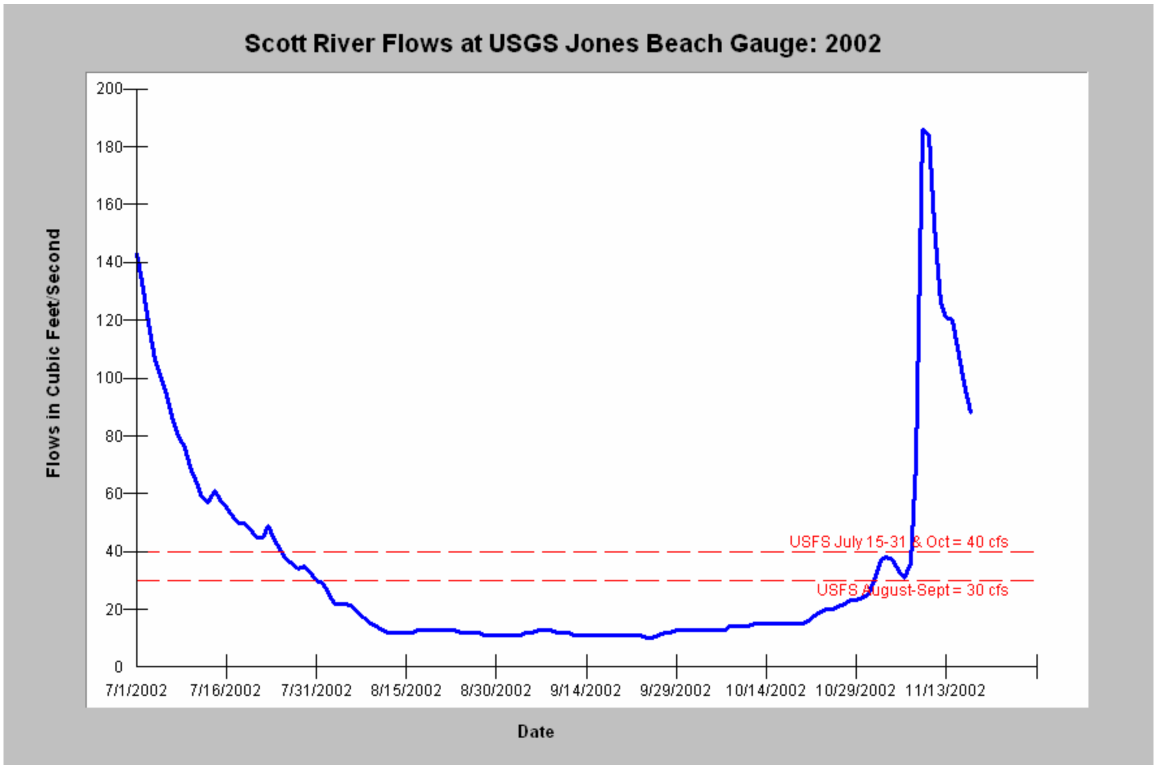

Figure 6. USGS Scott River flow gauge data from July-November 2002 show that minimum flow levels under the Scott River Adjudication were not met from late July to November.

Fish Screens/Fish Passage: The *Initial Study* (p 12) calls for screening of all agricultural water diversions and for remediation of fish passage problems at diversions, which are positive and necessary steps. All screens built since 1972 require that land owners should have them screened at their own expense (Kier Associates, 1991). Passage problems for other species of juvenile salmonids associated with de-watering of tributaries such as Shackelford Creek (Figure 7), Etna Creek and the mainstem Scott River (Figure 8) after coho salmon juvenile out migration have been mitigated since the 50's by CDFG rescue operations which have never been proven effective.

Livestock and Vehicle Crossing: Driving livestock or vehicles through stream beds would be prohibited from October 15-May 15 unless approved by CDFG. This ignores potential fall Chinook salmon spawning that can begin in early October if rains occur.

Figure 7. Shackelford Creek running dry in mid-summer 2002. Copyrighted photo courtesy of Michael Hentz.

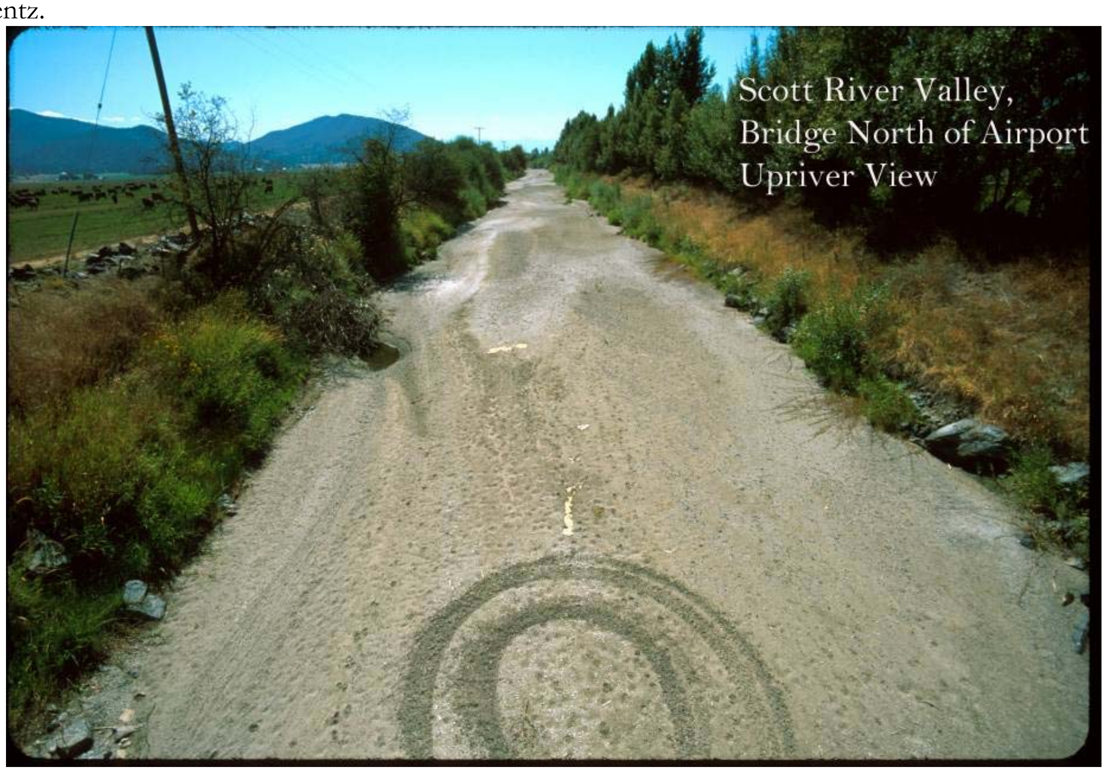

Figure 8. This photo shows the dry bed of the Scott River in a reach near the airport looking upstream. Copyrighted photo used with permission of Michael Hentz. 2002.

Riparian Restoration: Although the *Initial Study* calls for restoring riparian areas and excluding cattle by constructing fences, the riparian buffer width in *SRCD Draft ITP* is not specified. If the distance from stream banks is too small, riparian functions, such as nutrient and thermal buffer capacity may be insufficient to protect and improve water quality. Poole and Berman (2001) noted the influence of riparian width on water temperature, with wider buffer strips more able to create cooler ambient air temperature over the stream and higher relative humidity. Bartholow (1989) showed that mean daily water temperature was most influenced in Western streams by air temperature over the stream, secondarily by relative humidity, with shade ranking third in influence.

The Scott ITP states that grazing in streambeds would continue, but that CDFG and the SRCD would put together plans for grazing to mitigate for any harm to coho. There are serious questions as to whether CDFG has the expertise and staff levels to participate in formulation of such plans and their enforcement. A permanent and effective solution to the problems of grazing in stream beds and the riparian zone of the Scott River and its tributaries would be easement acquisitions, which are not mentioned in the *Initial Study*.

Gravel "Push Up" Dams: The *Initial Study* (p 12) calls for a transition from building temporary gravel dams to use of pumps in most cases, which is a satisfactory approach.

Bank Stabilization: The *Initial Study* states that CDFG would require that all permittees under the watershed-wide ITP use living plant materials as part of bank stabilization, which is called bioengineering (CDFG, 2005). This is an ideal approach to preventing soil loss at the same time as fish habitat is maintained or improved.

Tailwater Recovery: The *Initial Study* calls for prioritizing agricultural return flows would be captured to decrease thermal and nutrient pollution. While this measure is commendable, implementation even for priority sites could be delayed for up to ten years.

Maintain Seasonal Connectivity for Tributaries: Because both French Creek and Shackleford Creek are known to harbor coho salmon, flow connection to the mainstem Scott River will be required before June 15. This action is insufficient to meet CDFG Code 5937 and will not remediate problems for steelhead trout, which are also part of CDFG's trust responsibility.

MITIGATION OBLIGATIONS OF THE SRCD UNDER THE ITP

Scott River Water Bank: The *Initial Study* (p 14) would establish a very bad precedent of paying farmers and ranchers to leave water in the Scott River and its tributaries during critical periods for coho salmon. Public trust protection is required under California water law and the Fish and Game Code; consequently land and water users are obligated to protect common property resources, such as native fish species. Enforcement action is needed if sufficient stream flows to protect public trust are not provided. Ironically, the envisioned water purchases or leases to benefit coho would likely not be sufficient to restore Chinook and steelhead. Thus, future negotiations and payments would be needed to improve flows for those species.

Retirement of some water rights through purchase might be a viable strategy, but only if adjudication were revisited and a mechanism put in place to prevent further extraction by downstream riparian land owners. The Initial Study contemplates the use of Water Code 1707 for getting water dedicated for instream flows, but there is no discussion of tangible measures to acquire such rights or how they would be enforced.

<u>Improve Instream Flows Through Increased Efficiency of Water Use:</u> The call for improving flows and efficiency of water use in the *SRCD Draft ITP* and the *Initial Study* are both positive steps. As noted above, flow increases would be geared only to coho salmon protection and would not likely benefit Chinook salmon and steelhead. The lack of enforcement from the DWR Watermaster (Kier Assoc., 1991) and/or the privatization of Watermaster services (SRCD, 2005) both call into question whether improvements of efficiency in water use would not be negated by re-extraction by downstream riparian water rights holders. Although the *Initial Study* references California Water Code 1707 that would allow dedication of water to instream flows for fish, insufficient detail is provided as to whether these measures would be voluntary or mandatory.

<u>Sugar Creek Flows</u>: The *Initial Study* (p 14) stipulates that 6 cfs of water rights will be dedicated to instream flows within one year after the ITP's implementation. This is very good, but there is not detail on how diversion by downstream riparian land owners will be avoided.

<u>Strategy for Dry and Critically Dry Years</u>: According to the *Initial Study* (p 15), a strategy for dry and critically dry years must be identified within one year of ITP approval. The proposed solution to maintain flows in dry and critically dry years is to increase pumping of ground water with payment from the Water Trust for pumping costs. Ground water extraction in the Scott River basin is already depleting surface flows; therefore, this strategy is unlikely to succeed. The NRCS office in Yreka has recently subsidized water pumps for farmers and ranchers in the Scott River under the rational that they would become less reliant on diverting stream flows. What has happened instead is that stream flows have been reduced and some downstream water users have lost their supply.

<u>Coordinating Diversions</u>: Scott River flows may vary widely within any given day when irrigation is taking place, which may lead to short-term but critical low flow periods that do not show up in average daily flow summaries from USGS. The *Initial Study* calls for coordination of diversions through a Diversion Ramp-Up Management Plan. This is very good and much needed.

<u>Off-stream Stock Water Development</u>: The *Initial Study* (p 15) requires that at least two additional off-stream stock water systems be installed per year under during the term of the watershed-wide ITP. The specific target for decreasing the need for stock water from surface water diversions is migration of adult coho and ignores critical Chinook salmon needs for additional flow for passage and spawning throughout the month of October (see Attachment A).

<u>Spawning Gravel Enhancement</u>: Gravel enhancement in key reaches for coho spawning

is recommended in the *Initial Study* (p 16) but is not a prudent activity in the Scott River watershed. If anything, the river is over-supplied because of increased sediment yield from uplands (NCRWQCB, 2005) and the problem of maintaining appropriate stream substrate is more related to preventing cumulative watershed effects (see Appendix A). Increased peak flows associated with rain-on-snow events can increase bed shear stress and lead to an increase in the average particle size of the stream bed (Montgomery and Buffington, 1993). Watershed disturbance can also lead to an increase in fine sediment and a median particle size that is well below optimal for spawning (Knopp, 1993). The *Initial Study* and *SRCD Draft ITP* both completely ignore upland management, cumulative effects risk, potential impacts to stream channels, agricultural land, and coho salmon. This lack of integration increases the risk that conservation activities performed as part of the ITP could be confounded.

<u>Habitat Restoration Structures</u>: The *Initial Study* calls for installation of habitat improvement structures in reaches of the Scott River used by coho salmon. Placement of large wood debris (LWD) in upper tributary reaches may be necessary because recruitment of LWD has been decreased by logging. Frissell and Nawa (1992) point out that the incidence of failure of instream structures can be very high in streams with steep gradient and/or high peak discharge. Many habitat restoration structures in Klamath National Forest streams, including some within the Scott River watershed, were buried or blown out by the January 1997 storm (de la Fuente and Elder, 1998). Extensive watershed disturbance from logging and road building, especially in the transient snow zone, increases risk of structure failures (see Appendix A). Hence, any structures installed may have only short-term value, and resources would be better spent on other activities.

<u>Large Diversions Identified as Barriers</u>: The *Initial Study* (p 17) specifies that two major, long-standing fish passage problems at large scale diversions and targets them for improvement and ladder installation. The Scott Valley Irrigation District (SVID) Diversion will require a ladder to pass juvenile and adult coho within one year of the ITP approval. The Farmers Ditch is the second largest irrigation system in the Scott Valley and would be converted from a gravel "push up" dam to a vortex boulder weir. The passage in the Initial Study related to Farmers Ditch states that "The weir will be required to pass fish as long as flow is present."

<u>East Fork Scott River Fish Passage</u>: The Initial Study notes that the EF Scott River harbors coho salmon in three of its headwater tributaries, but recommends establishing passage in only two out of three. All three identified tributaries are critical coho salmon habitat and it would be far preferable to acquire easements or strategic parcels to allow them all equal protection.

MONITORING AND ADAPTIVE MANAGEMENT UNDER THE ITP

The responsibility for monitoring under the Scott River watershed-wide ITP would fall to the SRCD and DWR, with reporting requirements to CDFG. Provision of raw data to CDFG is required, which is a necessity in any science-based activity (Collison et al., 2003). The DEIS prepared by CDFG should also include stipulations and descriptions of mechanisms for sharing of raw data with the NCRWQCB, Tribes and the public. While both implementation and effectiveness monitoring are called for, no specific monitoring activities are defined. In order to allow trend monitoring and adaptive management, the <u>DEIS needs to require collection of water quality and fisheries data at the same locations and using the same methods as those employed heretofore</u>. <u>Study design for monitoring under the ITP should not be delegated to SRCD staff nor should specific monitoring requirements be deferred for later action</u>.

The delegation of coho monitoring by CDFG to the SRCD is a cause of concern not only because of data sequestration issues, but also because SRCD staff may not be as well trained as CDFG personnel, increasing the risk of take of coho salmon juveniles. The suggestion that coho caught in downstream migrant traps might be transported back upstream is well-intentioned but a bad idea because it would likely exacerbate competition problems and decrease coho salmon production in tributaries where such transfer activities are carried out.

POTENTIAL AIR QUALITY IMPACTS OF THE ITP

The Initial Study (p 26-35) discussion of air quality and potential impacts of ITP related activities covers nine pages. It correctly concludes that restoration will have no significant impact. The use of such "boiler plate" Environmental Check List produces dozens of pages of unnecessary narrative on similar subjects.

BIOLOGICAL RESOURCES AND IMPACTS OF ITP IMPLEMENTATION

CDFG recognizes that the Scott River watershed-wide ITP will have potential impacts on other species. Discussions above note that the *Initial Study* considers validating flow levels that target coho only and could incidentally harm Chinook salmon and steelhead, if approved. Other discussions note that riparian bird species could be temporarily displaced by riparian restoration activities. As discussed above, the true impact of continuing today's agricultural practices under the ITP on coho salmon is unaddressed in this section <u>because of the *Initial Study's* focus only on environmental effects of implementation of the ITP itself</u>. The DEIS needs to discuss how maintaining current diversion practices with only minor changes for coho will avoid the risk of jeopardy to Scott River Chinook salmon and steelhead populations as discussed above. See Appendix A for more discussion on fall Chinook stock status.

GEOLOGIC HAZARDS AND ITP IMPLEMENTATION

This section in the *Initial Study* (p 39-47) provides some very interesting information on the geology of the Scott River basin, but is otherwise a digression from the subject at hand. One conclusion drawn is that "the project will not likely increase the potential for an eruption of Mt Shasta" or to increase earthquake risk. Really.

CULTURAL RESOURCES

The section on cultural resources in the Initial Study (p 39) only considers the narrowly defined CEQA definition. The Klamath River basin is unique in that it maintains several indigenous Indian Tribes that still reside in their ancestral territory. The DEIS needs to consider impacts to today's Native Americans as a cultural consideration, because actions in the Scott River basin can impact fisheries resources upon which Tribes rely. This is similar to the Klamath Hydroelectric Project impacts, where Tribes are affected by operation although they may be downstream of the immediate project area (Resighini Rancheria, 2005).

POTENTIAL FOR RELEASE OF HAZARDOUS MATERIALS DURING ITP IMPLEMENTATION

The *Initial Study* (p 47-52) concludes after lengthy discussions that the implementation of the Scott River watershed-wide ITP poses minimal risk of a release of hazardous materials into the environment. Possible "take" through exposure of coho salmon to hazardous materials such as pesticides or herbicides associated with normal agricultural operations is not discussed anywhere.

HYDROLOGIC AND WATER QUALITY IMPACTS OF ITP IMPLEMENTATION

Once again, the emphasis of the *Initial Study* on ITP implementation instead of on impacts to coho salmon makes lengthy discussion of hydrologic and water quality impacts (p 54-77) of limited value. The hydrologic conditions of the Scott River basin are well outside the range of normal variability due to intensive land use management and increase the risk of flood damage to coho salmon (see Appendix A). The DEIS needs to discuss how watershed condition and cumulative effects can affect success of ITP implementation.

In order to improve water temperature for coho salmon and meet the requirement for cold water fish as a beneficial use under the Clean Water Act, stream flows must be improved (Appendix A). Other potential water quality problems that could be associated with normal agricultural operations are ignored by the Initial Study. Figure 9 displays the pounds of pesticides and herbicides used in the Scott River watershed between 1990- 2004.

Patterns of use of pesticides indicate that there are more applied in riparian zones or parcels nearer streams than in uplands. Ewing (1999) points out that many pesticides and herbicides can be vary harmful to salmonids and that they may be responsible for population declines across the Pacific Northwest. He points out that many commonly used herbicides that are highly volatile in the atmosphere may percolate into ground water where they may persist for decades. Groundwater feeding streams may then re-introduce pesticides that have been in solution at a later date negatively affecting salmonids and other species. The CDFG DEIS needs to address the use of herbicides and pesticides and their potential affects and make their use a covered activity under the ITP. A list of pesticides determined as harmful to salmonids was released by EPA in July of 2006. According to the CA Pesticide Use Reporting Database, the following "salmon harmful" pesticides are being used in the Scott River mainstem and Shackleford Creek tributary: trifluralin, diuron, and multiple 2, 4-D compounds.

To meet with any success, the DEIS needs to coordinate actions with those recommended in the *Scott River TMDL* (NCRWQCB, 2005) and share responsibility and authority for oversight of Scott River water pollution abatement and restoration of cold water fisheries resources. It also needs to honestly address the issue of how flow affects water quality.

NEEDED ACTIONS TO RESTORE SCOTT RIVER ECOSYSTEM AND COHO SALMON

The National Academy of Sciences (2003) characterizes the prospects for Scott River restoration as follows:

> "Despite widespread decline in suitability of habitat, the Scott River retains high potential for becoming once again a major producer of anadromous fishes, especially coho salmon. The lower reaches of the tributaries on the west side of the basin, and the south and east forks, are still used extensively by coho and steelhead despite considerable degradation of the habitat. In addition to continuing efforts to reduce sedimentation and restore riparian vegetation cover in the streams, the key to restoring coho and other salmonids is to improve access of fish to the upper basin tributaries and to enhance coldwater flows."

Rieman et al. (1993) in *Consideration of Extinction Risks for Salmonids* give council on how to best restore salmonid stocks to decrease extinction risk:

"Maintaining strong populations in the best possible habitats throughout the landscape and preserving the ecological processes characteristic of metapopulations are the best hedges against extinction."

<u>The DEIS must discuss the prospects for coho salmon recovery in the Klamath River basin overall and the role that the Scott River population may play.</u>

Bradbury et al. (1996) also recognize that the most important step in restoring Pacific salmon populations is to protect refugia. In order to protect and restore coho salmon, there needs to be immediate protection of riparian zones and headwater areas of streams with current coho salmon production (i.e. Shackelford, French, Sugar, EF Scott River). CDFG personnel overseeing timber harvest applications should make this a priority.

Instead of narrow cattle exclusion zones, CDFG should work together with the agricultural community, SWRCB, NRCS and non-governmental organizations like the Nature Conservancy to acquire riparian property or easements to increase nutrient and temperature buffer capacity, increase large wood recruitment, decrease near-stream pesticide use and limit sediment contributions from bank erosion. Riparian gallery forests also trap sediment and large wood, keeping them from being deposited and creating a nuisance on farm and ranch land during storms. Land owners would receive compensation for lost agricultural production and establish natural protection mechanisms for the rest of their land from future flood damage. As soil in riparian zones builds up over time, the hydraulic energy of the Scott River will be more focused and capable of transporting excess sediment and scouring deeper pools.

The SRCD Draft ITP claims that previous restoration activities in the Scott River watershed are responsible for increased coho salmon returns yet there are no monitoring data to support that contention. The *ITP* will rely heavily on funding from the Natural Resources Conservation Service (NRCS) from the EQIP program. NRCS policy is to not publicly disclose who receives funds, or anything about the project, without the express written permission of the landowner. This bar to transparency hampers adaptive management and makes it more likely that money will be spent on things that improve the economics of farming, but fall short with regard to benefits for fish. The DEIS needs to stipulate that the location of restoration investments from any public agency be made public and that effectiveness monitoring related to the activity be allowed.

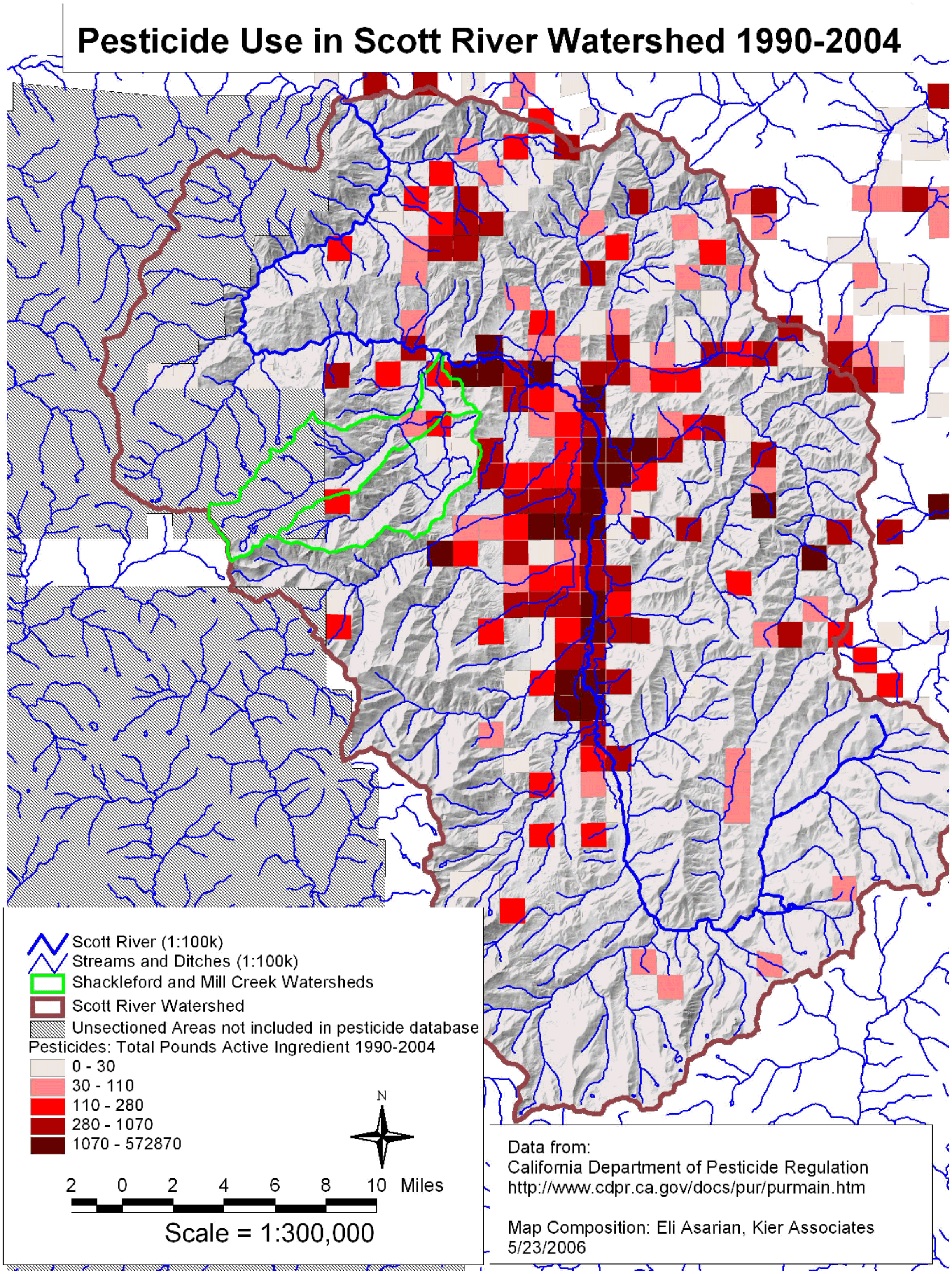

Figure 9. This map shows the total number of pounds of pesticides and herbicides used in the Scott River Valley from 1990-2004. Data from the California Pesticide Use Reporting Database.

NAS (2003) noted that there was considerable activity in the Scott River basin to restore salmon and steelhead, but "the groups have not attempted to resolve the most important but intractable issue: increasing the amounts of cold water entering the tributaries and the main stem." The current approach to the Scott River ITP does not resolve the flow issue in that it avoids discussion of ground water, fails to restore surface flows to mainstem reaches and tributaries and would continue to provide less water than needed for upstream passage and distribution for fall Chinook salmon.

CONCLUSION

CDFG should consider taking a more global approach to Scott River coho salmon conservation and recovery that would benefit all Pacific salmon species and fully remediate the Scott River basin's water quality problems. The current approach of trying to mitigate current impacts, while maintaining the existing agricultural and water use paradigm will not likely prevent jeopardy of coho salmon under the proposed ITP as required under CESA.

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Quartz Valley Indian Reservation
13601 Quartz Valley Road Fort Jones, CA 96032
ph: 530-468-5907 fax: 530-468-5908

November 2, 2005

Catherine Kuhlman, Executive Officer
North Coast Regional Water Quality Control Board
5550 Skylane Blvd.,Suite A
Santa Rosa, CA 95403

Dear Ms. Kuhlman,

The Quartz Valley Indian Community of Quartz Valley Indian Reservation (QVIR), with the assistance of our consultants Kier Associates, have reviewed the public draft version of the North Coast Regional Water Quality Control Board's (RWB) Staff Report for the *Action Plan for the Scott River Watershed Sediment and Temperature Total Maximum Daily Loads* (Scott TMDL). As stated in previous comments, the Tribe hopes that the Scott TMDL will result in measurable and timely improvements in the water quality of the Scott River watershed. Please realize that QVIR is the only federally recognized, sovereign tribal government in the Scott Valley. The consideration that the Board gives to our comments should be representative of this fact.

We appreciate the efforts of your staff in the creation of this document and have worked with them to support the development of the Scott TMDL. With the assistance of our consultants, we have collaborated and shared data to assist in this process. The Board and its Staff should be well aware of QVIRs position on the Scott River TMDL. The Tribe has submitted past comments both verbally and in writing to the Board and Staff. Additionally, my staff and consultants have participated in the Scott River TMDL Technical Advisory Group. Regardless, please find attached the official comments of the Quartz Valley Indian Reservation regarding the Scott River TMDL and Implementation Plan.

The QVIR supports the concept of the TMDL. The Tribe would like to see the Scott River Watershed restored to historical healthy and sustainable conditions. Although we do have some remaining concerns with the document and question some of the implementation approaches, we feel overall that the Scott TMDL is a good place to begin with action towards restoring the historic water quality of the Scott River Watershed.

As stated previously, the Tribe supports a Scott Valley Groundwater Study. We question the sustainability of the current method of unlimited and unregulated groundwater extraction. The Tribe agrees with the TMDLs acknowledgement of the link between ground and surface water and was pleased to see the connection recognized by the Board. However, we question the ability of Siskiyou County to adequately conduct the study based on limited funding and technical capabilities. Agencies such as the Department of Water Resources and United States Geological Survey are better equipped and experienced to undertake a study of this magnitude and nature. We request that QVIR be intimately involved in the development and implementation of the groundwater study. Additionally, all data and information used and produced in this study should be transparent and publicly accessible.

We understand the Regional Board has limited staff and funding, therefore we would like to provide assistance by being involved in the implementation of the TMDL and working on a government to government basis with monitoring and restoration. Additionally, the Tribe would like to be a party in the suggested Memorandums of Understanding between federal agencies and the Regional Board.

I would like to stress the Tribe's sentiment that the state of the Scott Watershed is in peril and needs immediate attention and action. The implementation schedule is not timely enough to protect the watershed in the face of climatic changes, future development, and increased land use. My people have seen the creeks and rivers of Scott Valley dry up and become seasonal waters. We have seen populations of coho, Chinook, steelhead, and lamprey severely decline in the Scott Watershed. To us, water is life. We are concerned about the future of our lives and call upon the North Coast and State Water Boards to protect and heal this watershed.

Attached, you will find technical comments and recommendations. Please contact myself or my environmental staff at 530-468-5907 for further information or clarification on the issues discussed.

Thank you,

Harold Bennett
Vice Chairman

Cc: Beverly Wasson, Chairperson, North Coast Regional Water Quality Control Board
John Corbett, Vice-Chair, North Coast Regional Water Quality Control Board
Dr. Ranjit Gill, North Coast Regional Water Quality Control Board
David Leland, North Coast Regional Water Quality Control Board
Bryan McFadin, North Coast Regional Water Quality Control Board
Rebecca Fitzgerald, North Coast Regional Water Quality Control Board
Art Baggett Jr., State Water Resources Control Board
Adrian Perez, State Water Resources Control Board
Tim Wilhite, United States Environmental Protection Agency
Janis Gomes, United States Environmental Protection Agency
Gail Louis, United States Environmental Protection Agency

Summary of Comments

The public draft Scott TMDL reflects a lot of hard work by the NCRWQCB staff and its consultants. The maps provided are useful, the Guidance for Development of Erosion Control Plans (Appendix C) is exhaustive, and the narrative concerning the processes which impact sediment and temperature conditions is revealing. The recognition of the relationship between water extraction and stream temperatures is laudable.

There are still critical deficiencies in the Scott TMDL technical analysis and implementation plan that are likely to frustrate the success of temperature and sediment pollution abatement efforts and the restoration of coho salmon and other at-risk Pacific salmon species.

Technical analysis:

- The failure to quantify the extent of important land uses that impact water quality, such as timber harvest, road densities, near-stream roads, and road-stream crossings.
- The failure to use all available tools to identify and manage risks to water quality. Use of the readily-available SHALSTAB shallow debris torrent model, for example, would enable the identification of erosion hazard areas that could then be used to evaluate the relationships among past watershed management activities and as a screen for guiding future watershed management decisions.

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- Remote-sensed vegetation data, including change scene detection data, should have been used to characterize forest health, growth and its relationship to cumulative watershed effects.
- The failure to spell out that peak flows in many watersheds within the Scott basin are unnaturally high due to land use impacts. Timber harvest and roads elevate the risk associated with rain-on-snow events and they increase peak flows, which, in turn, accelerate erosion and channel scouring which result in shallow, open streams that are then vulnerable to warming
- The lack of transparency of models and the data used in them is regrettable. All models and data utilized in the Scott TMDL should be available for public review. These datasets include all the GIS data (including roads, streams, and landslides), road surveys, temperature data, and macro-invertebrate data. In comments on the pre-draft, we requested access to these data so that we could evaluate them. Regional Water Board staff have sent only portions of the data, and have indicated that the rest of the data will be arrive later -- but have not yet delivered the missing data.

Implementation:

- Relies far too much on voluntary measures and needs to be strengthened to give dischargers more incentive to improve practices
- Failure to take necessary actions to ameliorate the impacts of water use on water quality.
- Failure to target essential coho salmon habitat and prioritize it for protection and restoration.

- While the technical analysis recognizes cottonwood gallery forest as the potential vegetation for valley riparian areas, the implementation chapter does not set forth a plan that will allow restoration of a more natural sinuous channel with a connection to its floodplain; without such changes, full riparian restoration will likely be confounded.
- Relies too heavily on the State's Forest Practice Rules program, which has been scientifically demonstrated, to both the California State Board of Forestry and the Regional Water Board, to be inadequate to protect stream habitat needed for the recovery of at-risk Pacific salmon like coho salmon. Waste Discharge Requirements are mentioned as a tool, but the TMDL should provide guidance for how they can effectively used to set prudent limits on cumulative watershed effects risks by reducing road densities, road stream crossing density, and restricting the percent of watershed area that can be harvested.

Monitoring:

- The lack of a clear and specific monitoring plan that would help track the success of mitigation and restoration measures, and which would allow for cooperative adaptive management, including Tribal participation, as an element of the TMDL's implementation. The TMDL asserts that a monitoring plan will be developed later, but it would be better to formulate a preliminary plan now.

Spence et al. (1996) point out that aquatic habitat conditions are directly correlated to upland watershed health. The Scott TMDL needs to recognize that in order to restore aquatic habitat diversity capable of supporting species like coho salmon, watershed and riparian conditions need to trend more toward the natural range of variability of vegetative seral stage conditions and hydrologic functions.

The TMDL Action Plan will become an amendment to the North Coast Basin Plan (NCRWQCB, 2003). This will require that the Plan meet the standards of Section 13242 of the California Water Code concerning specific actions, their timing, and the Regional Water Board's responsibility for monitoring such actions and timelines necessary to achieve the water quality objectives that the State sets. The Tribe will be evaluating the final Scott TMDL closely to make sure that it describes mechanisms of degradation, methods of remediation, a timeline to reverse impairment, and clear monitoring steps to gauge the attainment of its water quality restoration objectives.

Additional data produced to support review and implementation of the Scott TMDL

Please review the linked ArcView project assembled by Kier Associates for support of review of the Scott River Sediment and Temperature TMDL on behalf of the Klamath Basin Tribal Water Quality Work Group.

http://www.krisweb.com/ftp/TMDL/scott_tmdl_gis_map_project.zip

These data have also been enfolded into the Klamath Resource Information System (KRIS) database for the Scott, taking advantage of the KRIS Map Viewer feature. Spatial data augment KRIS Version 3.0 and allow all Tribes, the North Coast Regional Water Quality Control Board staff, U.S. Environmental Protection Agency and others cooperating in development of the Scott River TMDL. Data may be used in revision of the Scott River Sediment and Temperature TMDL, but should also prove useful in the implementation phase.

Kier Associates, on behalf of the Klamath Basin Tribal Water Quality Working Group, also produced a SHALSTAB model run for the Scott River watershed, resulting in a map of predicted unstable areas in the watershed. Due to its file size, the SHALSTAB run is being distributed separately. It is available for download at:

http://www.krisweb.com/ftp/TMDL/ScottShalstab.zip

Chapter 1: Introduction

Watershed Restoration and Enhancement Efforts: Section 1.4 of the Scott TMDL lauds the success of Scott River restoration programs, but supplies no data other than that for French Creek to demonstrate benefits to water quality. The *Mid-term Evaluation of the Klamath River Basin Fisheries Restoration Program* (Kier Associates, 1999) is not referenced, although it provides a useful overview of the success of the projects and changes in habitat during the duration of the program efforts that began in 1985. The Scott TMDL needs to require that all data useful for evaluation of restoration projects be publicly shared and it needs to specifically define needed monitoring associated with current and future restoration projects, including organized photo points. Restoration and protective actions need to target those areas with the greatest existing aquatic and biological diversity as a priority (Bradbury et al., 1996).

1.5.6 Hydrology:
The following language was added to section 4.1.2.2, which addresses a pre-draft TMDL comment (QVIC 2005b) that aggradation can also contribute to diminished surface flow, "(Channel dewatering can also be affected by channel aggradation as a result of increased sediment loads.)"

The Hydrology section has discussions of ground water and its relationship to surface flows that would be improved if the effects of wells were included. (for additional comments on groundwater and wells, see section 4.1.2.2 and 5.1.8.2 below)

Chapter 2: Problem Statement

2.3.1 Salmonid Populations
The final Scott TMDL needs to explicitly recognize what is known about coho salmon in the Scott River basin as recommended in early comments by QVIC (2004, 2005b). We suggest that the following language be added to the end of the second paragraph on page 2-5 (after "… no population estimates were made from this information): "In recent years, many surveys have been conducted to identify locations where coho salmon spawn (Quigley, 2005, Maurer, 2002; Maurer, 2003; SRCD, 2004). These data provide clear indication of a difference in strength between year-classes (two are weak and one is strong), and that all

three brood years are showing positive trends (SRCD, 2005). CDFG (2004) and others have produced detailed maps of coho salmon distribution within the Scott River watershed (Figure 1).

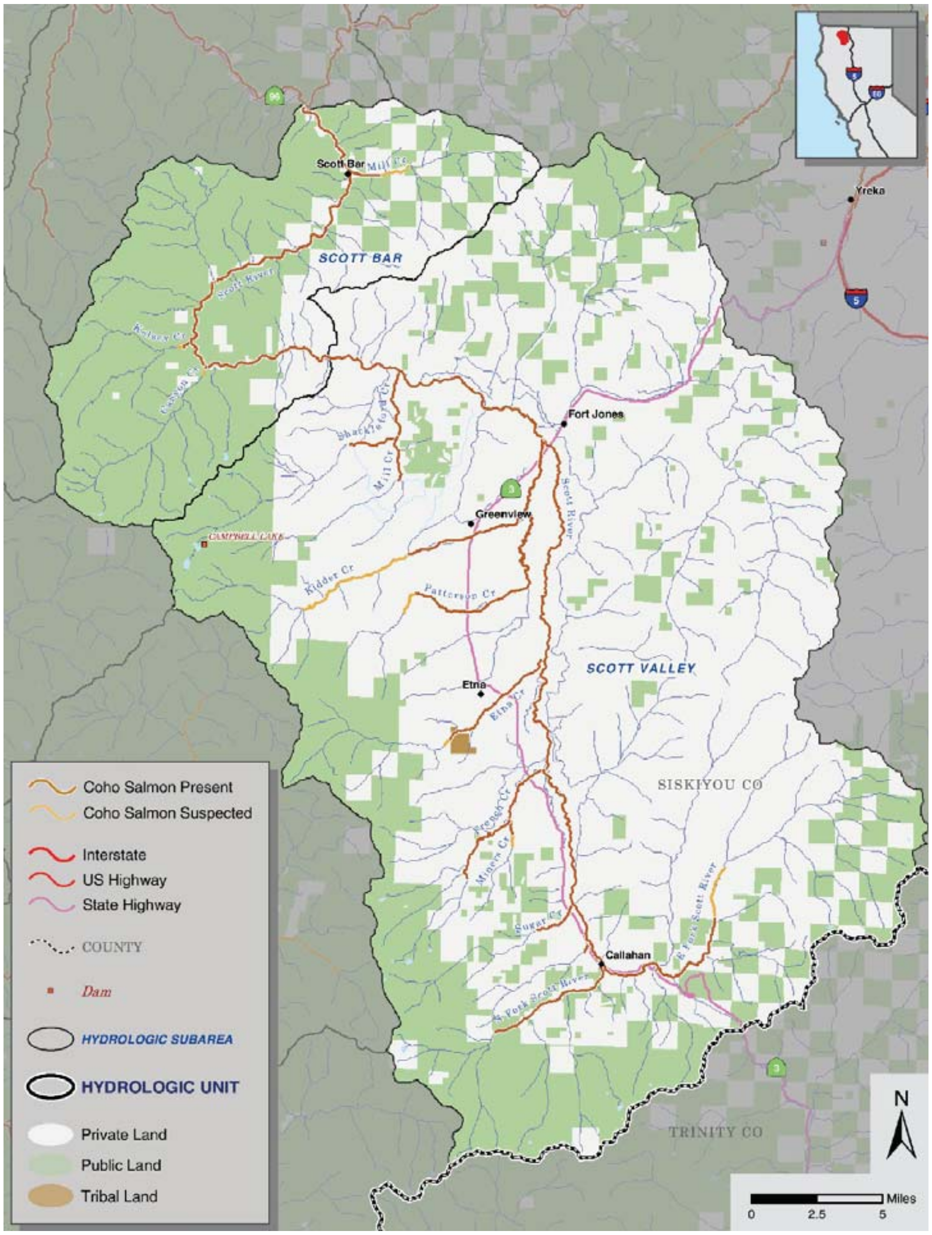

Figure 1. Suspected and confirmed range of coho salmon in the Scott River watershed. From CDFG (2004).

The risk of coho stock loss is high when there are very weak year classes (Rieman et al., 1993; CDFG, 2004). The Final Scott TMDLs in the Scott River basin need to recognize that aquatic habitat problems must be resolved or, at least, showing major recovery trends by 2015-2020, when ocean conditions are likely to enter a period of poor survival for salmon due to the Pacific Decadal Oscillation (Collison et al., 2003).

While the Scott River TMDL posted a chart of fall chinook salmon trends, it did not discuss the fact that the 2004 adult return was the lowest of all time. The South Fork Trinity TMDL (U.S. EPA, 1998c) has goals for recovery of fall and spring chinook populations and the final Scott TMDL should advance similar biological targets. Kier Associates (1999) point out that egg survival of fall chinook spawning in the Scott River canyon may be low due to the potential for intrusion of sand into redds. The final Scott TMDL needs to recognize the basin's pattern of use by fall chinook and specifically address the abatement of sediment problems in the canyon where California Department of Fish and Game data show they spawn (Figure 2).

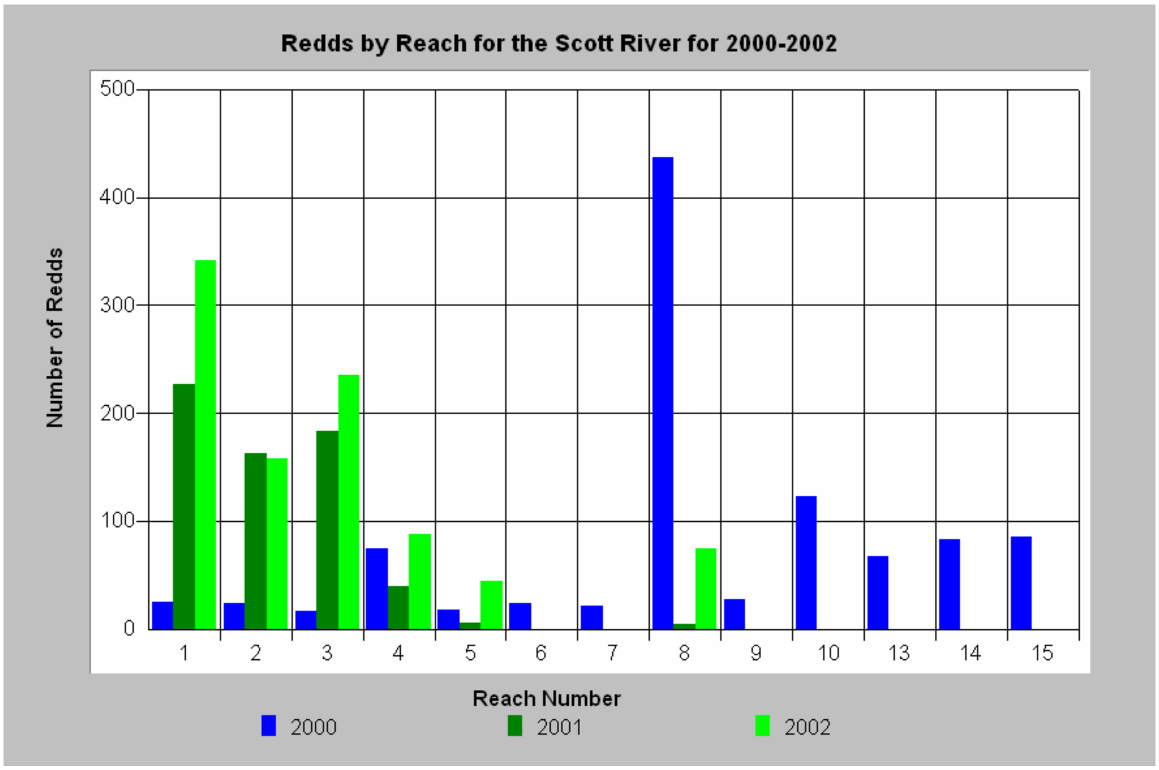

Figure 2. Data from CDFG spawner surveys show that fall chinook salmon spawned mostly in the lowest five reaches of the Scott River in 2001 and 2002, where eggs may be vulnerable due to high bed load of decomposed granitic sands.

The Scott TMDL should recognize also that spring chinook and summer steelhead recovery may be attainable, due to metapopulation function (Rieman et al., 1993), if coldwater refugia are restored in the lower Scott River, sediment burdens diminished, and stream flows improved.

<u>2.4 Sediment Problem Statement</u>: The Scott TMDL Problem Statement should specifically recognize the processes that are causing pollution and the linkages between human activities and water quality impairment. While the origin and mechanisms of water quality problems in the Scott River are well documented (Kier Associates, 1991; 1999; CH2M Hill, 1985), the problem statement describes these relationships only vaguely.

Section 2.4 of the Scott TMDL avoids clear discussion of major topics that must be addressed honestly if sediment pollution is to be abated: 1) road densities and crossings need

to be quantified and limits set to reduce the risk they represent for sediment pollution and damaging peak flows, 2) timber harvests and their links to cumulative watershed effects must be described and disturbance limits set, 3) forest growth needs to be assessed to confirm the assumptions made concerning watershed recovery to background levels for sediment yield and natural hydrologic function, and 4) unstable areas need clear identification so that activities on these areas can be limited.

2.4.1.2 Sediment Desired Conditions and 2.4.3 Watershed Sediment Conditions in the Scott River Watershed

Our comments on these sections are combined. See below for details on each topic.

Road Densities and Road Effects
The issues raised by Kier Associates (2004, 2005a, 2005b) regarding road density have not addressed in the draft Scott TMDL. While recognizing that problems are sometimes associated with roads, there is no target or threshold set to remedy impairment. Although the Scott TMDL mentions road density limits of 2.5 mi. /sq. mi. set by Armentrout et al. (1999) for those Lassen National Forest streams which harbor anadromous salmonids, it fails to set a similar standard: "The Scott River TMDL Action Plan does not propose road density as a specific desired condition for the Scott River watershed, although a decreasing trend in road densities would be beneficial." This is only one of many areas where there is no enforceable, follow-up action to assure the abatement of water quality problems. A target for road densities of less than 2.5 mi./sq. mi should be included in Table 2.4.

Cedarholm et al. (1981) found a direct correlation between road densities and increases in fine sediment harmful to salmonid spawning in streams. The U.S. Forest Service (1996) compared data for bull trout and other salmonid species with road densities over 3,000 interior Columbia River basin watersheds. They concluded that: "the higher the road density, the lower the proportion of sub-watersheds that support strong populations of key salmonids" and that bull trout were absent from watersheds with more than 1.7 mi. /sq. mi. of watershed area. They also found a relationship between fine sediment in streams and road density. The USFS (1996) road density classification is shown as Figure 3. The National Marine Fisheries Service (1996) has required that road mileage be reduced in USFS and BLM lands in the interior Columbia River basin with an emphasis on "road closure, obliteration, and revegetation" where road densities exceed 2 mi. /sq. mi. on.

Roads are known to cause higher erosion on unstable rock types, such as decomposed granite (DG), in the Scott River basin (Sommarstrom et al., 1990). Consequently road density targets for sub-basins with DG need lower targets than 2.5 miles per square mile. Sommarstrom et al. (1990) found that road densities were already 3.7 miles per square mile in the Scott's DG areas in 1990. The only analysis of road density in the Scott TMDL is in Table 3.3, where densities are amalgamated into TMDL sub-basins, which may ignore extremely high localized road conditions, such as the 8.9 mi./sq. mi. of roads on private industrial timber land in Shackleford and Mill Creeks (SHN, 1999).

The VESTRA-developed GIS layer of roads used by the RWB for its TMDL under-represents roads and skid trails in some areas of the Scott watershed (Figure 4). Only major haul roads are included, which means that many temporary roads and skid roads that can increase erosion remain unaccounted. This should be noted under margins of safety in 3.5.4.

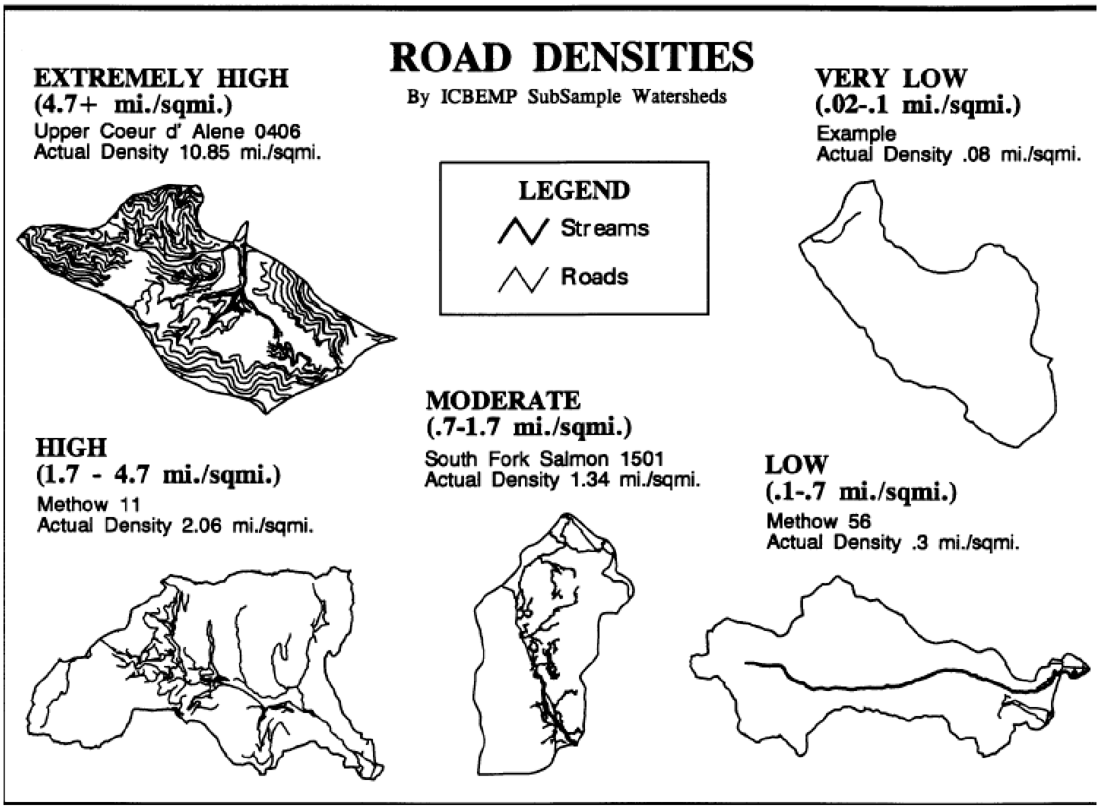

Figure 3. This figure shows the road density classification for the Interior Columbia River basin that is recognized by the USFS (1996) in relationship to maintaining aquatic biodiversity.

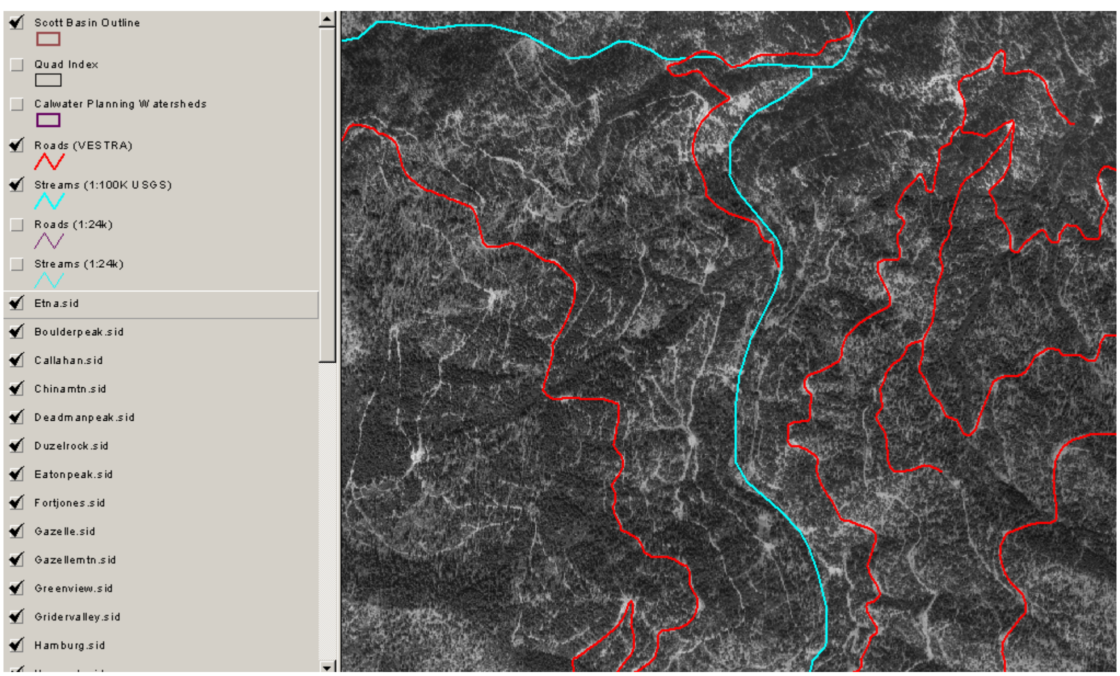

Figure 4. This map is of the upper Patterson Creek drainage and shows mapped roads in red, but USGS orthophotos also displayed show many more roads than are mapped.

The final Scott TMDL should provide a table of road densities by Calwater Planning Watershed. There are 68 Calwater Planning Watersheds in the Scott River basin. A chart should be made for each of the sub-basins where there is high road densities associated with land management. These charts and tables could be easily made from existing data by a capable GIS analyst, of which the RWB has several. In the sediment source analysis for the mainstem Trinity River (Graham Matthews and Associates, 2001), table 37 (page 127) were presented showing road lengths, drainage area, and road densities. An example of a chart made from such data by Graham Matthews and Associates (2001) may be seen at http://www.krisweb.com/krisklamthtrinity/krisdb/webbuilder/nt_c17.htm

A major reason that Scott River basin road densities need to be reduced is that they can alter the hydrology of the watershed as described by Jones and Grant (1996). Roads that cut into hillsides often disrupt sub-surface drainage increasing peak flows during storm events and decreasing ground water recharge that supports summer base flows. Increased peak discharge can also simplify channels, wash away large woody debris, fill pools and cause bank erosion (Montgomery and Buffington, 1993). Without reducing road densities and restoring natural hydrology, natural flow regimes with which salmon co-evolved cannot be restored.

Stream Crossings with Diversion- or Significant Failure Potential

Section 2.4.3.1 of the Scott TMDL deals with the potential for failure at road crossings, but fails to note that some stream crossings in steep areas may cross the paths of debris torrents. The USFS replaced culverts with concrete fords in such high-risk areas of high in the lower Scott River (Kier Associates, 1999). The Klamath National Forest (KNF) study of the 1997 flood (de la Fuente and Elder, 1998) indicated that channel scour in many tributaries was caused by multiple culvert failures at different locations on the same stream. In a study of Sierra streams, Armentrout et al. (1998) recommended that stream crossings be limited to less than 2 per mile of stream to prevent catastrophic failure of "stacked culverts." The TMDL should limit the number of stream crossings and recommend that the USFS method of changing crossing types in high-risk locations be carried out on private land as well. A target of less than 2 crossings per mile of stream in high-risk areas should be added to Table 2.4.

Information should be included in this section from Klamath National Forest data collected as part of the de la Fuente and Elder (1998). The KNF coverage "damage_all" contains information from Emergency Relief Federally Owned (ERFO) Damage Site Reports from the 1997 post-flood field assessments by Forest Engineering. Joining that coverage with its lookup table "all_lut.xls" allows for the viewing of flood damage sites by type. Of the 39 sites identified in the Scott River watershed, 29 were road/stream crossing failures (type "S" in lookup table). It is unknown how many road-stream crossings were surveyed, but the failure rate is likely higher than the TMDL target of 1% of crossings failing in a 100-yr return interval storm, given that the 1997 storm was only a 14-year return interval storm.

Hydrologic Connectivity

The Scott TMDL discussion on Hydrologic Connectivity (in 2.4.1.2) makes assumptions with regard to road-related projects on timberlands that may not be supported. For example, it implies that roads can be hydrologically disconnected and that impacts from roads can be fully mitigated without reducing road densities. A RWB commissioned study by an independent science review panel on coastal streams (Collison et al., 2003) indicated that similar assertions made by Pacific Lumber Company in their watershed analyses (PL, 2002) were unfounded. Collison et al. (2003) noted that "storm-proofing and road upgrading are suggested in the prescriptions to overcome excess sediment production; however, no data have been presented that demonstrates the effectiveness of these programs." Upgrading roads can reduce but not eliminate hydrologic and sediment impacts. Even if roads are well-built and maintained, dense road networks can still cause problems due simply to the sheer number of road miles. If the Scott TMDL applies assumptions related to roads and erosion, the Implementation Plan should require a validation of such assumptions, both with respect to sediment yield and changes in hydrology.

Annual Road Inspection and Correction

Section 2.4.3.3 of the TMDL recognizes the need to inspect roads at least annually and to correct problems promptly when they occur, but it fails to include any enforceable language to meet that objective. The KNF has approximately three times more road miles than can be annually inspected and actively maintained (de la Fuente and Elder, 1998). This suggests that the KNF road network needs to be substantially reduced if road-related erosion is to be controlled. The Redwood Creek TMDL (U.S. EPA, 1998) specifies that "All roads are inspected and maintained annually or decommissioned" and that "Roads that are closed, abandoned, or obliterated are hydrologically maintenance free." The road network in the Scott River basin is well beyond that which can be maintained, and a similar requirement to that in the Redwood Creek TMDL is needed for the Scott TMDL.

Activity in Unstable Areas

There is no specific discussion of disturbance of chronically unstable areas by timber harvest or road building in the Scott TMDL: "analysis of activities in unstable areas was not conducted for this report." The document recognizes that the shallow landslide stability (SHALSTAB) model can be used to successfully predict "chronic risk areas including steep slopes, inner gorges, and headwall swales" (Dietrich et al., 1998) and it also notes the increased failure risk associated with inner gorge locations (Graham Matthews and Associates, 2001). Kier Associates (Derksen, 2005) used 10 meter USGS DEM data to run the SHALSTAB model for the Scott River watershed and has provided that data to RWB staff for use in drafting the final Scott TMDL (Figure 5). This reconnaissance-level activity showed a high correlation between high-risk areas for shallow landslides and those landslides actually mapped by the USFS (de la Fuente and Elder, 1998).

We recommend that the RWB and other use SHALSTAB as a preliminary screen, not necessarily as the ultimate decision tool, to identify unstable areas requiring protection in the Scott TMDL. If actions are proposed in the identified areas, then an on-the-ground survey by a geologist could provide field-based information to supplement the SHALSTAB model.

SHALSTAB maps should be included in Section 2.4.3.6 of the TMDL, and should also be made available electronically in a GIS format. The SHALSTAB maps should also be used in GIS analyses to quantify the percentage of the predicted unstable areas that have been disturbed in each Calwater Planning Watershed.

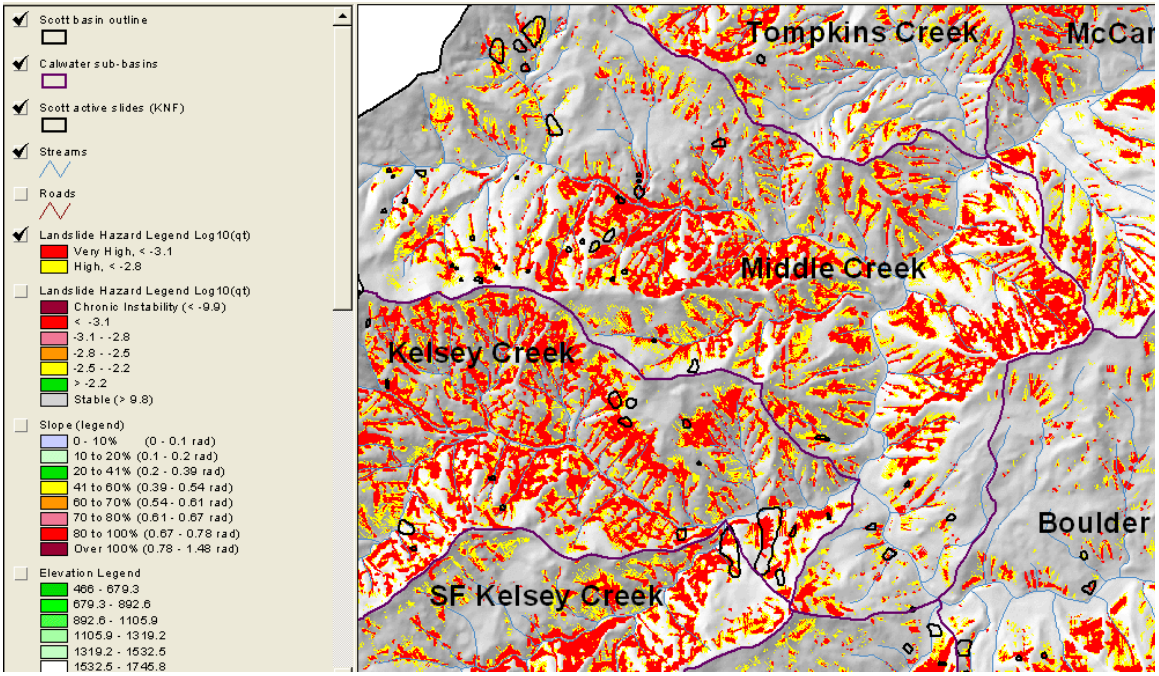

Figure 5. This map is taken from an ArcView project by Derksen (2005) and shows that the risk of shallow debris torrents in the lower Scott River is high and that the large majority of landslides mapped by Klamath National Forest scientists occurred on areas shown here as high risk.

<u>Disturbed Areas</u>

While Section 2.4.3.5 of the Draft TMDL is correct in stating that the there no information or analysis "sufficient to identify a threshold below which effects on the Scott River watershed would be insignificant", it would still be valuable to use existing data to calculate disturbed areas. Timber harvest data are available for all periods from the Klamath National Forest, but only between 1991 and 2001 on private land from CDF. Similar to the road density and road location maps requested above, <u>we recommend that the RWB include TMDL tables and charts of the percentage of each Calwater Planning Watershed that has been timber harvested over the period of available data, and include them in section 2.4.3.5</u>.

There is no indication there was any serious effort by the TMDL authors to quantify timber harvest, except generally under "activities", on unstable lands even though timber harvest has been linked to sediment production and changes in hydrology by recent northern California studies conducted for the State, including for the RWB itself (Ligon et al, 1999; Dunne et al, 2001; Collison et al., 2003). Reeves et al. (1993) suggest that a maximum of 25% of a watershed should be harvested in 30 years in order to maintain diverse assemblages of Pacific salmon. Ligon et al. (1999) pointed out that the lack of quantification and limits on timber harvest was confounding efforts to control watershed impacts and protect Pacific salmon in California.

Sommarstrom et al. (1990) indicated that "39% of the granitic area has been harvested, not including site re-entries, based on data from 1958-1988 for public lands and 1974-present for private lands." Decomposed granitic soils are notoriously xeric after timber harvest and the regeneration of forest vegetation can be slow (TCRCD, 1998). Consequently, timber harvests not mapped by the RWB and its staff that occurred between the late 1970s and 1992 may still be contributing to cumulative watershed effects, including sediment yield.

Analysis of Cumulative Watershed Effects
The RWB staff should be using remote sensing data for reconnaissance and analysis, such as change scene detection, to understand the patterns of landscape disturbance and forest growth and to build that knowledge into the TMDL. Change scene detection involves the use of a series of Landsat scenes from different years in order to compare patterns in landscape change over a given period (Levien et al., 2002). The necessary data are available from the California Department of Forestry (CDF) and U.S. Forest Service Spatial Analysis Lab in Sacramento for the period 1994-1998.

Figure 6 shows a summary of change scene data from 40 of the 68 Scott River Calwater Planning Watersheds sorted by the highest level of disturbance. Areas with the highest rates of recent disturbance have the greatest risk of CWE and should be studied as a priority and called out as a concern. The northeastern and northwestern parts of the Scott Valley (the West Canyon and East Canyon sub-basins) watersheds had the highest change in vegetation owing to the high rates of timber harvest on both private and USFS lands. Patterns of disturbance include sensitive headwaters areas, inner gorge locations, and riparian zones (Figures 7 and 8).

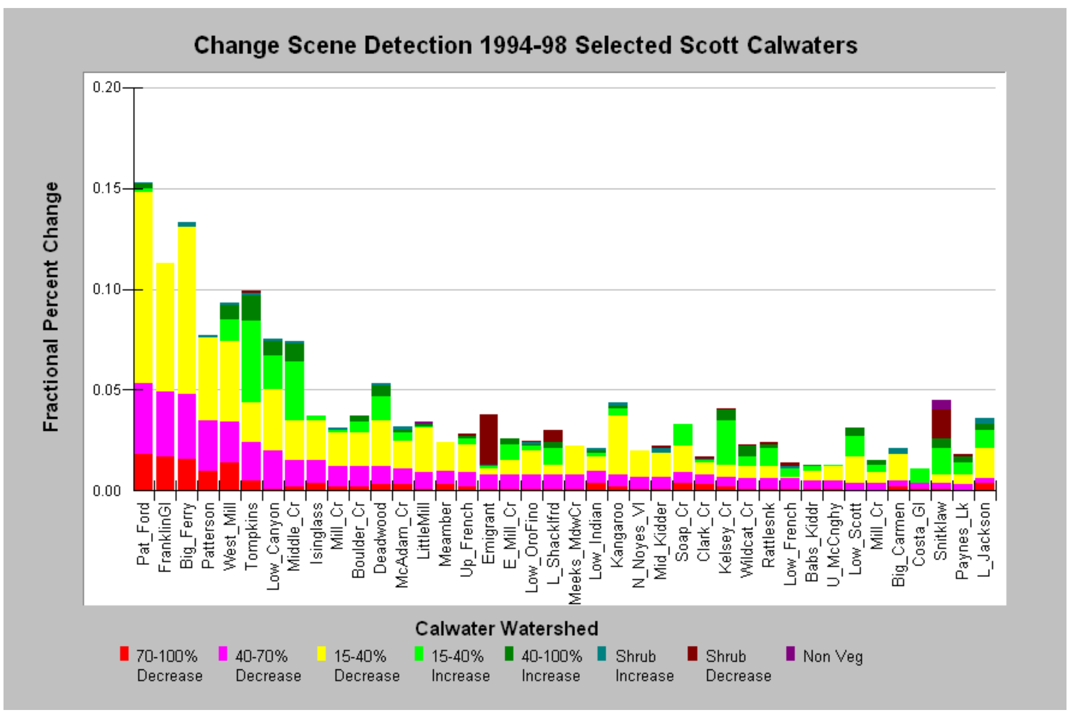

Figure 6. This chart shows change scene detection for 40 Calwater Planning Watersheds in the Scott River basin based on USFS and CDF interpretation of Landsat scenes from 1994 and 1998.

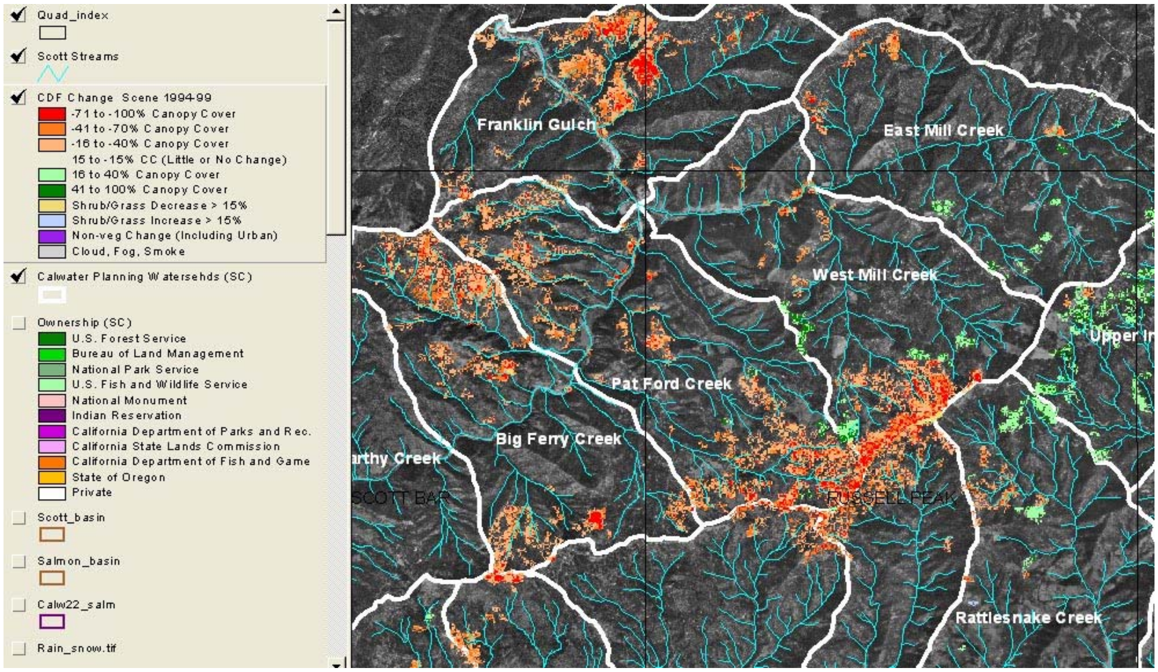

Figure 7. Landsat change scene detection from 1994-1998 shows major canopy reduction.

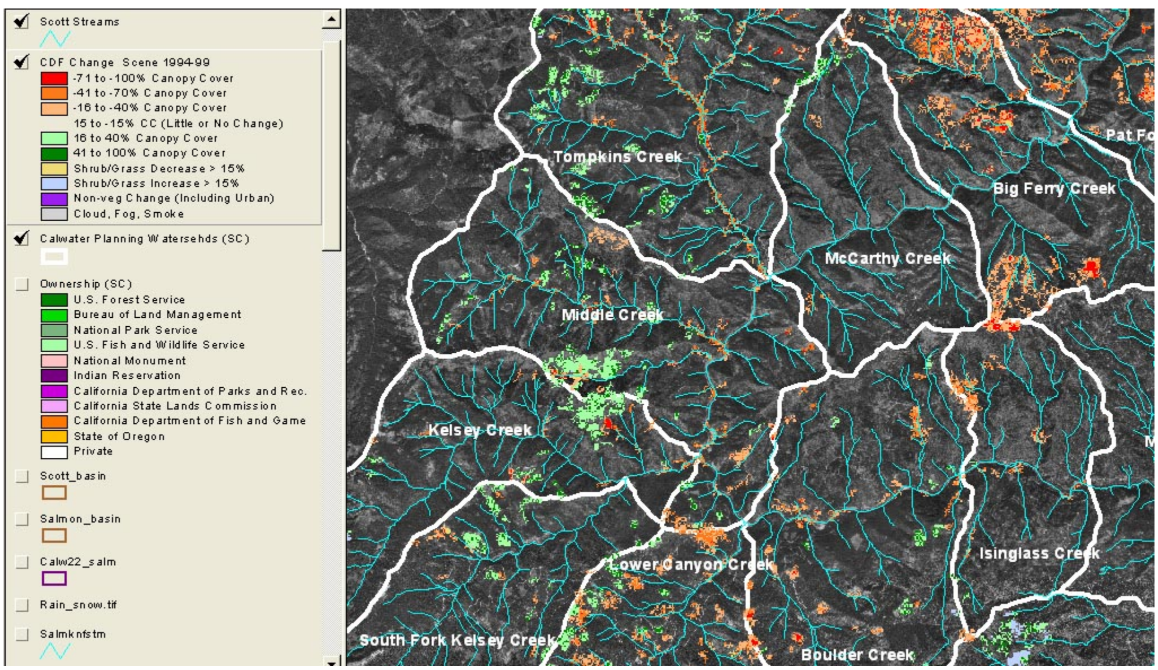

Figure 8. Change scene detection from 1994 and 1998 Landsat images for West Canyon sub-basin areas shows forest canopy reduction from logging (orange and red) and forest regrowth (green) where trees are growing back in areas formerly harvested or burned.

The West Canyon (northwestern area of Scott watershed) is largely owned and managed by the U.S. Forest Service, but timber harvest activity is widespread (Figures 7 and 8). While canopy reduction shows areas recently harvested, it shows tracks of debris torrents and channel scour as linear patterns bordering Tomkins Gulch and lower Middle and Kelsey

Creeks. The channel-resetting debris torrents caused by the January 1997 storm were a very high level of impact for a 14-35 year return interval event (de la Fuente and Elder, 1998). Patterns of disturbance indicated that roads, clear cuts, and previous fires tended to elevate contributions of sediment (Figure 7) and those failures often occurred in the rain on snow zone. Green polygons displayed in change scene data indicate growth in areas that were logged previously or disturbed by fire in the 1980's. Forest recovery after logging in this geographic area is good because it is the wettest portion of the Scott River basin, but regeneration in more arid sub-basin areas appears much lower.

Although the TMDL did not identify impacts from landslides and sediment to the East Fork Scott River sub-basin, the East Fork experienced channel scour and flood damage as a result of the January 1997 storm event (Kier Associates, 1999). Timber harvest was high during the period of 1994-1998 on public and private land in some areas that are likely subject to rain-on-snow events in this sub-basin (Figure 8). Patterns of disturbance in transient snow zone and linkage to increased peak flow and channel scour of the East Fork need to be explored. Lack of tree growth in areas previously harvested may cause a window of extended risk for rain-on-snow events (Figure 9). Patterns of road failures from de la Fuente and Elder (1998) are similar to other areas in the transient snow zone. These patterns likely extended to private timber lands in the Westside TMDL sub-basin but lack of access to private lands prevented appropriate assessment by RWB staff.

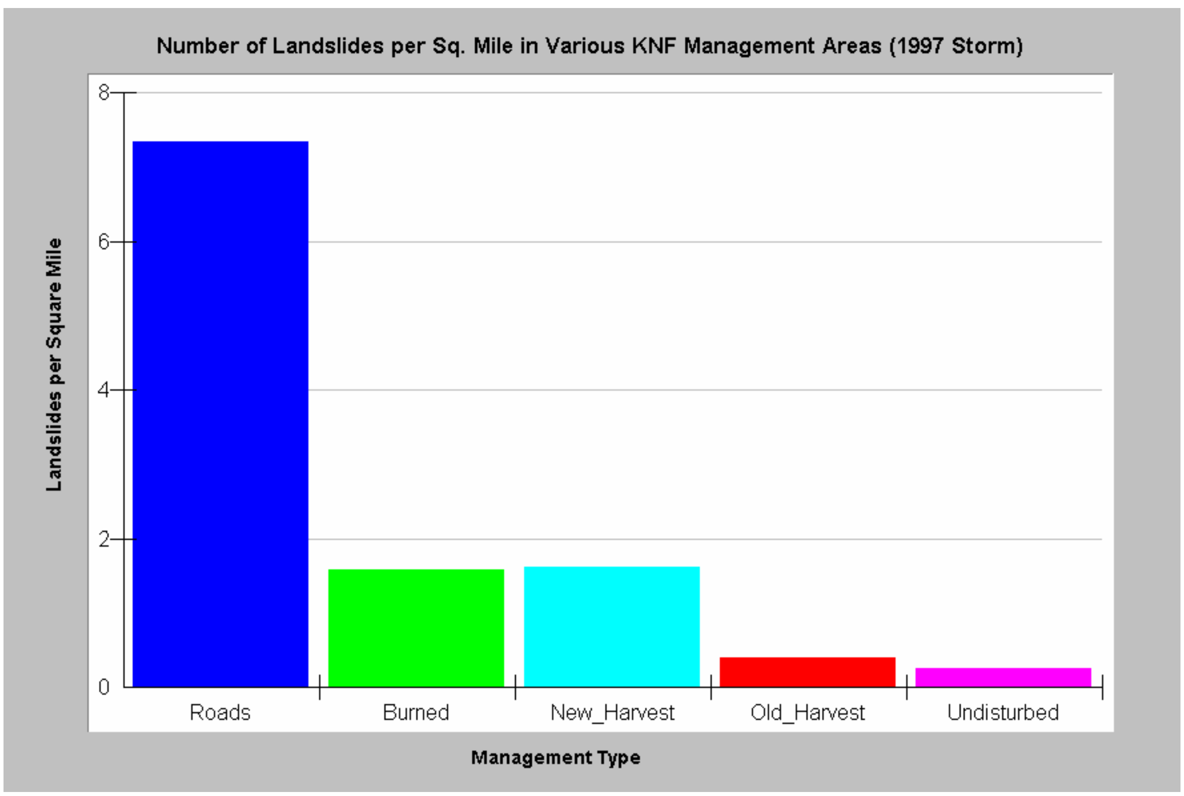

Figure 9. This summary chart is based on data from de la Fuente and Elder (1998) regarding 1997 flood effects and shows few landslides occurred on undisturbed lands of the Klamath National Forest, and slide frequency was associated with human disturbance.

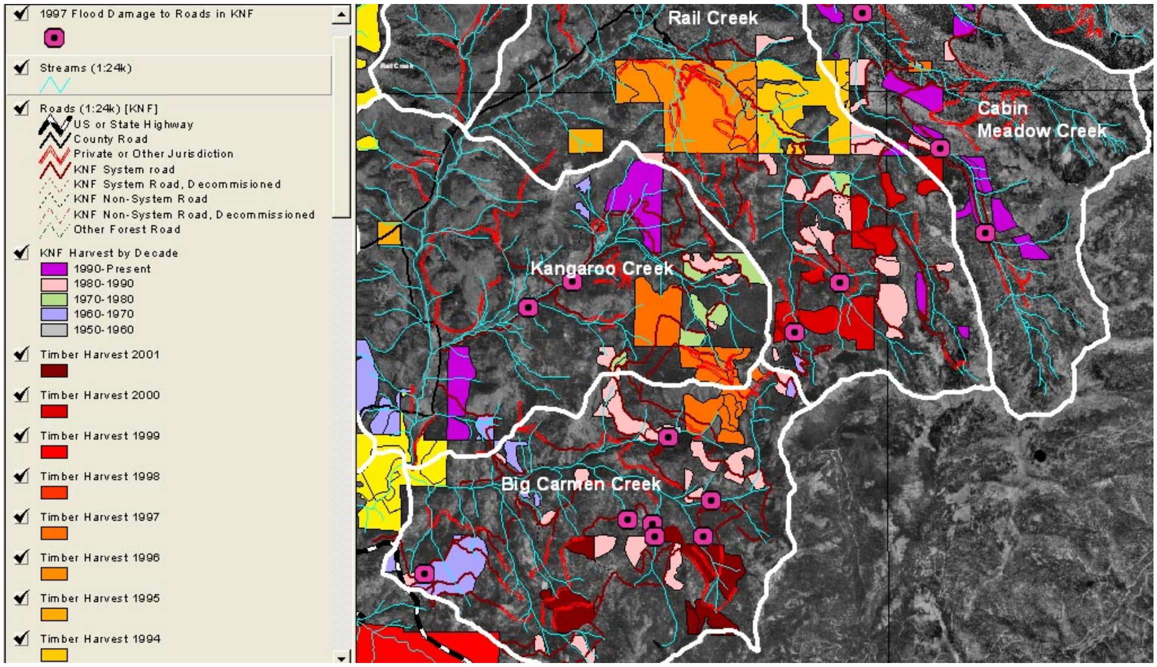

Figure 10. Several East Fork Scott River Calwater Planning Watersheds are shown here with timber harvests, roads and 1997 flood damage sites indicating cumulative effects. Lands include a mix of private and USFS ownership. Data are from the USFS and CDF. Discussion below.

Berris and Harr (1987) and Coffin and Harr (1991) found that old forests trap snow in the canopy and return moisture directly to the atmosphere as a result of ablation. They found that snowfall in a heavily managed or clear-cut forest tends to build up in a snow pack that is less subject to ablation. Consequently peak flows in the transient snow zone may be increased over normal by rain-on-snow events.

Figure 8 shows change scene data for 1994-1998 in the East Headwater TMDL sub-basin with extensive timber harvest, but little forest re-growth. Figures 9 shows Klamath National Forest timber harvests by decade in the Kangaroo Creek and Big Carmen Calwater Planning Watersheds, followed by remote sensing vegetation data in the same area (Figure 10). Comparing the two maps shows that there was little or no re-growth after timber harvest in the 1980s with the polygons of previously logged areas showing up clearly as Non-Forest or Saplings. This indicates problems with forest regeneration. Such stunting would lead to increased and continuing risk of damaging flows due to rain-on-snow events.

<u>A map of the transient snow zone (Figure 11) needs to be added to the Scott TMDL as well as a discussion of increased peak flow, channel scour and resulting increased water temperature</u>. The rain-on-snow zone information provided by Kier Associates is based on Armentrout et al. (1999) and recognizes 3,500 to 5,000 feet in elevation as the area of greatest risk. In order to truly remediate problems as required by law, the TMDL should call for reduced road densities and timber harvest, especially in the transient snow zone.

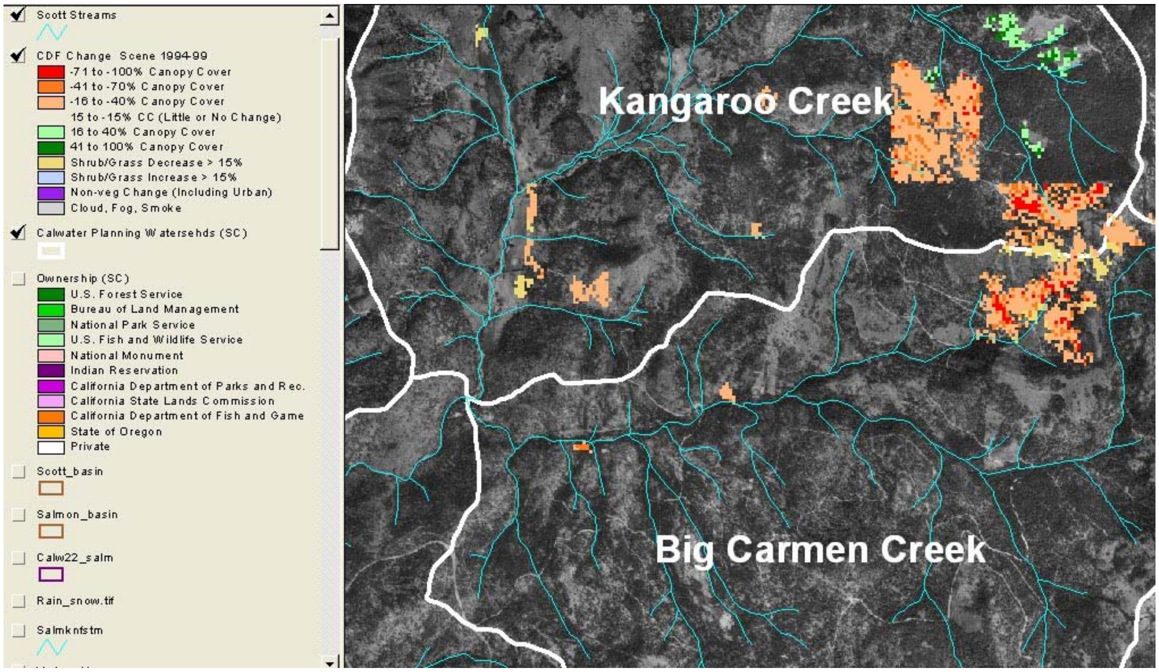

Figure 11. Change scene detection from the USFS and CDF (1994-1998) in East Headwater TMDL basin shows decrease in canopy due to timber harvest, but little forest growth (green). Note that Big Carmen Calwater has widespread indication of earlier logging, sparse tree cover, but no signs of canopy increase.

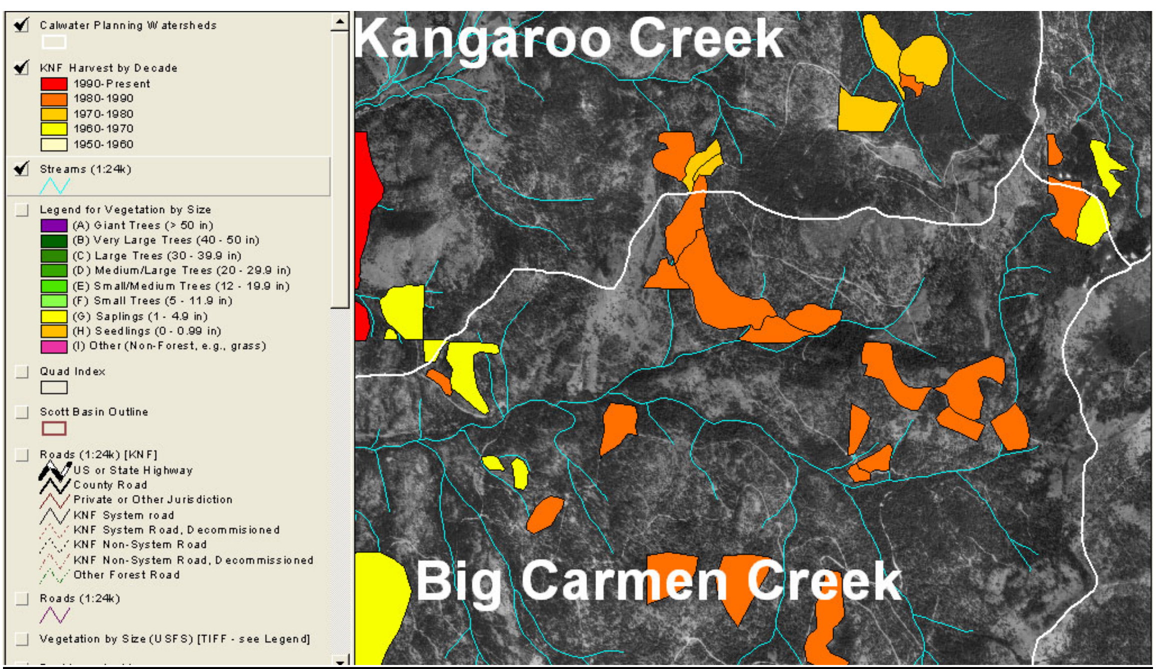

Figure 12. Klamath National Forest timber harvests by decade are displayed for parts of the East Fork Scott in the Kangaroo and Big Carmen Creek Calwater Planning Watersheds. Note the shape of polygons of timber harvest in the 1980s for comparison with Figure 9.

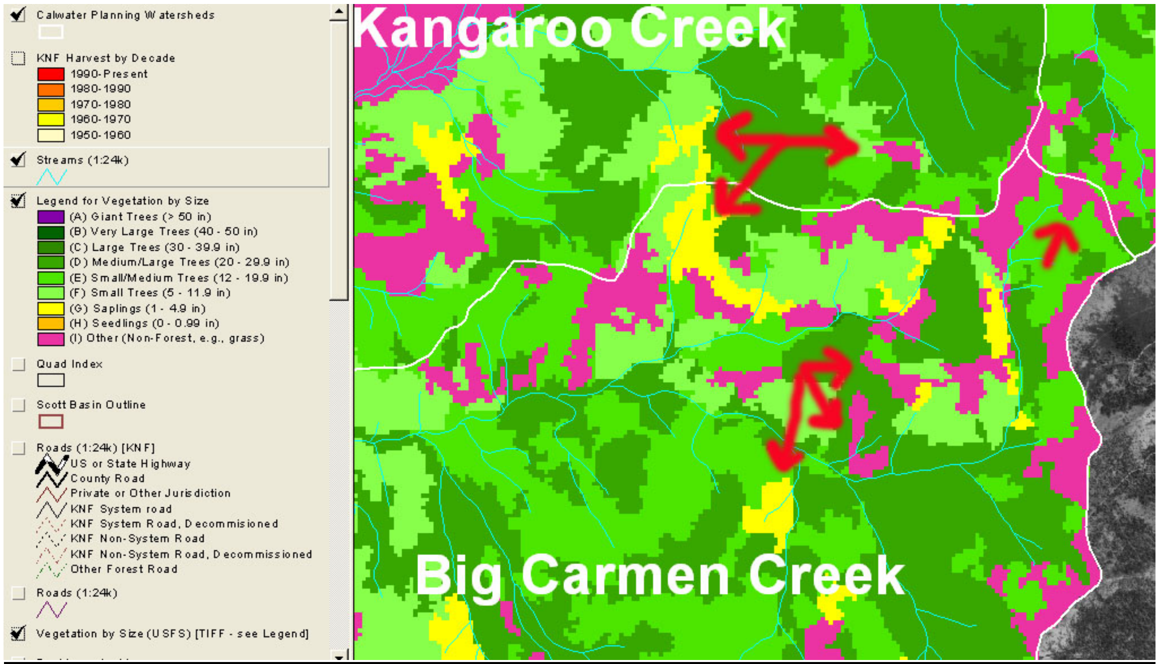

Figure 13. This map of vegetation and tree size is derived from a 1998 Landsat image and shows the same geographic extent as Figure 8. Note that polygons from previous harvest in the 1980s are clearly visible as Non-Forest and Saplings (red arrows point out), indicating extremely slow vegetation growth, which extends the duration of cumulative effects risk of increased flows, especially since this area is in the rain-on-snow events zone.

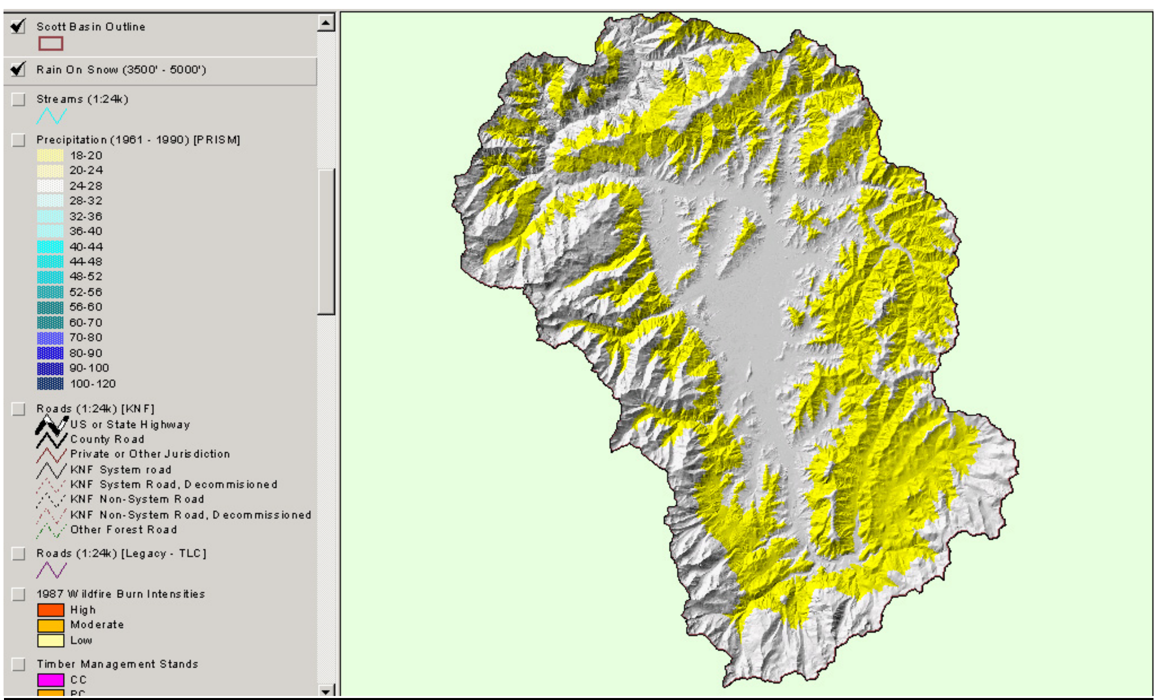

Figure 14. This map shows a band of elevation from 3500 feet to 5000 feet to represent the transient snow zone in the Scott River basin following the convention of Armentrout et al. (1999).

2.4.2 In Stream Sediment Conditions: Table 2.2 in section 2.4.1.1 of the Draft Scott River TMDL partially remedies deficiencies pointed out in pre-draft TMDL comments (Kier Associates, 2005b) by including reference targets for some instream conditions. While many targets are those adopted by previous TMDL processes (U.S. EPA, 1998a; 2001), several found in other north coast studies have been overlooked. The following parameters should be added to Table 2.2: cross-sections, median particle size distribution, volume of sediment in pools (V*), turbidity, mainstem pool depths, and tributary pool depths (see details below). The RWB staff acquired a great deal of data related to channel conditions for the Scott TMDL, but useful summaries (i.e. charts or tables) for most of the datasets are missing from the document.

2.4.2.1 Benthic Macroinvertebrate Assemblages: The Scott TMDL sets target conditions using the Russian River Index of Biotic Integrity (IBI) for comparison. Although the IBI was derived without control streams as part of sampling regimes, values seen in Table 3.2 seem similar to those used nationally to describe healthy streams (Barbour et al., 1999; Barbour and Hill, 2003). The use of the IBI index score of 18 is appropriate, but the EPT Index, Percent Dominance Index and Richness targets in Table 3.2 should also be applied.

2.4.2.2 Riffle Embeddedness: While riffle embeddedness is one measure of suitability for salmonid spawning, it is more subjective than fine sediment measurements. The USFS survey data acquired by the RWB for the Scott TMDL were not provided with any metadata, so it is not known whether all reaches measured were of the same gradient or if channel confinement varied between sites. Habitat typing data for the Scott River basin should have been acquired and queries run for embeddedness so that in-stream conditions could be compared between watersheds with varying upland conditions. (See chart example at http://www.krisweb.com/kristenmile/krisdb/webbuilder/bw_c15.htm)

2.4.2.3 Large Woody Debris: Because there are no data regarding large wood in streams, discussion of its abundance and distribution are lacking in the Scott TMDL. This is a substantial problem because of the importance to coho salmon of pools formed by large wood (Reeves et al., 1988) and because large woody debris may be linked to downwelling and improved local water temperature conditions (Poole and Berman, 2001). Change scene detection shows extensive timber harvest in riparian zones (see Temperature section below). Reeves et al. (1993) found that timber harvest reduced large wood supply to streams, which compromised habitat diversity and caused loss of Pacific salmon species diversity. McHenry et al. (1998) described major reduction of large wood in Olympic Peninsula streams and noted that time required for re-growth of trees large enough to assist aquatic habitat complexity could require over 100 years.

Large wood delivery in steep, headwater swales is largely a result of landslides. If areas with high risk of debris sliding are harvested, the rate of failure increases as a result of loss of root strength (Ziemer, 1981), but large wood that would help meter sediment can be greatly reduced (PWA, 1998). The Scott TMDL needs to follow the guidance of Dunne et al. (2001) and use the best available tools, including remote sensing data and models to examine the relationship of timber harvest and large wood recruitment, particularly in tributaries that are known to be critical habitat for juvenile coho salmon rearing. The final TMDL should specifically describe problems with timber harvest in riparian zones in or above reaches inhabited by coho salmon so that large wood recruitment can be protected as part of waste discharge requirements under the timber harvest planning process.

2.4.2.4 Pool Distribution and Depth Conditions: Based on comments submitted on the pre-draft, staff added information on pool distribution and depth conditions to the TMDL. These data further confirm sediment impairment in the Scott River watershed. If RWB staff have habitat typing data in electronic form, then summary charts of pool frequency and depth should be constructed similar to one for the Ten Mile River (IFR, 2001) (see http://www.krisweb.com/kristenmile/krisdb/webbuilder/bw_c16.htm). The Redwood Creek TMDL (U.S. EPA, 1998b) specifies that pool depths in streams larger than 3rd order in size have pools at least 1-1.5 meters in depth, which should be applied to Scott River tributaries. Targets for mainstem Scott River pool depth should be set based on historic accounts and should be at least ten feet based on watershed size.

2.4.2.5 Percent Fines Conditions: The Scott TMDL should avoid making references that upper limits, such as 30% fines < 6.4mm, are fully acceptable. Kondolf (2000) showed that this is a level where 50% mortality of salmonid eggs can be expected. Fine sediment data from Lester (1999) for lower Scott River tributaries should be listed in a table and reaches where study was conducted shown on a map.

Discussions of sediment trends as measured by Sommarstrom et al. (1990) and Sommarstrom (2001) need to acknowledge that pollution from sand sized sediment is increasing at most locations, not decreasing (Figure 12). The extremely high fine sediment levels at mainstem Scott River locations indicate that there is still a substantial over-supply, although French Creek and Etna Creek sediment less than 6.4 mm decreased.

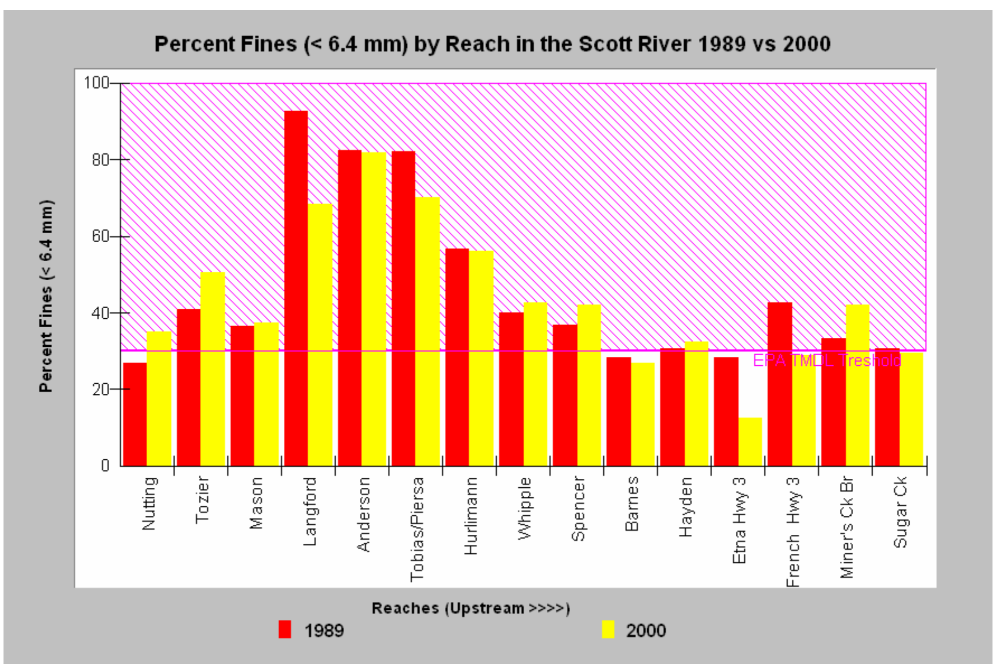

Figure 15. Summary chart showing fine sediment less than 6.4 mm at 11 mainstem Scott River locations and at four tributary locations.

Cross Sections and Longitudinal Profiles: The Scott TMDL does not deal with fine sediment transport and habitat impairment in the lower Scott River, where no data were collected by Sommartstrom et al. (1990). The results of fine sediment (<6.4 mm) indicate a continuing supply of sand to the Scott River. The high amount of sand in the valley is transported through the lower Scott River Canyon (Figure 13) where the highest annual fall chinook spawning takes place. Long term trends in sand supply and bedload transport are needed to see whether the requirements of fall chinook salmon are improving. The TMDL needs to provide a mechanism for measuring impairment and trends toward recovery.

Volume of Sediment in Pools (V*): The volume of fine sediment in pools relative to water and fine sediment combined or V* (Lisle and Hilton, 1992) has been used in French Creek in the Scott River watershed to show decreased sediment supply in response to road related restoration. Discussions of V* data in the Scott River watershed in section 2.4.2.7 are good but the V* should also be included in Table 2.2, with a target value of <0.10.

Median Particle Size Distribution: The work of Knopp (1993) also justifies the use of a target for a minimum median particle size distribution of 37 mm. Median particle size may also become very large in response to increased peak flows related to rain on snow events (Montgomery and Buffington, 1993). An upper limit for salmonid suitability should be adopted into the final Scott TMDL based on U.S. Forest Service studies (Gallo, 2002). Reynolds (2001) used median particle size with an upper limit of 90 mm for optimal size for salmonids and 128 mm as fully unsuitable in the Ecosystem Management Decision Support (EMDS) model.

Turbidity: The relationship between turbidity and timber harvest in northwestern California have been well studied in recent years (Klein, 2004), with increasing disturbance leading to both increase in peaks and duration of turbidity. Sigler et al. (1984) demonstrated that turbidity over 25 nephelometric units (ntu) limited steelhead juvenile growth. The latter threshold should be adopted by the Scott TMDL. Elevated turbidity has been noted as a specific problem in Moffett Creek (Kier Associates, 1999).

2.5 Temperature Problem Statement

The discussion of temperature problems in the Scott River lacks an interdisciplinary approach needed to show complex interactions that can ultimately result in water pollution. Discussions above note that channel changes related to increased peak discharge can make channels wide, shallow and open, which promotes stream warming. The TMDL did not use all available water temperature, which hampered examination of cumulative effects and elevation of water temperatures. The final Scott TMDL also needs to clearly recognize that water temperatures in smaller tributary basins accessible to coho salmon or that feed salmonid refugia in the Scott River canyon are controllable and that they need to meet water temperature requirements of coho salmon. Data from Thermal Infrared Radar (TIR) clearly indicates that water depletion drives water pollution, yet information from that survey was not used to draw that conclusion in the Scott TMDL.

Figure 16. Sand-sized particles dominate this pool tail crest on the Scott River near Ft. Jones. Photo by Pat Higgins from KRIS Version 3.0.

2.5.3 Summary of Temperature Conditions: The charts of stream temperature presented in this section go back to only 1996 (with some mainstem Scott data back to 1995). KRIS contains USFS data from 1994 and 1995 for the mainstem Scott and tributaries in the West Canyon sub-basin. These data are important because they date before the January 1, 1997 flood, when many streams in the Scott basin torrented, widening channels and removing riparian vegetation. Comparing these data with 1997-2004 data would show if temperatures increased as a result of the 1997 flood. These data should be incorporated into the West Canyon and mainstem charts in this section of the TMDL. The data are available online, with a list of charts located at:
http://www.krisweb.com/krisklamathtrinity/krisdb/webbuilder/selecttopic_scott_river.htm
The source table for the 1994 USFS data is located at:
http://www.krisweb.com/krisklamathtrinity/krisdb/webbuilder/sc_cst5.htm
The source table for the 1995 USFS data is located at:
http://www.krisweb.com/krisklamathtrinity/krisdb/webbuilder/sc_cst8.htm

2.5.2 Temperature-Related Desired Conditions: Coho salmon represent the most sensitive beneficial use in the Scott River basin and the final Scott TMDL must recognize the findings of Welsh et al. (2001) and the recommendations of the U.S. EPA (2003) in establishing a floating weekly average temperature of 16.8 C or less in any habitat inhabited by coho juveniles. In order to attain these conditions, impacts from riparian zone timber harvest must be limited and the interval of damaging flood flows must be decreased. In fact, logging in the riparian zone of Scott River tributaries has been active (Figure 17).

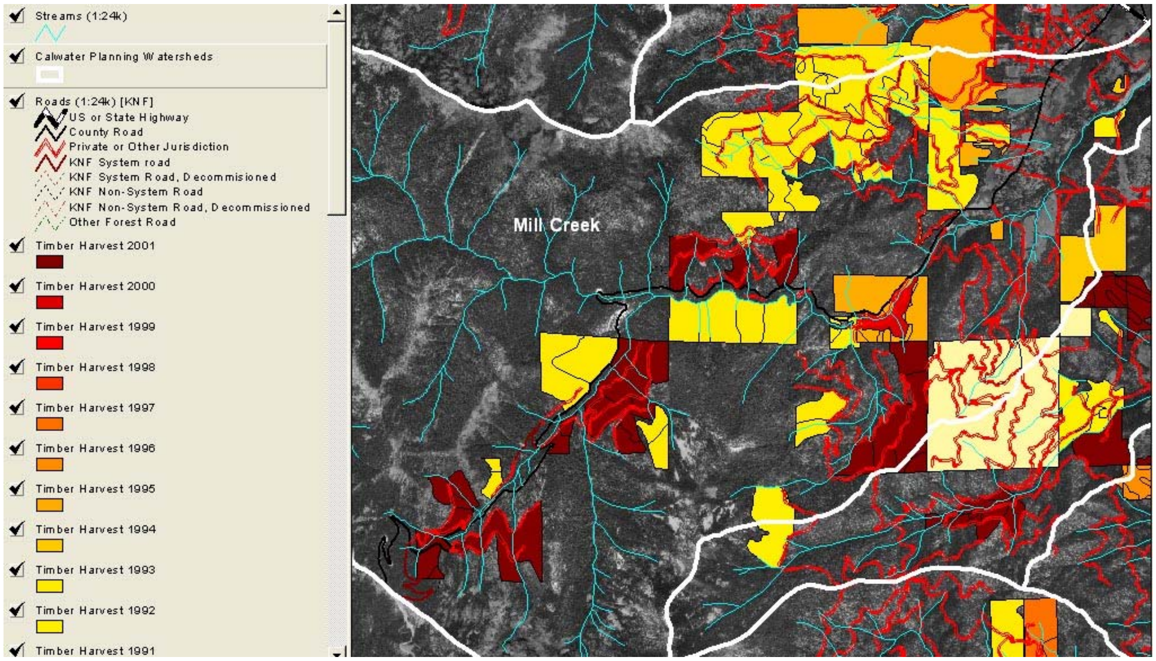

Figure 17. This map shows timber harvests on private land between 1991 and 2001, according to CDF, for the Mill Creek Calwater (upper Etna Creek). Timber harvest in recent years seems concentrated in near stream areas and other larger harvests overlap riparian zones.

Change scene detection data using 1994 and 1998 Landsat images (Levien et al, 2002) also show active timber harvest in riparian zones in recent years (Figure 18). Desired future watershed conditions should include riparian zones that approach the natural range of variability in size and height so that thermal buffering and large wood recruitment potential can be protected and improved. The TMDL needs to specifically recognize this problem so that RWB staff can prevent damage to core habitat areas and to provide for appropriate large wood recruitment. Riparian zones of headwater areas are often not delineated because the USGS 1:24000 stream maps are incomplete. Use of the SHALSTAB model will help highlight sensitive headwater swales, where logging may trigger failures and where natural landslides in unlogged areas may help recruit large wood to streams.

Desired future conditions for Scott River tributaries must also include sufficient flow to maintain water quality. The Watershed Sciences (2003) evaluation of water temperature problems in the Scott River shows an important relationship in Shackleford Creek (Figure 19). Shackleford Creek shows impacts of diversion as it goes from optimal for salmonids, to stressful or lethal for salmonids to a dry stream bed within a few miles.

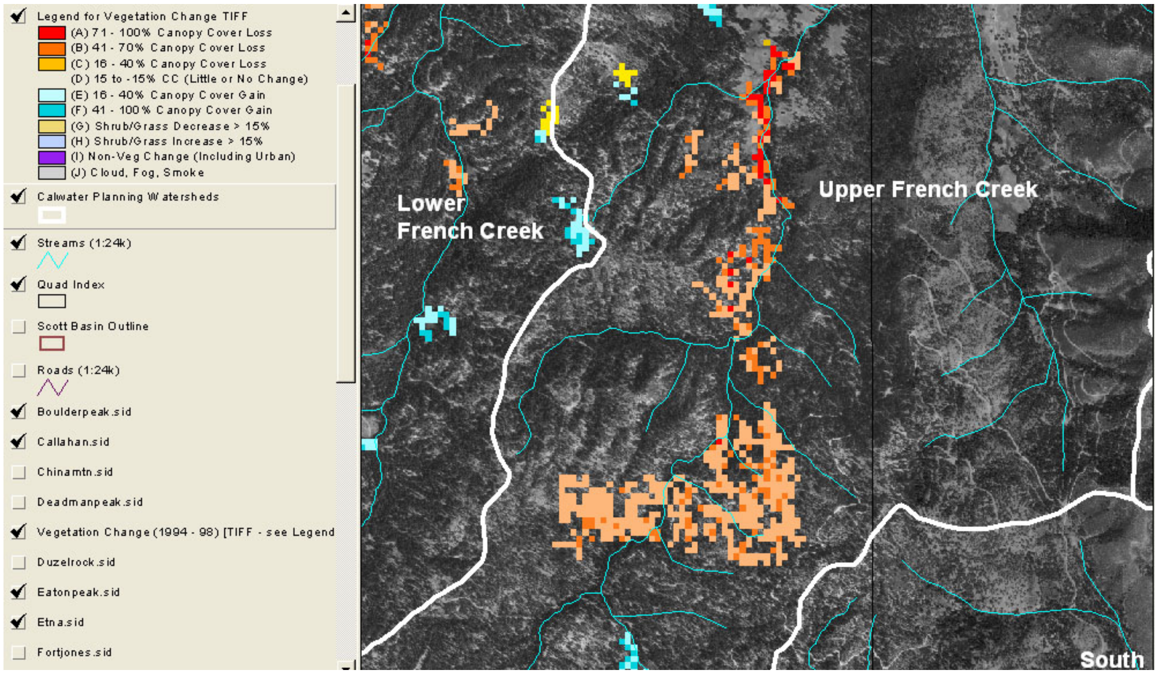

Figure 18. Vegetation change derived by comparing 1994 and 1998 Landsat images shows substantial decrease in canopy of reaches of lower French Creek. Data are from CDF and USFS Spatial Analysis Lab.

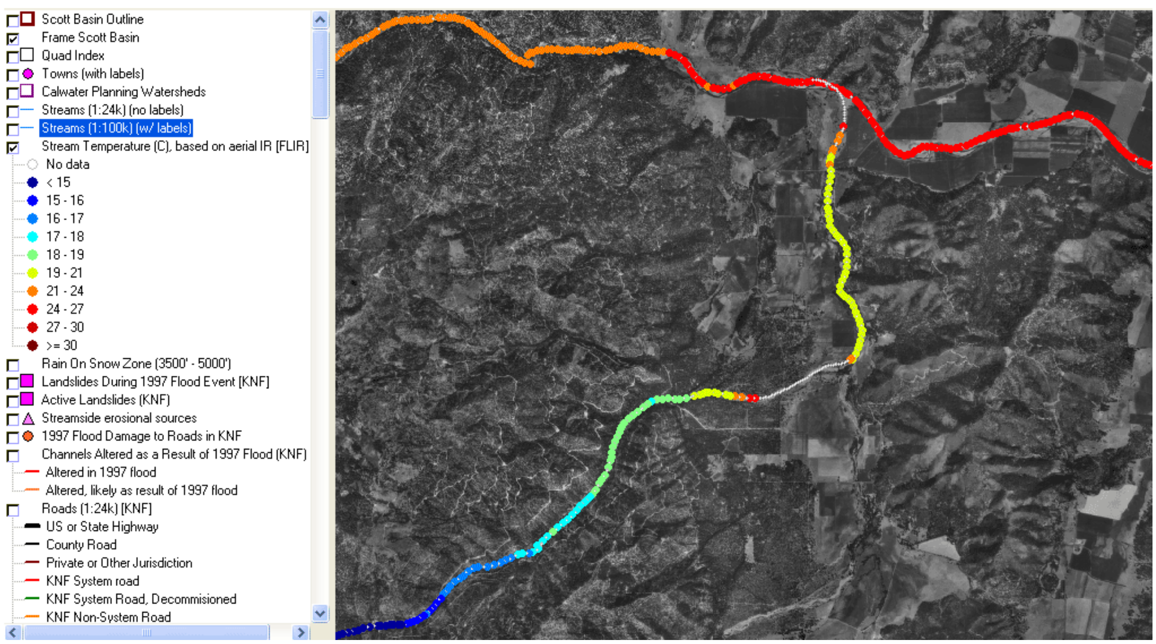

Figure 19. This map shows summary data of Scott River Thermal Infrared Radar (TIR) surveys for Shackleford Creek. Shackleford Creek flows northeast, then north to meet up with the mainstem Scott at the top of the figure. Note that temperature increases as flow is depleted. Missing temperatures (shown as grey reaches) indicates the stream is dry.

<u>2.5.2.1 Effective Shade:</u> The Scott TMDL states that "target shade conditions are those that result from achieving the natural mature vegetation conditions that occur along stream

channels in the watershed." The TMDL then fails to note that timber harvests have been active in riparian zones, despite availability of USFS and CDF 1991-2002 timber harvest data.

2.5.2.2 Thermal Refugia: The Scott TMDL mentions cold water at creek mouths as being important as coldwater refugia, but fails to make important links in discussion. *EPA Region 10 Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards* (U.S. EPA, 2003) clearly states that the spatial distribution of refugia is critical to Pacific salmon survival, especially in circumstances where mainstem river temperatures are well over suitable. All refugia need to be identified and protected in the Scott TMDL and implementation should follow Bradbury et al. (1995) in protecting these areas as a priority and focusing restoration in restorable areas adjacent. Intensive management in the West Canyon TMDL sub-basin on Klamath National Forest lands prior to the 1997 storm caused massive landsliding, channel scour and significant elevation of water temperatures. The damage to salmonid carrying capacity was significant and future similar damage on low recurrence interval storms must be prevented, but the only way to do so is for the Scott TMDL to set limits of disturbance that minimize risk of cumulative watershed effects (see Chapter 5 comments below for recommended limits).

The Scott TMDL has a stated goal of "increased volume of thermally stratified pools." While this is a laudable objective, pools are unlikely to become deeper and tend toward their natural range of variability of volume and depth if the landscape is not closer to its normal hydrologic range of variability due to early seral stage conditions and high road densities. Similarly, channels will tend to have reduced pool frequency below high risk landslide zones that are disturbed by timber harvest or road building.

Chapter 3: Sediment

3.2 Road Related Sediment Delivery
3.2.1 Two Estimates Made:
"Because this type of road inventory was not available in other subwatersheds, the rates estimated in the South Fork were extrapolated to the rest of the mountainous subbasins in the Scott River watershed."

This extrapolation from the South Fork to the entire Scott basin required some assumptions. Based on comments on the pre-draft (Kier Associates, 2005b), information was added to the TMDL stating those assumptions. If only about 5.5 of 813 square miles of the watershed were surveyed, that is approximately only 0.6% of the watershed. This percentage should be stated in section 3.2.1.

3.2.2 Discrete Sediment Sources (Road Inventory and field-check):
The pre-draft of the TMDL noted that the field data collection in the South Fork found twice as many road-stream crossings than were contained in the GIS layers. Because of this, apparently the number of road-stream crossings in each of the rest of the sub-basins was doubled. Comments on the pre-draft (Kier Associates, 2005b) requested that if possible, some attempt should be made to determine if that is a valid assumption. Data from Klamath National Forest road surveys (mentioned on page 2-23) could provide a means to check the

accuracy of the 50% assumption. The RWB should determine the extent of the Scott River basin that has been surveyed by the USFS and compare the number of road/stream crossings identified in the USFS surveys in that area with the number of roads/stream crossings identified in that area from the GIS data.

In the public draft, the paragraph that mentions the doubling of road-stream crossing was removed and replaced with a new paragraph stating the Resources Management's (RM) SEDMODL estimate of stream crossings matched well with the RWB GIS estimate, so RM's estimate was used. Sediment calculations do not appeared to have changed. This situation is unclear and confusing.

This section also states that:

> "In the RM South Fork road survey, the largest contributing features were all located within a single quarter-mile-long section of failing road. These few features accounted for 75 percent of the total contribution from road failures. Thus, these features are anomalous in context. For that reason they were not included in the group that was used to calculate the rates used to extrapolate to the South Fork watershed but instead were combined and treated separately as a single discrete feature added to the South Fork Subwatershed sediment summary." (p 3-8)

While the RWB staff likely made the most correct decision possible under the circumstances, this fact points out the uncertainty in extrapolating from one sub-basin to the entire basin. Given that only approximately 0.6% of Scott basin was surveyed (see calculations above in comments on 3.2.2), and these large features were found, there are almost certainly "anomalous" major features in other areas of the Scott basin. By not including those "anomalous" features, the RWB has likely skewed its estimate of road-related sediment production low, perhaps substantially. In response to comments on the pre-draft TMDL, RWB staff added the following acknowledgement:

> "So we may have underestimated anthropogenic sediment contributions. Sediment source inventory may be slightly underestimated because some anomalous features that were not large enough to be found on the landslide analysis may have not been counted." (p 3-11).

This may run counter to the RWB's directive (Clean Water Act, Section 303(d) and the associated regulations at 40 CFR §130.7) to include a margin of safety in the TMDL, and hence should be stated in discussions of the margin of safety in section 3.5.4.

<u>3.4.2 Streamside Mass Wasting and Erosion Features - Stratified Random Sampling:</u>
In response to comments on the pre-draft (Kier Associates, 2005b), language was added to this section of the TMDL stating that 21 of the approximately 2500 total miles of streams in the Scott watershed were sampled, which is approximately 0.8 percent. Any embedded assumptions should be stated. For instance, this analysis assumes does not take into account differences in watershed disturbance regimes between watersheds.

Chapter 4: Temperature

4.1.1 Temperature Sources: Stream Heating Processes: Scott TMDL discussions of temperature pollution do not reflect a current "best science" understanding of riparian conditions, air flow over the stream and their relationship to water temperature. The final document needs to reference Bartholow (1989), Essig (1998) and Poole and Berman (2001). Bartholow (1989) demonstrated that air temperature over the stream is by far the most significant driver of maximum water temperature (Figure 19).

Poole and Berman (2001) describe the relationship between riparian conditions and microclimate over the stream, which can have a major influence on water temperature in smaller upland tributaries. For example, forest harvest back from the area where direct shade is provided to the stream may open air flow and allow more heat exchange with the water. This presents a potential problem in the Scott River basin Westside tributaries, where such shifts that could eliminate coho habitat without changing the shade.

The TMDL for temperature in Idaho (Essig, 1998) recognized the water temperature air temperature relationship presented by Bartholow (1989). The Scott TMDL model runs mention that microclimatic effects were considered, but the description of model parameters and assumptions is lacking.

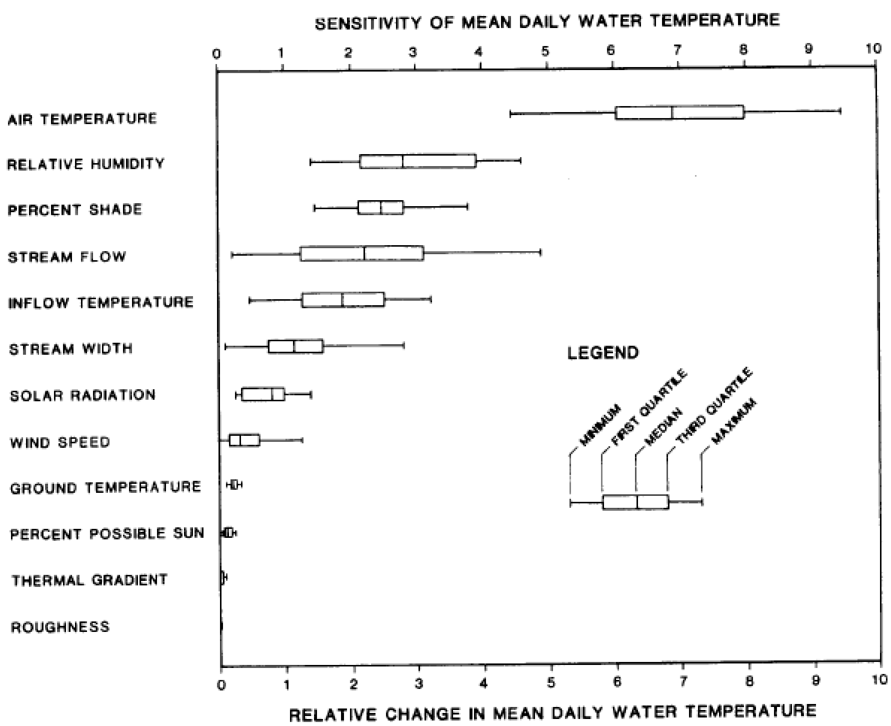

Figure 19. This chart from Bartholow (1989) shows that air temperature and relative humidity have a greater effect on mean daily water temperature than shade.

Science associated with the Northwest Forest Plan (FEMAT, 1993) indicates that the zone of riparian influence is two site potential tree heights or more (Figure 20). Water temperature buffering, in the form of cool air temperatures and high humidity over the stream, rapidly deteriorates under one site potential tree height protection (Chen, 1991). As mentioned in discussion of section 2.5.2.1, timber harvest has been active in riparian zones in the Scott River basin, which is decreasing desired conditions for optimum temperature buffer potential. The Scott TMDL states that the timber harvest permit process under CDF's jurisdiction will prevent future riparian damage despite previous studies (Ligon et al., 1999) and experience in the Scott River basin show that that process has not worked previously in this regard. The discussion in the Scott TMDL of modeling of riparian shade included the following: "Our analysis of factors affecting stream temperatures has determined that reductions of stream shade cause increases in stream temperature. Therefore, the California Forest Practice Rules do not ensure that water quality objectives set in the Basin Plan will be met." (p. 4-35)

Page 4-38 states that, "The load allocations for this TMDL are the shade provided by topography and potential vegetation conditions at a site with an allowance for natural disturbances such as floods, wind throw, disease, landslides, and fire, and is approximated as adjusted potential shade conditions as described in Section 4.4.1" This statement from the Scott TMDL infers that where topographic exists, retention of trees for shade might be decreased during timber harvests. This ignores the effects of riparian timber harvest on large wood recruitment and the implications for aquatic habitat.

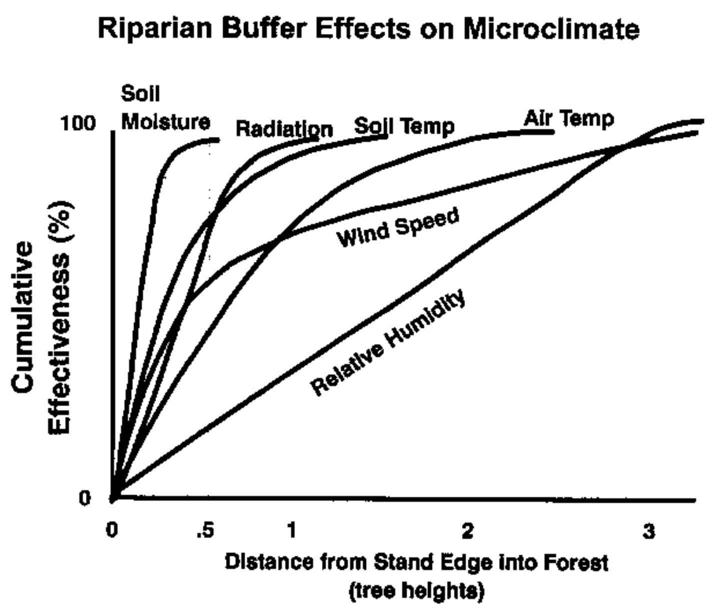

Figure 20. This figure taken from Chen (1991) shows how various riparian functions important to streams deteriorate as disturbance encroaches into stream side areas. One site potential tree height is likely 150-180 feet in Scott River basin forested areas.

<u>4.1.2.2 Stream Heating Processes Affected by Human Activities in the Scott River Watershed:</u>

The Groundwater section of the Scott TMDL on page 4-4 to 4-5 states:

> "The only readily available data that provide a glimpse of recent groundwater conditions are water table measurements at five wells in Scott Valley. Analysis of these data shows that in general drawdown is greater in dry years. The water table measurements for one of the wells are presented in Figure 4.1."

Comments submitted by Quartz Valley Indian Community (2005) to the Scott River Watershed Council contain a map and graphs for each of the five Scott Valley monitoring wells (included here as Appendix A). The graphs show the annual minimum and maximum measurements at each well, along with annual precipitation at the Fort Jones rain gage. The charts suggest that while annual maximum levels have remained relatively constant over time (fluctuating with precipitation), annual minimum levels have declined since 1965 (though they fluctuate with precipitation). Comments on the pre-draft (QVIC, 2005b) requested that the RWB consider including these graphs and map in the TMDL. RWB staff responded verbally that in their opinion the wells were not strategically placed, do not represent overall conditions in the valley, and hence do not support the suggestion above that annual minimum levels appear to be dropping. Graphs for the five wells should be included in the TMDL, or written justification provided as to why they were not utilized.

<u>4.3.1.7 Results and Discussion</u>: This section discusses the results of modeling scenarios. The combined scenarios included combinations of changes to individual factors such shade, groundwater accretion, surface diversions, and channel geometry. In the pre-draft, no figure was included showing the results of combined scenarios. As a result of comments on the pre-draft (Kier Associates, 2005), figure 4.17 was included in the public draft TMDL. It indicates that with potential riparian shade and a 50% increase in groundwater accretion, temperatures could be reduced approximately 5 to 7 degrees C in most of the Scott Valley and in the upper section of the Scott Canyon, with almost the entire Scott Valley being under 22 degrees C.

<u>4.3.2.1 Boundary Conditions:</u> This section contains a typo. The reference to Figure 4.18 should be a reference to Figure 4.19 instead. The reference to Figure 4.19 should be a reference to Figure 4.20 instead.

<u>4.3.2.7 Results and Discussion:</u> This section contains a typo. The reference to Figure 4.20 should be a reference to Figure 4.21 instead.

<u>4.5.2 Synthesis: Scott River Tributaries</u>: This section provides important recognition that forest management activities caused debris flows that damaged channels and riparian vegetation in Scott River tributaries, negatively impacting water temperatures.

<u>4.6 Recommendations for Additional Study and Future Action:</u> Changes suggested in pre-draft comments (QVIC, 2005) about the wording of regarding riparian grazing workshops were made.

Chapter 5: Implementation

The RWB has an obligation to make sure that the water quality objectives are met, and beneficial uses restored and protected, particularly because the final Scott TMDL Action

Plan will be amended to the Basin Plan (RWB, 2003). If there are multiple ways to meet the objectives, we support giving landowners the flexibility to decide how they want to meet those objectives. For example, if other regulatory and policy processes such as the Scott Incidental Take Permit (SRCD, In Draft), Coho Recovery Plan (CDFG, 2004), and Timber Harvest Plans will result in the attainment of water quality objectives, then further regulation by the RWB is not necessary.

Duplicative and overlapping regulation benefits no one. Unfortunately, these other processes rely almost wholly on voluntary measures that neither guarantee that water quality problems will be remedied nor that TMDL objectives will be achieved. When other policy approaches and voluntary landowner actions fail to achieve the TMDL objectives, then the RWB must use its considerable regulatory and enforcement authority to take necessary actions to ensure results.

The implementation actions requested in these comments are summarized below as Table 1 (a revised version of Table 4 from the proposed Scott TMDL Basin Plan amendment language).

5.1.1.1 Prioritization of Implementation Actions

This section has been added since the pre-draft, likely in response to the Tribes comments on the pre-draft (Kier Associates 2005b). The statement "Where reaches of the Scott River and its tributaries are providing suitable freshwater salmonid habitat, protection of these areas should be a priority for restoration efforts." (p 5-4) is somewhat helpful, but could be improved by specifically mentioning coho salmon and their coldwater refugia needs.

The final Scott TMDL should follow the approach of Bradbury et al. (1995), which is to identify the most intact habitat patches and to begin restoration by making sure that these areas are protected and enhanced as a top priority. In the Scott River basin, these would be the stream reaches with coho salmon (Figure 1) or those that provide coldwater refugia for other Pacific salmon species. As we indicated above, many surveys have been conducted in recent years to identify locations where coho salmon spawn (Quigley, 2005, Maurer, 2002; Maurer, 2003; SRCD, 2004). RWB staff will need to prevent timber harvest in riparian zones or sensitive headwater areas through its authority to condition waste discharge requirements on timber harvest plans and the final Scott TMDL should explicitly articulate that need and action. The protection of refugia and the restoration of water quality will also require protecting and restoring tributary stream flows.

5.1.7 Implementation Actions to Address Water Temperature and Vegetation that Provides Shade to the Water Bodies: In order for TMDL implementation to succeed it is important that the RWB (and other agencies and stakeholders) not suffer from "tunnel vision", but instead view the watershed in a system-wide, holistic fashion with its attendant complexities and interrelationships. The RWB's primary concern is protection and restoration of water quality, but the restoration of water quality can only succeed in the context of a broader ecological recovery effort. For example, if low recurrence interval storm events continue to cause channel damage that triggers elevated water temperatures and takes decades to recover, then success of the Scott TMDL implementation will be confounded.

Alterations in stream channel morphology are a source of sediment and temperature problems in the Scott River and its tributaries. Factors likely contributing to these alterations include increased sediment supply and increased peak flows (i.e., from upslope watershed disturbance), overgrazing, and a variety of flood control efforts including riparian vegetation removal, channel straightening, levee construction, and the placement of riprap. The Scott TMDL does a fairly good job of outlining the effects of these various watershed processes except for the risk of increased flows due to rain on snow events.

While the RWB's authority may be confined, that should not prevent it from fostering a long-term vision of what a restored Scott basin could look like. Appendix A of the draft TMDL includes historic channel and riparian condition descriptions that can guide efforts toward desired future conditions. While the technical portion of the TMDL sets gallery cottonwood forest as the "potential" vegetation for much of the Scott Valley, the proposed draft implementation plan needs to define the steps necessary to achieve that potential.

Appendix A provides a good discussion of the ecology and management of various riparian tree species present in the Scott Valley. The information presented on black cottonwood suggests that while Scott Valley historically provided excellent habitat for cottonwoods, the cottonwood population has declined dramatically over the 20th century. Key reasons include clearing of riparian vegetation, channelization, and lowering of the ground water table.

Restoring channel processes, including giving the river room to meander through multiple channels, is key to the restoration of stream temperatures and aquatic habitat complexity in the Scott River and its tributaries. Absent restoring a sinuous and meandering channel, the re-establishment of cottonwood gallery forests throughout the Scott Valley may not possible. Establishing a cottonwood forest would have major benefits for water temperatures and channel processes and achievement of TMDL objectives (see discussion under 5.1.9 below).

<u>5.1.9 Flood Control and Bank Stabilization Implementation Actions</u>

Much of the riprap and levees built along the mainstem Scott River were publicly funded through the U.S. Soil Conservation Service (now Natural Resources Conservation Service) and the U.S. Army Corps of Engineers. As noted on page 5-17 of the TMDL, "The Corps and the NRCS do not retain jurisdiction or ownership over these levees and flood control structures." It is likely that with the passage of time and the occurrence of floods that these structures will weaken and eventually fail. Failure may happen piecemeal or all at once, but eventual failure is inevitable.

It is unlikely that individual landowners will have the resources with which to repair these structures. The state and federal governments are not likely to provide the resources to maintain the Scott Valley's levee system. The Scott TMDL should recommend that future levee repairs have as a goal creation of a more sinuous channel with added cottonwood and willow trees to meet both long term flood control objectives and the water quality objectives of the TMDL.

Given the degraded state of riparian vegetation in the Scott River basin, we would urge the RWB to use its Clean Water Act Section 401 authority to ensure that bank stabilization projects conducted in the Scott basin incorporate riparian planting, and that no rock-only bank stabilization projects are permitted.

The Scott TMDL needs to specifically address actions that are recommended and those that the RWB staff would oppose when future large floods cause extensive riparian damage similar to January 1997. After the 1997 flood, federal emergency funds were used to clear and straighten channels, with damaging impacts on the channels and their riparian vegetation (Kier Associates, 1999) and recurrence of this pattern of action must not be allowed. Possible alternative flood-control scenarios include setting levees back on the floodplain away from the active channel, providing the river with some space to meander within levees.

As noted on page 5-18, it is possible to stabilize banks, without having a detrimental effect on stream temperatures, by incorporating vegetation into bank stabilization design. An innovative technique that may have application in the Scott Valley was developed in Anderson Creek, a tributary to the Navarro River in western Mendocino County, by Chris Tebbutt (IFR, 2003).

During a large flood in 1983, the channel at Mr. Tebbutt's property went from about 100 feet in width to over 800 feet, washing away valuable farmland and leaving a wide, warm and open reach of creek. Shortly after this erosional event, wing deflectors with boulders were installed and trees were planted behind the deflectors. These provided mass to turn the energy of the river at much less cost than boulders.

The deep planting of cottonwoods accelerated the trees' growth. The sections both above and below the Tebbutt property have now been treated and the channel was approaching its pre-disturbance width in 2003. Riparian vegetation is trapping sediment and building new streambanks. Stratification of deep pools formed off structures provide rare summer juvenile salmonid rearing habitat. While Anderson Creek is not quite as large as the Scott River, it does have substantial stream power and bioengineering methods used are likely transferable. A description of the Anderson Creek projects, with before, during, and after photographs is available online by viewing the "Restoration Tebbutt's" photo tours topics at: http://www.krisweb.com/krisnavarro/krisdb/webbuilder/selecttopic_tour.htm
A selection of photographs is included here as Figures 20-22.

The Scott TMDL and Kier Associates (1999) point out that many miles of mainstem Scott River riparian zones have cattle exclusion fencing and many reaches have also been tree planting project sites. The resulting narrow leave strips may not be sufficient to assure riparian function and protection of agricultural land from flood damage (Kier Associates, 1999). Another possible avenue for riparian restoration would be the use of conservation easements, which typically involve compensation to the landowner in exchange for long-term restrictions on the use of their property. With conservation easements, landowners would reduce agricultural activities in areas near stream channels, facilitating riparian restoration and reducing flooding of agricultural land.

The final Scott TMDL should recommend the use of computer modeling software to involve the community in the creation of positive future scenarios that allow for both conservation and a thriving agricultural economy. Software like CommunityViz and Ecomodeler can be employed to show both ecological and economic scenarios. These could be used, for example, to explain why it is in the landowners' interest to negotiate the acquisition of riparian easements on the mainstem Scott River in Scott Valley.

1984

Figure 20. This photo shows Chris Tebbutt deep planting cottonwood and willows in 1984. The dark branches at the left are fence post-sized black willows. Photo by Chris Tebbutt.

1986

Figure 21. Two years later the outside curve of Anderson Creek on the Tebbutt property is unprotected but the trees are growing. The stream channel in 1986 shifted into the planted areas. Photo by Chris Tebbutt.

2001

Figure 22. Cottonwoods, willows and alders line both banks of Anderson Creek in this photo taken looking upstream on the Tebbutt property in spring 2001. Many trees at the left of the photo are actually rooted in vegetated hard points with massive rock structures. The deep planting of cottonwoods was used on both sides of the creek. Photo by Chris Tebbutt.

5.1.8.2 Water Use Implementation Actions: Many previous studies (CH2M Hill, 1985; Kier Associates, 1991 and 1999) described flow depletion and the loss of coldwater fisheries in the Scott River basin and recognize that recovery of salmon and water quality will not succeed without solutions to problems involving water rights, water use and groundwater pumping.

Long-term USGS flow records show clearly that base flows in the Scott River have diminished (Figure 23). Reduced flows result from increased surface diversions, changes in cropping patterns, decreased base flows due to changes in upland conditions, decreased available surface water due to aggradation, and increased groundwater pumping.

The final TMDL should explicitly recognize that the flow trends of recent years are precisely the opposite of those necessary for the recovery of water quality and fish resources. Remedies for flow changes related to watershed conditions and aggradation have been described in previous sections. The final TMDL needs to also recommend that changes in crops from water-hungry alfalfa to high-value dry-farmed species be considered and that implementation of available water conservation measures be instituted by a date certain.

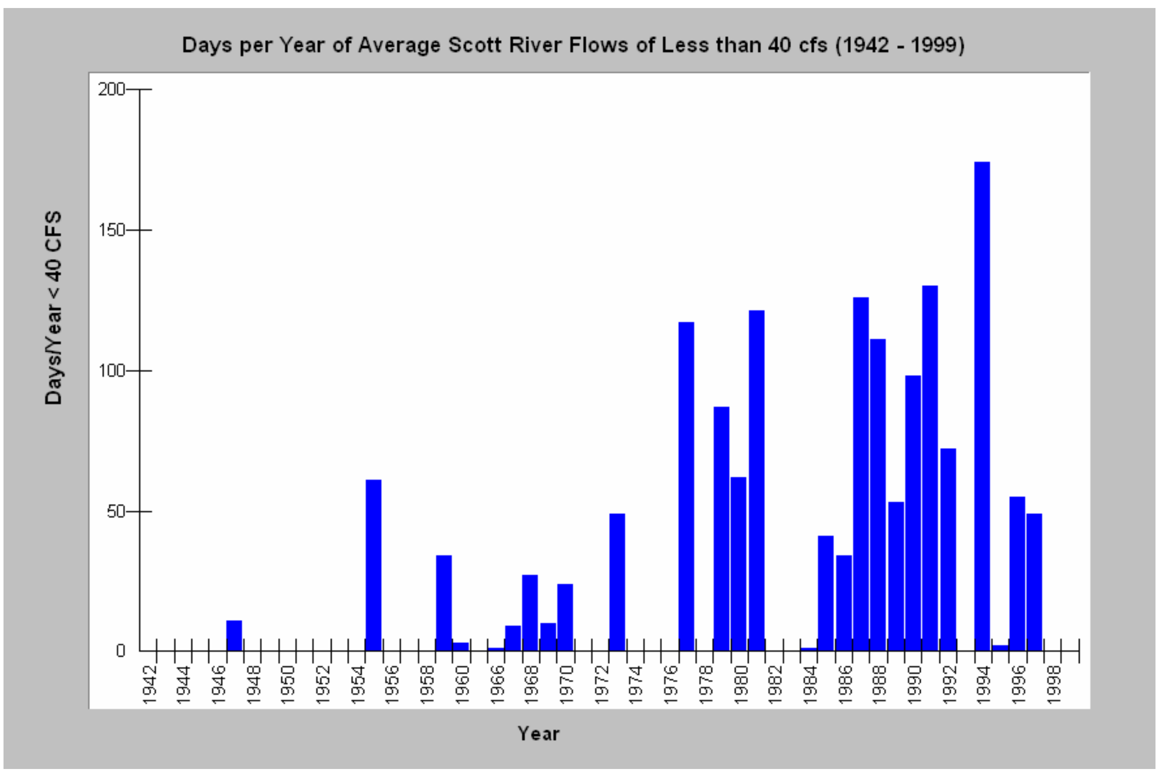

Figure 23. USGS flow data for the Scott River were used to create the above chart showing an increase in the days with less than 40 cubic feet per second at Fort Jones with a major increase over the period of record.

The final Scott TMDL needs to call for the RWB to exert authority in cases such as Shackleford Creek (Figure 19) where the depletion of flows makes achievement of water quality objectives impossible. The State Water Resources Control Board has the authority to require increased bypass flows to meet water quality standards as established in Supreme

Court case No. 92-1911 (*Jefferson County PUD and City of Tacoma vs. Washington Dept. of Ecology,* see http://chrome.law.cornell.edu/supct/html/92-1911.ZD.html*).* This case explicitly states that water quality regulatory agencies can, under the Clean Water Act, require bypass flows to achieve water quality protection purposes – that, as has been demonstrated so many times, the management of water quality and water quantity are inseparable:

> "Petitioners also assert more generally that the Clean Water Act is only concerned with water 'quality,' and does not allow the regulation of water 'quantity.' This is an artificial distinction. In many cases, water quantity is closely related to water quality; a sufficient lowering of the water quantity in a body of water could destroy all of its designated uses, be it for drinking water, recreation, navigation or, as here, as a fishery. In any event, there is recognition in the Clean Water Act itself that reduced stream flow, i.e., diminishment of water quantity, can constitute water pollution. First, the Act's definition of pollution as "the man made or man induced alteration of the chemical, physical, biological, and radiological integrity of water" encompasses the effects of reduced water quantity. 33 U.S.C. § 1362(19). This broad conception of pollution – one which expressly evinces Congress' concern with the physical and biological integrity of water – refutes petitioners' assertion that the Act draws a sharp distinction between the regulation of water "quantity" and water "quality." Moreover, §304 of the Act expressly recognizes that water "pollution" may result from "changes in the movement, flow, or circulation of any navigable waters . . . including changes caused by the construction of dams." 33 U.S.C. § 1314(f). This concern with the flowage effects of dams and other diversions is also embodied in the EPA regulations, which expressly require existing dams to be operated to attain designated uses. 40 CFR § 131.10(g)(4)."

Figure 4.13 indicates that water temperatures in the mainstem Scott are highly influenced by groundwater accretion. Based on Figure 4.13 and other modeling results presented in the Scott TMDL, it is apparent that water temperature problems cannot be fully resolved without appropriate action taken to limit ground water pumping. The Scott TMDL changed recommendations for a State Water Resources Control Board Water Rights Division groundwater study to one overseen by the County of Siskiyou.

The RWB should consider, in the alternative, recommending that the California Department of Water Resources conduct the necessary groundwater study because they have previously studied Scott Valley groundwater conditions, the Department has staff with the appropriate credentials for conducting such a study, and they enjoy a degree of trust with Scott Valley residents, having served their water resource study needs over the years.

There is already enough evidence to show that groundwater pumping is likely causing deleterious effects to both surface water quantity <u>and</u> quality (see Appendix A of this comments document). Department of Water Resources data indicate that the installation of wells has continued and suggest that postponing discussions and action on this critical issue is unwise. A prompt groundwater study carried out by qualified scientists will provide information on what needs to be done to remedy the problem.

If the final Scott TMDL continues to recommend a local lead role for the groundwater study, the Quartz Valley Indian Reservation should also be named as a specific party to the study. Page 5-16 of the TMDL states that "The Regional Water Board requests that the County of Siskiyou, in cooperation with the Siskiyou Resource Conservation District (SRCD) and other appropriate stakeholders, conduct the above mentioned study." That statement should be revised to read "The Regional Water Board requests that the County of Siskiyou, in cooperation with the Quartz Valley Indian Reservation (QVIR), Siskiyou Resource Conservation District (SRCD), and other appropriate stakeholders, conduct the above mentioned study." It is important to note that Tribes are not stakeholders, pre se; they are sovereign nations with a unique status.

We recommend the re-insertion of the language that was included in the pre-draft TMDL, but removed from the public draft, recommending that the State Water Board and its Division of Water Rights "take the findings of the research into consideration and act accordingly to protect and restore the instream beneficial uses of the Scott River and its tributaries, with particular focus on those beneficial uses associated with the cold water fishery." We recognize that the RWB has the authority to make this request regardless of what language is included in, or excluded from, the TMDL and we would expect that as changes in groundwater management are found to be necessary to protect and restore the beneficial uses of the Scott River that the RWB would, as required by the Clean Water Act, make such a request.

5.1.1 Road and Sediment Waste Discharge Implementation Actions for Individual Responsible Parties: The final Scott TMDL should set quantitative limits on allowable road densities in each watershed (see comments in section 2.4.1, 2.4.3.2, and 2.4.3.5 above). If the RWB does not have adequate information on which to base such a limit, studies should be conducted to determine what an appropriate value would be. See Table 1 for a list of suggested targets for watershed condition with references on which they are based. Also, a requirement should be imposed on the USFS and private timber companies that roads that cannot be annually maintained must be fully decommissioned (see comments on section 2.2.2.3 above) similar to that included in the Redwood Creek TMDL (U.S. EPA, 1998b).

Multiple road crossings on Scott River tributaries failed in the January 1997 storm resulting in extensive channel scour and increase in stream temperatures (de la Fuente and Elder, 1998). The final Scott TMDL needs to set targets for stream crossings similar to Armentrout et al. (1999) and such standards should be enforced by RWB staff using their waste discharge authority during the timber harvest plan review process.

Roads data from Klamath National Forest show that some roads crossing lower Scott River tributaries have been decommissioned. Similar decommissioning is needed for roads on private lands. Roads crossing stream reaches that have a history of torrenting should have concrete fords, not culverts, similar to those installed by KNF after the 1997 storm (Kier Associates, 1999). The final TMDL needs to recognize sensitive headwater areas and the need to prevent road construction in areas shown to have a high risk of land-sliding through the use of the SHALSTAB model, unless a professional geologist makes a finding that there is no risk of failure.

5.1.8 Timber Implementation Actions for Private and Public Responsible Parties: The final Scott TMDL should set quantitative limits on the percentage of a watershed that can be harvested in a given time frame (Reeves et al., 1993). If the RWB does not have adequate information upon which to base such a limit, studies should be conducted to determine what an appropriate value would be. For more information on this subject, see comments on section 2.4.3.5 above.

The lack of forest growth indicated by Landsat change scene and vegetation data (see discussions in Chapter 2 above) shows a clear need to restrict forest harvest in the rain on snow zone until stands previously disturbed are in a more mature condition to lessen the risk of rain on snow events. RWB staff need to limit canopy reduction on lands lying between 3,500 and 5,000 feet in elevation using its waste discharge requirement-setting authority during the timber harvest plan review process. Similarly, RWB staff should flag for geologic review any timber harvest on areas shown to be at a high risk for failure through SHALSTAB modeling (see Chapter 2 discussions).

5.1.9 Implementation Actions for the United States Forest Service

As recommended in section 2.4.3.5 above, the final Scott TMDL should set quantitative limits on the percentage of a watershed that can be harvested in a given time frame. The findings of de la Fuente and Elder (1998) indicate that the current BMPs applied on USFS lands have been insufficient to prevent cumulative watershed effects and increased restrictions on activity are needed. Also, maximum allowable road densities should be set as recommended in section 5.1.1 above.

Table 2. Recommended targets for watershed condition.

Parameter	Upland Target Conditions	References
Road Densities	<2.5 mi./sq. mi.	USFS (1996), NMFS (1995), Armentrout, (1998)
Road-Stream Crossings	<2 road crossings per mile of stream	Armentrout et al. (1998)
Timber Harvest	<25% of a watershed in 30 years	Reeves et al. (1993)
Unstable areas	No disturbance in SHALSTAB high risk zones w/o geologic review	Dietrich et al. (1998)

Chapter 6: Monitoring

There is enough information available to RWB staff to make specific recommendations for trend monitoring in the final Scott TMDL as required by Section 13242 of the California Water Code. The final Scott TMDL also needs to specifically state that all data used for monitoring and assessment under TMDL implementation should available as raw data, which is necessary for a transparent scientific process. Although time frames for recovery may be difficult to define exactly, the final Scott TMDL needs to establish an expected time line for recovery that can be amended through adaptive management during the implementation phase. The Scott TMDL must also specify that all data collected as part of TMDL monitoring should be added to an easily accessible electronic database.

In Stream Monitoring Methods and Locations: The draft Scott TMDL defines several targets for in stream conditions that are appropriate tools for discerning trends and abating water quality problems, but we recommend the addition of other cost-effective tools that have been widely employed in previous TMDLs or by the USFS. The Scott River basin is already data rich and continuing to collect data for trend monitoring of a similar type in the same or similar locations is both logical and practical. Table 3 shows recommended tools and locations for monitoring both sediment and water temperature. Additional details are include in discussions on section 2.4.2 above.

Table 3. Recommended TMDL Implementation Trend Monitoring Methods and Locations

Method	**Reference**	**Location**
Benthic Macroinvertebrates	Harrington and Born (1999)	Repeat at previously monitored locations every five years or after major storm event
Large Woody Debris	Schuett-Hames et al. (1999)	Coho salmon tributaries lower than fourth order
Embeddedness	CDFG (1998)	All stream sizes. Not necessary if more quantitative fine sediment data are collected.
Pool Distribution and Depth	US EPA (1998b)	Use habitat typing data or directly measure pool depths to gauge trends in all sizes of streams
Percent fines (<0.85 mm, 6.4 mm)	Scott TMDL	Same locations as Sommarstrom et al. (1989) but add tributary locations where fine sediments are a problem or to gauge trends after restoration
Cross Sections and Longitudinal Profiles	Madej (2001)	Lower mainstem Scott River
Volume of Sediment in Pools (V*)	Lisle and Hilton (1992) and Knopp (1993)	Continue monitoring at French Creek stations but also use in other streams of appropriate gradient and confinement with sediment problems to gauge trends in response to land management changes or restoration
Median Particle Size (D50)	Knopp (1993), Gallo (2002) and Reynolds (2001)	
Turbidity	Klein (2004)	Moffett Creek and mainstem Scott above and below
Water Temperature	Welsh et al. (2001)	Continue monitoring at previously sampled locations

Data Transparency: The RWB staff must require that all trend monitoring data related to TMDL implementation and abatement of water quality problems be supplied in raw form in order to maintain scientific validity (Collison et al., 2003). Although some Scott River stakeholders have held the position that data collected on private land is proprietary, RWB staff can require data sharing as part of waste discharge monitoring related to timber harvest review, or other permitting actions.

Data Storage and Management: In order to facilitate participation of Tribes and the public in Scott TMDL implementation, it is desirable to have a central data repository. One such existing database is the Klamath Resource Information System or KRIS (see www.krisweb.com), which is now has been in use in the Klamath and Trinity River basins since 1998. KRIS is an optimal data management tool because its cloning function allows easy generation of new charts when new data are added. KRIS content can be shared via the Internet as attached files with anyone having a current version of KRIS installed on their computer. KRIS also captures reports and metadata, providing a means to share data in its full context, reducing the risk of the data be inappropriately used.

Time Frame for Recovery: Biological response to restoration actions may takes several life cycles, while physical stream habitat may respond more quickly (Spence et al., 1996). Both V* results and fine sediment measurements in French Creek indicate that road-related erosion prevention has resulted in improved water quality conditions. Consequently, trends in physical habitat should be checked within five years and if no response is detected within ten years, a change in management practices should implemented.

Table 1. Proposed TMDL Implementation Actions and Recommended Alternative Actions

Topic	Responsible Parties	Action Proposed in Public Draft TMDL	Recommended Alternative Action
Roads & Sediment Waste Discharges	• Parties Responsible for Roads and Sediment Waste Discharge Sites. • Regional Water Board.	• The Regional Water Board encourages parties responsible for roads and sediment waste discharge sites to take actions necessary to prevent, minimize, and control road-caused sediment waste discharges. Such actions may include the inventory, prioritization, control, monitoring, and adaptive management of sediment waste discharge sites and proper road inspection and maintenance. • The Regional Water Board's Executive Officer shall require parties responsible for roads, on an as-needed, site-specific basis, to develop and submit an Erosion Control Plan and a Monitoring Plan. An Erosion Control Plan shall describe, in detail, sediment waste discharge sites and how and when those sites are to be controlled. By [insert date that is 2 years from the date of U.S. EPA approval], criteria shall be developed for determining when an Erosion Control Plan shall be required, although nothing precludes the Executive Officer from requiring Erosion Control Plans prior to this date. • Should discharges or threatened discharges of sediment waste that could negatively affect the quality of waters of the State be identified in an Erosion Control Plan or by other means, dischargers shall be required to implement their Erosion Control Plan and monitor sediment waste discharge sites through appropriate permitting or enforcement actions	***• Road densities need to be reduced to no more than 2.5 mi. /sq. mi. per USFS (1996) and NMFS (1995) to reduce sediment and potential for damaging elevated peak flows. Priority for action needs to target coho salmon sub-basins or streams providing refugia.*** ***• Reduce road networks to those that can be annually maintained and make sure that decommissioned roads require no maintenance (U.S. EPA, 1998).*** ***• All major land owners should be required to participate in Erosion Control and Monitoring Plans.*** ***• Trend monitoring data need to be specified showing aquatic recovery companion with mitigation and restoration measures and additional abatement actions taken if targets are not met within a specific time period.*** ***• Prevent winter use of native surface logging roads due to discharges of fine sediment from truck traffic wearing down road beds (Collison et al., 2003).***

Table 1. Proposed TMDL Implementation Actions and Recommended Alternative Actions

Topic	Responsible Parties	Action Proposed in Public Draft TMDL	Recommended Alternative Action
Roads	• California Department of Transportation (Caltrans). • Regional Water Board.	• Regional Water Board staff shall evaluate the effects of Caltrans' state-wide NPDES permit, storm water permit, and waste discharge requirements (collectively known as the Caltrans Storm Water Program) by [insert date that is 2 years from the date of U.S. EPA approval]. The evaluation shall determine the adequacy and effectiveness of the Caltrans Storm Water Program in preventing, reducing, and controlling sediment waste discharges and elevated water temperatures in the North Coast Region, including the Scott River watershed. If Regional Water Board staff find that the Caltrans Storm Water Program is not adequate and effective, Regional Water Board staff shall develop specific requirements, for State Water Board consideration, to be incorporated into the Caltrans Storm Water Program at the earliest opportunity, or the Regional Water Board shall take other appropriate permitting or enforcement actions.	***Proposed action sufficient.***

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Table 1. Proposed TMDL Implementation Actions and Recommended Alternative Actions

Topic	Responsible Parties	Action Proposed in Public Draft TMDL	Recommended Alternative Action
Roads	• County of Siskiyou (County). • Regional Water Board.	• The Regional Water Board and the County shall work together to draft and finalize a Memorandum of Understanding (MOU) to address county roads in the Scott River watershed. The MOU shall be drafted and ready for consideration by the appropriate decision-making body(ies) of the County by [insert date that is 2 years from the date of U.S. EPA approval]. The MOU shall include the following contents: 1. A date for the initiation and completion of an inventory of all sediment waste discharge sites caused by county roads within the Scott River watershed, which can be done with assistance from the Five Counties Salmonid Conservation Program. 2. A date for the completion of a priority list of sediment waste discharge sites. 3. A date for the completion of a schedule for the repair and control of sediment waste discharge sites. 4. A date for the completion of a document describing the sediment control practices to be implemented by the County to repair and control sediment waste discharge sites, which can be done with assistance from the Five Counties Salmonid Conservation Program. 5. A description of the sediment control practices, maintenance practices, and other management measures to be implemented by the County to prevent future sediment waste discharges, which can be done with assistance from the Five Counties Salmonid Conservation Program. 6. A monitoring plan to ensure that the sediment control practices are implemented as proposed and effective at controlling discharges of sediment waste. A commitment by the County to complete the inventory, develop the priority list, develop and implement the schedule, develop and implement sediment control practices, implement the monitoring plan, and conduct adaptive management.	***Proposed action sufficient.***

Table 1. Proposed TMDL Implementation Actions and Recommended Alternative Actions

Topic	Responsible Parties	Action Proposed in Public Draft TMDL	Recommended Alternative Action
Grading	• County of Siskiyou (County). • Regional Water Board	. • The Regional Water Board encourages the County to develop a comprehensive ordinance addressing roads, land disturbance activities, and grading activities outside of subdivisions in the Scott River watershed by [insert date that is 1 year from the date of U.S. EPA approval]. The ordinance may be specific to the Scott River watershed or county-wide in scope.	***Proposed action sufficient.***
Dredge Mining	• Regional Water Board.	• Regional Water Board staff shall investigate the impact of suction dredge mining activities on sediment and temperature loads in the Scott River watershed by [insert date that is 3 years from the date of U.S. EPA approval]. If Regional Water Board staff find that dredge mining activities are discharging deleterious sediment waste and/or resulting in elevated water temperatures, staff shall propose, for Board consideration, the regulation of such discharges through appropriate permitting or enforcement actions.	***Proposed actions appropriate with the following addition:*** ***• If there is a substantial increase in mining activity (i.e. due to increase in price of gold), Regional Water Board staff will accelerate timeline for completion of study.***

Table 1. Proposed TMDL Implementation Actions and Recommended Alternative Actions

Topic	Responsible Parties	Action Proposed in Public Draft TMDL	Recommended Alternative Action
Temperature & Vegetation	• Parties Responsible for Vegetation that Shades Water Bodies. • Regional Water Board.	• The Regional Water Board encourages parties responsible for vegetation that provides shade to a water body in the Scott River watershed to preserve and restore such vegetation. This may include planting riparian trees, minimizing the removal of vegetation that provides shade to a water body, and minimizing activities that might suppress the growth of new or existing vegetation (e.g., allowing cattle to eat and trample riparian vegetation). • The Regional Water Board shall develop and take appropriate permitting and enforcement actions to address the human-caused removal and suppression of vegetation that provides shade to a water body in the Scott River watershed. The Regional Water Board's Executive Officer shall report to the Regional Water Board on the status of the preparation and development of appropriate permitting and enforcement actions by [insert date that is to be determined].	• The Regional Water Board shall develop and take appropriate permitting and enforcement actions to address the human-caused removal and suppression of vegetation Scott River watershed riparian zones to maintain shade, microclimate and large wood recruitment. ***As general guidance, with some exceptions, removal of riparian vegetation is prohibited.*** The Regional Water Board's Executive Officer shall report to the Regional Water Board on the status of the preparation and development of appropriate permitting and enforcement actions by [insert date that is to be determined]. ***• The Regional Water Board encourages the restoration of upland and valley floor riparian zones necessary to reduce sediment and temperature pollution.*** ***• The Regional Water Board specifically recommends the re-establishment of cottonwood gallery forest in valley floor riparian zones to provide better shade, channel definition, habitat complexity, and functions such as trapping sediment from flood waters and protecting valuable agricultural land.*** ***• The Regional Water Board recommends the use of conservation easements in riparian zones on agricultural land to allow riparian recovery while maintaining viability of the local agricultural economy.*** ***• The Regional Water Board recommends long term goals of rearrangement of rip rap in reaches of the Scott River where the channel is simplified and constricted with a secondary objective of providing the river with access to its flood plain to assist in replenishing groundwater.*** ***• The Regional Water Board will act to reduce ground water pumping and depletion where it is found to be limiting recruitment and survival or riparian trees.***

Table 1. Proposed TMDL Implementation Actions and Recommended Alternative Actions

Topic	Responsible Parties	Action Proposed in Public Draft TMDL	Recommended Alternative Action
Temperature & Vegetation	• Parties Responsible for Vegetation that Shades Water Bodies. • Regional Water Board.		Continued from previous page. ***• The Regional Water Board shall address the removal and suppression of vegetation that provides shade to a water body through the up-coming Stream and Wetland Protection Policy. The Policy will be a comprehensive, region-wide riparian policy that will address the importance of shade on instream water temperatures and will potentially propose riparian set-backs and buffer widths. The Policy will likely propose new rules and regulations, and will therefore take the form of an amendment to the Basin Plan. Regional Water Board staff are currently scheduled to develop this Policy by 2007, with funding available through a grant from the U.S. EPA.***
Water Use	• Water Users. • County of Siskiyou (County). ***• Quartz Valley Indian Reservation*** • Stakeholders. • Regional Water Board.	• The Regional Water Board encourages water users to develop and implement water conservation practices. • The Regional Water Board requests the County, in cooperation with other appropriate stakeholders, to study the connection between groundwater and surface water, the impacts of groundwater use on surface flow and beneficial uses, and the impacts of groundwater levels on the health of riparian vegetation in the Scott River watershed. The study should: (1) consider groundwater located both within and outside of the interconnected groundwater area delineated in the Scott River Adjudication,** (2) the amount of water transpired by trees and other vegetation, and (3), if deleterious impacts to beneficial uses are found, identify potential solutions including mitigation measures and changes to management plans. • Should the County determine that it and its stakeholders are able to commit to conducting the above study, the County, in cooperation with other stakeholders, shall develop a study plan by [insert date that is 1 year from the date of U.S. EPA approval]. The study plan shall include: (1) goals and	***• The Regional Water Board shall take action to secure necessary instream flows to protect water quality where water diversion is the clear cause of impairment, such as where cold water tributaries are dewatered.*** ***• The Regional Water Board shall require water users to develop and implement water conservation plans and practices over a ten year time frame, where action is needed to restore surface flows and water quality.*** • The Regional Water Board requests that the Department of Water Resources, in cooperation with ***the Quartz Valley Indian Reservation and*** appropriate stakeholders, study the connection between groundwater and surface water, the impacts of groundwater use on surface flow and beneficial uses, and the impacts of groundwater levels on the health of riparian vegetation in the Scott River watershed. The study should: (1) consider groundwater located both within and outside of the interconnected groundwater area delineated in the Scott River Adjudication,** (2) the amount of water transpired by trees and other vegetation, and (3), if deleterious impacts to beneficial uses are found, identify potential solutions including mitigation measures and changes to

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Table 1. Proposed TMDL Implementation Actions and Recommended Alternative Actions

Topic	Responsible Parties	Action Proposed in Public Draft TMDL	Recommended Alternative Action
		objectives; (2) data collection methods; (3) general locations of data collection sites; (4) data analysis methods; (5) quality control and quality assurance protocols; (6) responsible parties; (7) timelines and due dates for data collection, data analysis, and reporting; (8) financial resources to be used; and (9) provisions for adaptive change to the study plan and to the study based on additional study data and results, as they are available.	management plans. • Should the DWR determine that it and its stakeholders are able to commit to conducting the above study, the DWR, in cooperation with ***the Quartz Valley Indian Reservation and*** other stakeholders, shall develop a study plan by [insert date that is 1 year from the date of U.S. EPA approval]. The study plan shall include: (1) goals and objectives; (2) data collection methods; (3) general locations of data collection sites; (4) data analysis methods; (5) quality control and quality assurance protocols; (6) responsible parties; (7) timelines and due dates for data collection, data analysis, and reporting; (8) financial resources to be used; and (9) provisions for adaptive change to the study plan and to the study based on additional study data and results, as they are available.
Water Use	• Water Users. • County of Siskiyou (County). ***• Quartz Valley Indian Reservation*** • Stakeholders. • Regional Water Board.		***• The Regional Water Board requests that the State Water Board and its Division of Water Rights take the findings of the above groundwater study into consideration and act accordingly to protect and restore the instream beneficial uses of the Scott River and its tributaries, with particular focus on those beneficial uses associated with the cold water fishery.***

Table 1. Proposed TMDL Implementation Actions and Recommended Alternative Actions

Topic	Responsible Parties	Action Proposed in Public Draft TMDL	Recommended Alternative Action
Flood Control & Bank Stabilization	• Parties Responsible for Flood Control Structures or Dredge, Fill, and/or Bank Stabilization Activities. • Regional Water Board.	• The Regional Water Board encourages parties responsible for levees and other flood control structures to plant and restore stream banks on and around existing flood control structures. • The Regional Water Board shall rely on existing authorities and regulatory tools, such as the 401 Water Quality Certification program, to ensure that flood control and bank stabilization activities in the Scott River watershed are conducted in a manner that minimizes the removal or suppression of vegetation that provides shade to a water body and minimizes changes in channel morphology that could increase water temperatures.	• The Regional Water Board encourages parties responsible for levees and other flood control structures to plant and restore stream banks on and around existing flood control structures. • ***The*** Regional Water Board shall rely on existing authorities and regulatory tools, such as the 401 Water Quality Certification program, to ensure that flood control and bank stabilization activities in the Scott River watershed are conducted in a manner that minimizes the removal or suppression of vegetation that provides shade to a water body and minimizes changes in channel morphology that could increase water temperatures. ***As general guidance:*** ***- All bank stabilization projects conducted in the Scott River watershed will require a 401 permit.*** ***- All bank stabilization projects conducted in the Scott River watershed shall incorporate riparian plantings, and rock-only bank stabilization projects will not be allowed. Exceptions may be granted, but only occasionally with strong justification.*** ***• The Regional Water Board shall work with appropriate agencies and stakeholders to develop a protocol for what will occur after a large flood damages flood control structures and property. A goal of the plan will be to find cost-effective means to increase sinuosity of stream channels and re-establish the connection between streams and their floodplains.*** ***• The Regional Water Board will encourage and support landowners who choose to seek conservation easements to cease or reduce agricultural activities in areas near stream channels to facilitate riparian restoration and reduce flooding of agricultural land.***

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Table 1. Proposed TMDL Implementation Actions and Recommended Alternative Actions

Topic	Responsible Parties	Action Proposed in Public Draft TMDL	Recommended Alternative Action
Timber Harvest	• Private & Public Parties Conducting Timber Harvest Activities. • Habitat Conservation Plan Holders. • Regional Water Board.	• The Regional Water Board shall use appropriate permitting and enforcement tools to regulate discharges from timber harvest activities in the Scott River watershed, including, but not limited to, cooperation with, and participation in, the California Department of Forestry and Fire Protection's timber harvest project approval process. • The Regional Water Board shall use, where applicable, general or specific waste discharge requirements and waivers of waste discharge requirements to regulate timber harvest activities on private and public lands in the Scott River watershed. • Timber harvest activities on private lands in the Scott River watershed are not eligible for Categorical Waiver C included in the Categorical Waiver of Waste Discharge Requirements for Discharges Related to Timber Harvest Activities on Non-Federal Lands in the North Coast Region (Order No. R1-2004-0016, as it may be amended or updated for time to time) simply through the adoption of this TMDL Action Plan. However, timber harvest activities on private lands in the Scott River watershed may be eligible for Categorical Waivers A, B, D, E, and F, as appropriate. • Where a Habitat Conservation Plan (HCP) is developed, Regional Water Board staff shall work with the HCP holder to develop, for Board consideration, ownership-wide waste discharge requirements for activities covered by the HCP, with any additional restrictions necessary to protect water quality and beneficial uses.	***Proposed actions appropriate with the following additions:*** ***• In considering WDRs, the Regional Water Board shall examine indices of cumulative effects risk (i.e. road densities, percent of watershed area harvested, and road stream crossing density) in watersheds with proposed timber harvests and compare them to prudent risk levels recommended in regional scientific literature.*** ***• The Regional Water Board recognizes that water quality and aquatic habitats in some tributaries may be in such a degraded state that significant watershed rest (time period with limited harvesting) and erosion control efforts (such as road upgrading and decommissioning) must occur before additional large-scale commercial harvest is allowed. In general, wet-weather hauling will not be permissible.*** ***• The Regional Water Board staff will consider the following through waste discharge authority as part of timber harvest review: limiting riparian harvests to allow large wood recruitment for coho and maintaining near stream microclimate; reducing activities on unstable lands, reducing road densities, near stream roads and crossings; and returning forest conditions in the rain-on-snow zone to levels that reduce the risk of increased peak discharge.***

Table 1. Proposed TMDL Implementation Actions and Recommended Alternative Actions

Topic	Responsible Parties	Action Proposed in Public Draft TMDL	Recommended Alternative Action
U.S. Forest Service & U.S. Bureau of Land Management	• U.S. Forest Service (USFS). • U.S. Bureau of Land Management (BLM). • Regional Water Board	• The Regional Water Board and federal land management agencies, including the USFS and the BLM, shall work together to draft and finalize a Memorandum of Understanding (MOU) that shall address sediment waste discharges, elevated water temperatures, and grazing activities within the Scott River watershed. The MOU shall be drafted and ready for consideration by the appropriate decision-making body(ies) by [insert date that is 2 years from the date of U.S. EPA approval]. The MOU shall include the following contents: Contents Related to Sediment Waste Discharges: 7. A date for the completion of an inventory of all sediment waste discharge sites and all roads on USFS/BLM land. 8. A date for the completion of a priority list. 9. A date for the completion of a schedule for the repair and control of sediment waste discharge sites. 10. A date for the completion of a document describing the sediment control practices to be implemented by the USFS/BLM to repair and control sediment waste discharge sites. 11. A description of sediment control practices, road maintenance practices, and other management measures to be implemented by the USFS/BLM to prevent future sediment waste discharges. 12. A monitoring plan to ensure that sediment control practices are implemented as proposed and are effective at controlling discharges of sediment waste. 13. A commitment by the USFS/BLM to complete the inventory, develop the priority list, develop and implement the schedule, develop and implement sediment control practices, implement the monitoring plan, and conduct adaptive management. Contents Related to Elevated Water Temperatures: 14. A commitment by the USFS/BLM to make permanent and implement the Riparian Reserve buffer width requirements. 15. A monitoring plan to ensure that the Riparian Reserve buffer widths are effective at reducing high water temperatures. 16. A commitment by the USFS/BLM to implement the Riparian Reserve monitoring plan and conduct adaptive management.	***• The Regional Water Board staff, through waste discharge authority in timber harvest review with the U.S. Forest Service, should consider a moratorium of any timber harvest in the Scott River basin that reduces canopy closure in the transient snow zone.*** ***• The Regional Water Board shall require that the USFS provide a study demonstrating forest regrowth and return to stand conditions (multi-tiered canopy) that lessen the risk of un-naturally high peak flows to prevent frequent flood damage to stream channels in the Scott River watershed.*** ***• The Regional Water Board staff shall consider withholding approval of timber harvests that substantially reduce the canopy in the lower Scott River watershed until the Redwood Sciences Laboratory study results on BMPs is released and it is demonstrated that USFS BMPs have protected water quality*** ***• The Regional Water Board will work cooperatively with the Klamath National Forest to reduce road networks within the Scott River to the level that can be actively maintained.*** ***• Roads decommissioned by the USFS to meet the above objective will have minimal erosion risk or maintenance requirements.*** ***• Prioritization of road decommissioning shall follow a hierarchy that protects watersheds with coho salmon or that provide salmonid refugia first (i.e. Elder et al., 2002)***

Table 1. Proposed TMDL Implementation Actions and Recommended Alternative Actions

Topic	Responsible Parties	Action Proposed in Public Draft TMDL	Recommended Alternative Action
U.S. Forest Service & U.S. Bureau of Land Management	•U.S. Forest Service (USFS). •U.S. Bureau of Land Management (BLM). •Regional Water Board.	Continued from previous page. Contents Related to Grazing Activities: 11. A date for the completion of a description of grazing management practices and riparian monitoring activities implemented in grazing allotments on USFS/BLM lands. 12. A commitment by the USFS/BLM and the Regional Water Board to determine if existing grazing management practices and monitoring activities are adequate and effective at preventing, reducing, and controlling sediment waste discharges and elevated water temperatures. 13. A commitment by the USFS/BLM to develop revised grazing management practices and monitoring activities, should existing measures be inadequate or ineffective, subject to the approval of the Regional Water Board's Executive Officer. 14. A commitment by the USFS/BLM to implement adequate and effective grazing management practices and monitoring activities and to conduct adaptive management.	

Table 1. Proposed TMDL Implementation Actions and Recommended Alternative Actions

Topic	Responsible Parties	Action Proposed in Public Draft TMDL	Recommended Alternative Action
Grazing	• Private Parties Conducting Grazing Activities. • Regional Water Board	• The Regional Water Board encourages the parties responsible for grazing activities to take necessary actions to prevent, minimize, and control sediment waste discharges and elevated water temperatures. • The Regional Water Board's Executive Officer shall require parties responsible for grazing activities on private lands in the Scott River watershed to develop, submit, and implement a Grazing and Riparian Management Plan and a Monitoring Plan on an as-needed, site-specific basis. A Grazing and Riparian Management Plan shall describe, in detail, (1) sediment waste discharges and sources of elevated water temperatures caused by livestock grazing, (2) how and when such sources are to be controlled and monitored, and (3) management practices that will prevent and reduce future sources. By [insert date that is 2 years from the date of U.S. EPA approval], criteria shall be developed for determining when a Grazing and Riparian Management Plan shall be required, although nothing precludes the Executive Officer from requiring Grazing and Riparian Management Plans prior to this date. • Should human activities that will likely result in sediment waste discharges and/or elevated water temperatures be proposed or identified, through a Grazing and Riparian Management Plan or by other means, the responsible party(ies) shall be required to implement their Grazing and Riparian Management Plans and monitor through appropriate permitting or enforcement actions	***Proposed actions appropriate***

Table 1. Proposed TMDL Implementation Actions and Recommended Alternative Actions

Topic	Responsible Parties	Action Proposed in Public Draft TMDL	Recommended Alternative Action
Siskiyou RCD & Scott River Watershed Council	• Siskiyou Resource Conservation District (SRCD). • Scott River Watershed Council (SRWC). • Regional Water Board.	• The Regional Water Board and staff shall increase efforts to work cooperatively with the SRCD and SRWC to provide technical support and information to landowners and stakeholders in the Scott River watershed and to coordinate educational and outreach efforts. • The Regional Water Board shall encourage the SRWC to (1) implement the strategic actions specified in the Strategic Action Plan and (2) assist landowners in developing and implementing management practices that are adequate and effective at preventing, minimizing, and controlling sediment waste discharges and elevated water temperatures.	***Proposed actions appropriate with the following addition:*** ***The Regional Water Board shall require that all water quality or trend monitoring studies conducted by the SRCD, SRWC or their consultants provide raw data, along with summary data and reports.***
Natural Resources Conservation Service	• Natural Resources Conservation Service (NRCS). • Regional Water Board	• The Regional Water Board shall increase efforts to work cooperatively with the NRCS to provide technical support and information to responsible parties and stakeholders in the Scott River watershed and to coordinate educational and outreach efforts.	***Proposed actions appropriate with the following addition:*** ***• The Regional Water Board will engage NRCS staff in discussions regarding response to flood damage to agricultural land and appropriate reach agreement on a plan of action.***
CA Dept. of Fish and Game	• CA Depart. of Fish & Game (CDFG). • Regional Water Board	• The Regional Water Board shall encourage the CDFG and aid, where appropriate, in the implementation of necessary tasks, actions, and recovery recommendations as specified in the Recovery Strategy for California Coho Salmon (CDFG 2004) in the Scott River watershed.	***Proposed actions appropriate with the following addition:*** ***• The Regional Water Board staff will work cooperatively with CDFG regarding coordination on shared authority such as stream bank and bed alteration that may affect water quality.*** ***• CDFG will be encouraged to provide Scott River fish trend monitoring data to Regional Water Board staff and coordinate on sediment studies in the Scott River canyon related to fall chinook salmon spawning success.***

* Although the Regional Water Board prefers to pursue the implementation actions listed in Table 4, the Regional Water Board shall take appropriate permitting and/or enforcement actions should any of the implementation actions fail to be implemented by the responsible party or should the implementation actions prove to be inadequate.
** Superior Court of Siskiyou County. 1980. Scott River Adjudication: Decree No. 30662.

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Appendices

Appendix A: Groundwater levels in Scott Valley 1953-2004

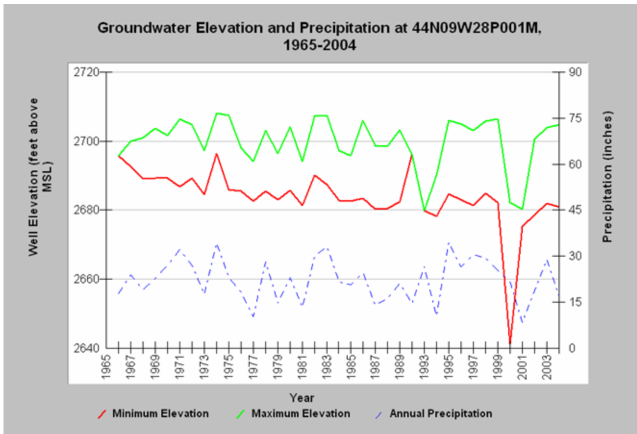
These figures and text were extracted from:
Quartz Valley Indian Community. 2005. Comments on Hypothesis Testing for Approach to Groundwater Studies, by Scott River Watershed Council – Water Committee. Quartz Valley Indian Community, Fort Jones, CA.

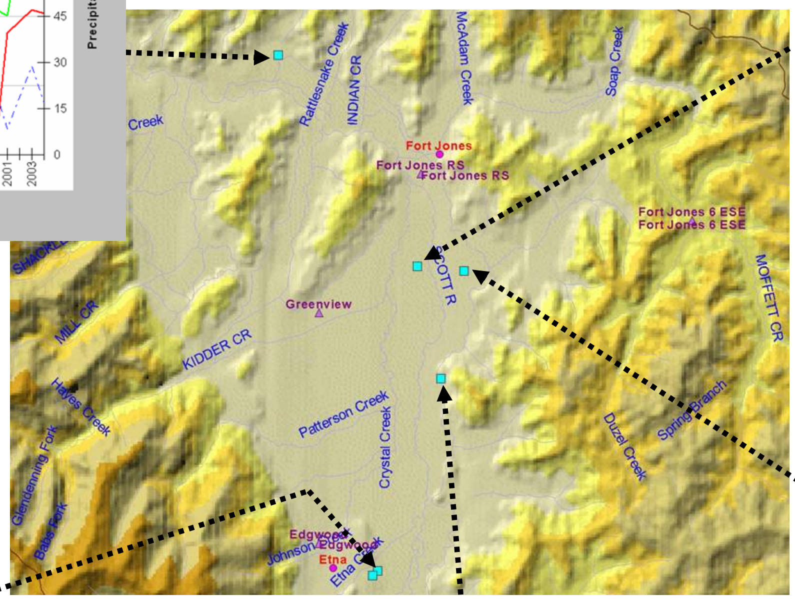
To obtain copies of the data on which these charts and maps are based, please contact Rebekah Sluss (EPA Director at QVIC) at rebekahqvir@yahoo.com or 530-468-5907.

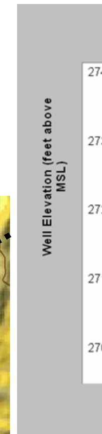
Preliminary charting of annual minimum/maximum levels in California Department of Water Resources monitoring wells in the Scott Valley suggests that annual maximum levels have remained relatively constant over time (fluctuating with precipitation), but that annual minimum levels have declined since 1965 (though they fluctuate with precipitation). See maps and charts below for details.
[Cautionary note: when constructing charts, all measurements were used (data points were not excluded based on QAQC information)].

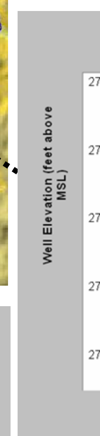
Each chart displays annual minimum and maximum groundwater levels at a California Department of Water Resources monitoring well. Also displayed on each chart is annual precipitation at Fort Jones (rain gage F20 3182 00). Groundwater elevations were typically measured once or twice per year, but have been measured more often in recent years.

Scott Valley Groundwater Levels 1953-2004



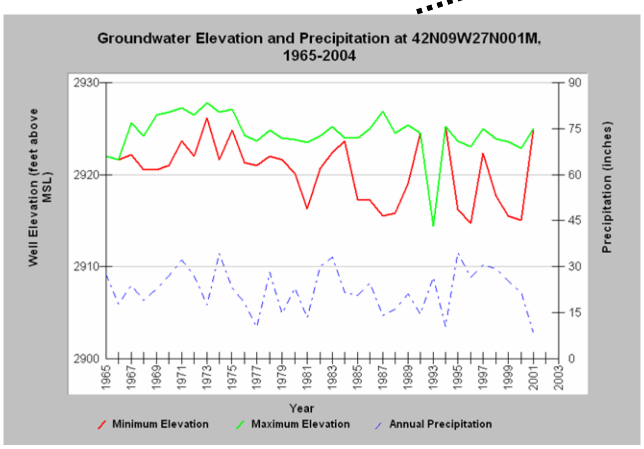


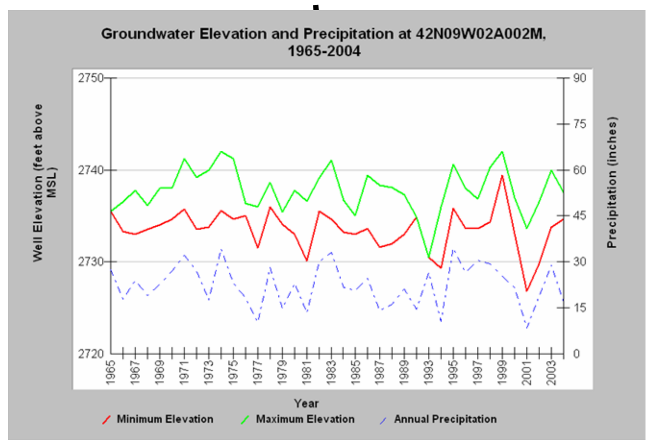


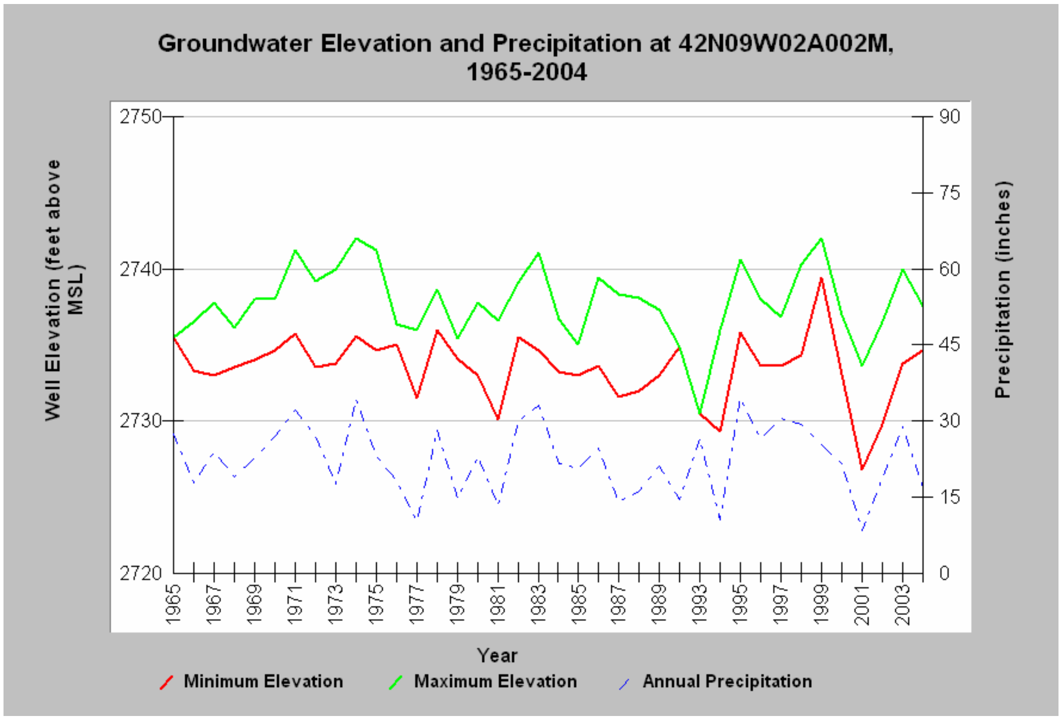


Groundwater data are from California Department of Water Resources Water Data Library - http://well.water.ca.gov/

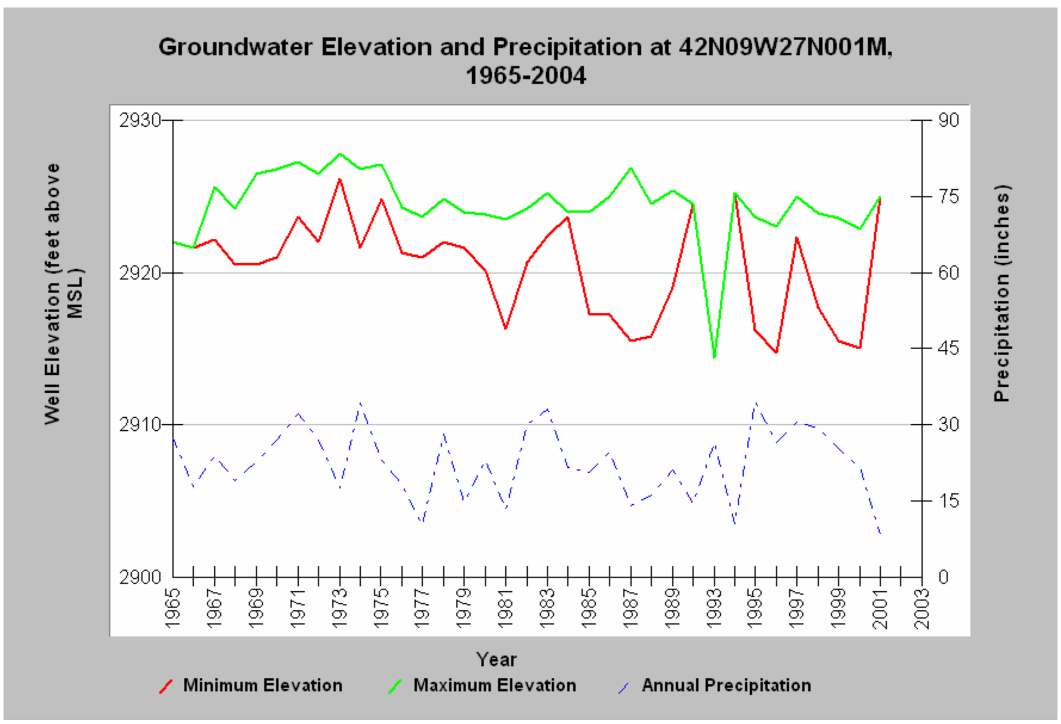
Precipitation data are from Fort Jones rain gage (F20 3182 00) California Data Exchange Center - http://cdec.water.ca.gov



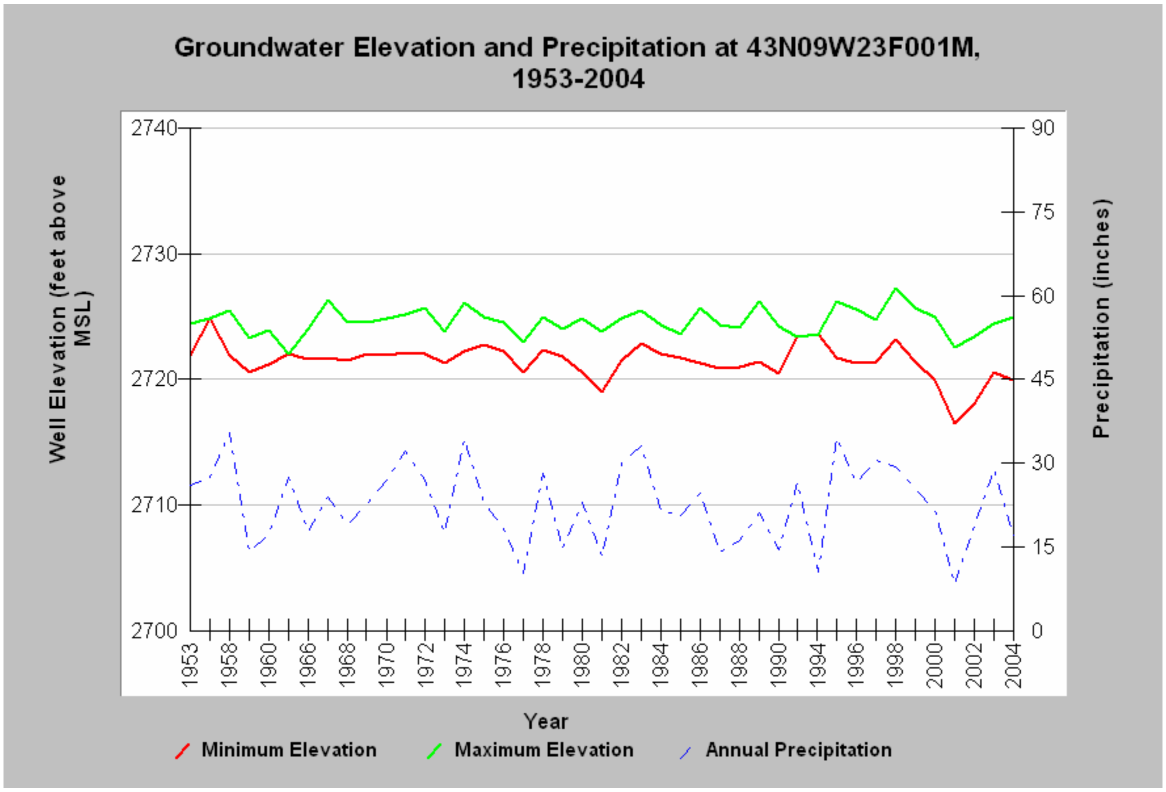




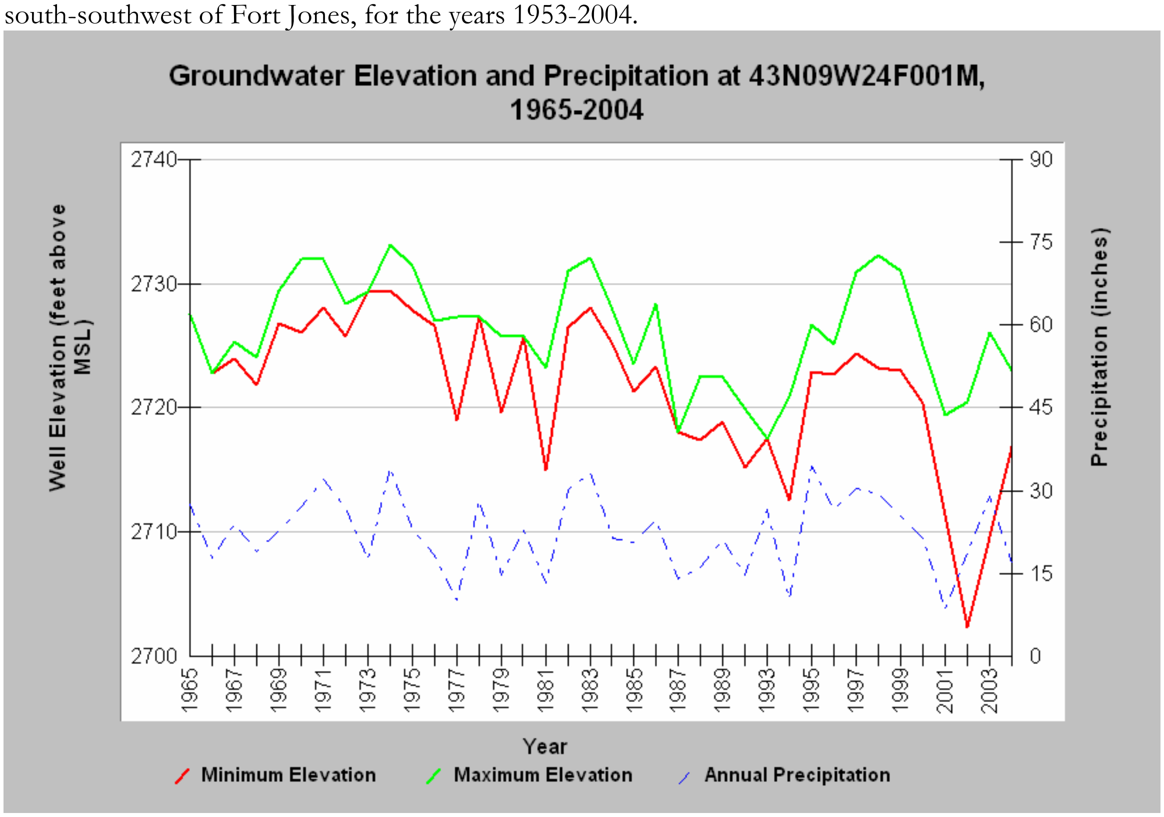
California Department of Water Resources well 42N09W02A002M, approximately 8 kilometers northwest of Fort Jones, for the years 1965-2004.



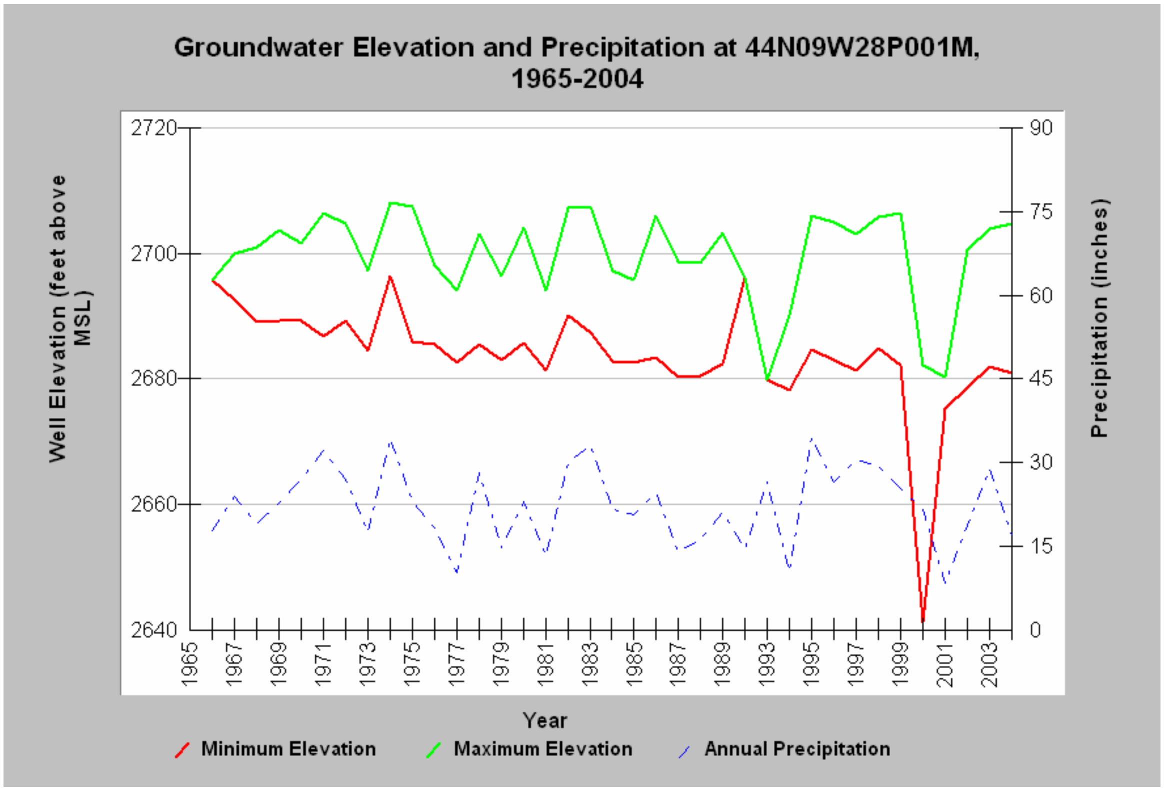
California Department of Water Resources well 42N09W27N001M, approximately 8 kilometers east of Etna, for the years 1994-2004.



California Department of Water Resources well 43N09W23F001M, approximately 5 kilometers south-southwest of Fort Jones, for the years 1953-2004.



California Department of Water Resources well 43N09W24F001M, approximately 5 kilometers south-southeast of Fort Jones, for the years 1965-2004.



California Department of Water Resources well 44N09W28P001M, approximately 8 kilometers northwest of Fort Jones, for the years 1965-2004.

YUROK TRIBE

190 Klamath Boulevard ● Post Office Box 1027 ● Klamath, CA 95548

December 19, 2006

Bob Williams
Staff Environmental Scientists
Conservation Planning
California Department of Fish and Game
601 Locust Street
Redding, CA 96001

Re. Scoping comments for the California Department of Fish and Game (CDFG) Draft Environmental Report for the proposed Shasta and Scott River Watershed-Wide Permitting Program

Dear Mr. Williams:

This letter contains the technical comments of the Yurok Tribal Fisheries Program regarding the watershed-wide permitting programs for both the Scott and Shasta Rivers. I would like to thank you for the opportunity to submit these comments beyond the original due date. Our staff has been stretched thin during recent months dealing with a multitude of ongoing important issues related to the health of the Yurok Tribe's fisheries resource.

The Yurok reservation is located along the lower 44 miles of the Klamath River. The fisheries resource of the Klamath Basin is integral to the Yurok way of live; for subsistence, ceremonial, and commercial purposes. The Yurok Tribe is the largest harvester of Klamath Basin fish populations, dependent upon all fish stocks that migrate through the reservation, including coho salmon and other species that are destined for the Scott and Shasta Rivers. These scoping comments are intended to assist the State with development of the watershed-wide permitting programs in a manner that fully protects, conserves and restores fish populations of the Scott and Shasta Rivers; basins that have the potential to once again be primary producers of fish for the sustenance of Yurok People.

It should be noted that it is a challenge to draft meaningful scoping comments regarding a DEIR that will cover an Incidental Take Permit (ITP) and Master Streambed Alteration Agreement (MSAA) when neither of these documents are yet available for review. We look forward to consulting with CDFG regarding these documents when they become available for our review. The comments listed below are in regard to the *Environmental*

Checklist/Initial Study that has been distributed for both the Scott and Shasta Rivers permitting programs.

Scope of Analysis

From the Environmental Checklist/ Initial Study it appears that the ITP is intended to apply to all agricultural activities undertaken by those who sign up and not just stream diversions and restoration projects. If this is the case the EIR must analyze and consider the entire scope of the agricultural activities to be covered, including the cumulative impact of all agricultural activities in each sub-basin currently occurring as well as anticipated activities. The full range of agricultural activities and impacts includes but is not limited to groundwater pumping, length of irrigation season, cropping patterns and systems, grazing systems, summer pasturage and stocking per acre, nutrient production and cycling, nutrient export/delivery to streams. If the word agricultural is defined to include silvicultural activities, then that needs to be clearly stated. If, as appears from the initial study, the analysis only addresses stream diversion and restoration activities, then the ITP must be similarly limited in scope and should not be applied to entire agricultural operations.

Baseline

A primary concern we have with the DEIR is that the baseline being proposed is narrowly defined as existing conditions at the time the ITP application was submitted (spring of 2005); the conditions that led to the listing of coho salmon under the California Endangered Species Act (CESA). This baseline fails to consider the past activities that have led to the degradation of coho habitat, such as the construction of Dwinell Dam in the Shasta River, the over-diversion of stream flow in both basins, the over-pumping of ground water that is hydrologically connected to surface flow, and stream channelization that has occurred to protect farm land. Per the requirements of CEQA, we request that the DEIR conduct a cumulative environmental impacts analysis, and that an assessment be made regarding the impacts to coho salmon from ongoing land and water management activities of these basins.

The environmental baseline for in-stream flows for fish should be the flows ordered in the adjudication at the gauging station. It is assumed that these flows were based on CDFG and USFS input. In fact, additional flows were requested but not granted in the adjudication.

Instream Flow

We are fully supportive of activities that will improve flows in the Scott and Shasta Rivers, as low flow is a primary factor limiting fish production from these basins. However, the success of actions intended to increase instream flow is dependent upon several factors; the “devils in the details” so to speak. Therefore, we recommend that the following assessments be conducted while developing the DEIR.

- Given that the Scott and Shasta Rivers are over-allocated, there should be an assessment of the ability to address increase of flow in an over-allocated system. For example, if California Water Code 1707 or some other mechanism is used to dedicate water rights for instream purposes, what is the likelihood that this water will actually be used for these purposes over the long-term, rather than simply used by another diverter downstream? This analysis should include an assessment of likelihood that legal and/or illegal diversions will divert or pump out of the river the water dedicated for instream purposes.

- An assessment is also needed regarding the likelihood that the abandonment of surface water diversions will not be simply converted to groundwater pumping; pumping of groundwater that is hydrologically connected to surface water. This is especially important given that groundwater pumping is not proposed to be covered under the ITP. The NCWQCB has determined in the case of the Scott that the extent of connection between ground and surface water is not accurately known. Therefore, the extent of impact of conversion from surface to groundwater irrigation is also unknown. In this circumstance, the precautionary principle suggests that the USGS and DWR finding that surface and groundwater are "broadly interconnected" should be the basis of analysis.
- A process needs to be identified that will determine measurable benefits to stream flow above the current base-line. The CEQA process should be used to assess various alternatives for evaluating stream flow benefits from various activities. This analysis should include assessment of increases in cold water flows.
- If piping of irrigation ditches is to be used as a water conservation measure, then an assessment should be conducted regarding the "net" water right vs. the "point of diversion" water right, and the resultant benefit to streamflow from the piping. There should be an assessment to determine whether piping of water in some locations may actually result in less stream flow, because of increased "net" diversion and a decrease of water leaking from ditches and returning to the stream.
- If ground water pumping is exchanged for surface water diversions, what effect will this have on the duration of the irrigation season? Could the irrigation season be extended, thereby delaying the time the stream would be re-watered in the fall? How will this be assessed prior to implementation? Since groundwater is not regulated, how will someone be prevented from pumping more or longer?
- A hydrologic assessment should be conducted regarding the relationship between ground water pumping and surface flows. All groundwater pumping measures should be guided by the results of such an assessment.
- Diversion ditches can be high maintenance, to the point that they are occasionally abandoned. Abandonment can be caused by stream channel migration or simply result from an extended period of poor maintenance. It is natural for diversion ditches to occasionally be abandoned, which is envisioned in state water law; water rights are not forever, but only for as long as they can be used. An assessment should be made in the CEQA process to determine whether piping of some ditches may affect the abandonment of ditches, thereby resulting in long-term increased water diversions. Will there be a process implemented to prevent this from occurring?
- Determinations regarding the appropriate time of year for a stream to lose connectivity should be based upon sound biology and hydrology. An assessment should be made to assess the scientific basis of any such determinations. Where

available, historical information concerning when certain streams naturally dewatered should be used and cited.

- An assessment needs to be conducted regarding whether the ITP will address non-adjudicated water rights, such as riparian and appropriative water rights.

Specificity of Language

An assessment should be conducted of the ITP and MSAA regarding the specificity of language included in the permits. For example, if there is language in regard to the dedication of water to instream flow, such language should be stated as "no less than" rather than "up to" (Scott River Initial Study, section 8.4.1 Flow Enhancement Mitigation 3).

Instream Structures

The CEQP process should include an assessment regarding the extent that instream structures and large-scale rip rap will be covered by the ITP. Will activities be distinguished regarding habitat restoration vs. protection of fields?

Prioritization of Streams for Restoration

The CEQA process should include an analysis of how streams or stream segments will be prioritized for restoration efforts. How will essential life stages be considered spatially and temporally in such a prioritization process?

Installation of Fencing and Riparian Restoration and Revegetation

If riparian planting or fencing are implemented as avoidance, minimization, or mitigation measures, the CEQA process should conduct an analysis regarding the width and resultant effectiveness of the areas to be planted or fenced. This analysis should identify the most important metric for assessing success. For example the length of stream to be restored should be given priority over the acres of trees planted and/or fenced? An analysis of effectiveness monitoring plans should also be conducted – for example, the metric for success should be based upon the densities of trees that survive, not simply the density of trees planted.

In-stream and riparian restoration projects should be required to be consistent with moving the stream toward "properly functioning condition" as defined on a site specific basis by DFG biologists.

Water Diversion Structures

If the ITP or MSAA are to cover activities such as ongoing maintenance of existing flashboard dams, gravel push-up dams and other temporary structures, the CEQA process should conduct an analysis regarding the relationship between these structures and Fish and Game Codes 5901 (states it is unlawful to not allow for fish passage) and 5937 (states that it is mandatory to allow enough water to remain in a stream to keep fish in good condition). The assessment should determine whether these structures would violate these codes. In cases where there is a violation, the environmental impacts should be assessed for providing remedies to the violation. Specifically, there should be an analysis of the Dwinell dam and the benefits of providing fish passage to Coho as required by California law or the benefits to Coho from dam removal.

Stock Water Systems
The Initial Study for the Scott River states that an average of two alternative stock watering systems will be installed per year. The Shasta River Initial Study states that two alternative stock watering systems will be installed per year if this is determined to be beneficial for coho salmon. The CEQA process should conduct an analysis to assess this rate of implementation relative to the goal of providing adequate flow for coho salmon as soon as possible.

Compliance Monitoring
According to the Initial Study, the RCD's within each basin will be responsible for monitoring the sub-permittees' compliance with the terms and conditions of their sub-permits by instituting a comprehensive compliance monitoring program. The CEQA process should conduct a thorough assessment of the accountability of such a program. Will CDFG conduct audits to ensure that the compliance monitoring program is meeting its intended purpose?

Adaptive Management
We support the effectiveness monitoring results being used as the basis for an adaptive management type program, to refine future avoidance, minimization, and mitigation measures. The CEQA process should conduct an analysis of how such an adaptive management program will be implemented. How will such a Program be encouraged? What will be the structure of such a Program? Who will be participants in such a process? Will the Basin's Tribes be allowed participation in such a Program?

Access to Property
The Initial Study states the sub-permittees shall allow "non-enforcement CDFG representatives written consent to access the sub-permittee's property for the purpose of verifying compliance with, or the effectiveness of, required avoidance, minimization, and mitigation measures and/or for the purpose of fish population monitoring, provided CDFG notifies the sub-permittee at least 48 hours in advance." The CEQA process should assess the pros and cons from allowing such access to CDFG law-enforcement personnel as well, especially given their expertise in enforcing regulatory measure.

The CEQA process should also assess whether CDFG has the authority to cede a right to private landowners. There should be a through analysis of all non-waiver enforcement provisions including aerial surveillance and the lost environmental benefits of access and enforcement allowed before the waiver. Since the State Lands Commission and the Siskiyou County Council have declared that the Scott River is navigable, the CDFG may already have the right of access. This should be assessed in the EIR.

Water Master Reporting

The Initial Study states that DWR will report the results of water use information to CDFG on a monthly basis from April to November of each year. The CEQA process should assess how often DWR will be visiting each point of diversion to ensure compliance with the law, as well as assess whether the information DWR reports to CDFG be- available to the public?

Summary

In summary, many of the activities discussed in the Initial Studies have the potential to dramatically improve conditions in the Scott and Shasta Rivers for coho salmon as well as the overall aquatic health of these ecosystems. As mentioned earlier, the success of these activities is dependent upon the details associated with their implementation. Therefore, we request thorough analysis be conducted throughout the environmental review process to ensure that implementation is effective in achieving desired results. In the end, the effectiveness of these permitting Programs should be based on results, both in regard to specific projects as well as the overall Program resulting in increased populations of coho salmon. If you would like to discuss these comments, please don't hesitate to contact me at the address in the letterhead. We look forward to meeting with CDFG staff to discuss the ITP once it becomes available for our review.

Sincerely,

Dave Hillemeier
Yurok Fisheries Program Manager

STATE OF CALIFORNIA Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
www.nahc.ca.gov
ds_nahc@pacbell.net

October 25, 2006

Mr. Bob Williams
California Department of Fish & Game
Region 1
601 Locust Street
Redding, CA 96001

Re: SCH# 2006102095; CEQA Notice of Preparation (NOP) of a draft Environmental Impact Report (DEIR) for Scott River Watershed-Wide (Including Tributaries) Permitting Program; Siskiyou County

Dear Mr. Williams:

Thank you for the opportunity to comment on the above-referenced document. The California Environmental Quality Act (CEQA) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR per CEQA guidelines § 15064.5(b)(c). In order to comply with this provision, the lead agency is required to assess whether the project will have an adverse impact on these resources within the 'area of potential effect (APE),' and if so, to mitigate that effect. To adequately assess the project-related impacts on historical resources, the Commission recommends the following action:

√ Contact the appropriate California Historic Resources Information Center (CHRIS). The record search will determine:

- If a part or the entire (APE) has been previously surveyed for cultural resources.
- If any known cultural resources have already been recorded in or adjacent to the APE.
- If the probability is low, moderate, or high that cultural resources are located in the APE.
- If a survey is required to determine whether previously unrecorded cultural resources are present.

√ If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.

- The final report containing site forms, site significance, and mitigation measurers should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure.
- The final written report should be submitted within 3 months after work has been completed to the appropriate regional archaeological Information Center.

√ Contact the Native American Heritage Commission (NAHC) for:

* A Sacred Lands File (SLF) search of the project area and information on tribal contacts in the project vicinity who may have information on cultural resources in or near the APE. Please provide us site identification as follows: USGS 7.5-minute quadrangle citation with name, township, range and section. This will assist us with the SLF.

- Also, we recommend that you contact the Native American contacts on the attached list to get their input on the effect of potential project (e.g. APE) impact.

√ Lack of surface evidence of archeological resources does not preclude their subsurface existence.

- Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) §15064.5 (f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities.
- Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans.

√ Lead agencies should include provisions for discovery of Native American human remains or unmarked cemeteries in their mitigation plans.

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ds_nahc@pacbell.net

* CEQA Guidelines, Section 15064.5(d) requires the lead agency to work with the Native Americans identified by this
Commission if the initial Study identifies the presence or likely presence of Native American human remains within the APE. CEQA Guidelines provide for agreements with Native American, identified by the NAHC, to assure the appropriate and dignified treatment of Native American human remains and any associated grave liens.

√ Health and Safety Code §7050.5, Public Resources Code §5097.98 and Sec. §15064.5 (d) of the CEQA Guidelines mandate procedures to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

√ Lead agencies should consider avoidance, as defined in § 15370 of the CEQA Guidelines, when significant cultural resources are discovered during the course of project planning.

Please feel free to contact me at (916) 653-6251 if you have any questions.

Sincerely,

Dave Singleton
Program Analyst

Cc: State Clearinghouse
Attachment: List of Native American Contacts

PS: Ron Lincoln is the new chairperson of Quartz Valley.

COUNTY OF SISKIYOU

COUNTY ADMINISTRATIVE OFFICE

Barry Shioshita, County Administrator
P.O. Box 750 • 201 Fourth Street, Yreka, CA 96097
Phone: (530) 842-8005, Fax Number: (530) 842-8013
www.co.siskiyou.ca.us

November 20, 2006

Mr. Bob Williams
Staff Environmental Scientist
Conservation Planning (CDFG)
601 Locust Street
Redding, CA 96001

RE: CEQA COMMENT ON THE SHASTA RIVER/SCOTT RIVER WATERSHED PROJECT "INCIDENTAL TAKE PERMIT"

Dear Mr. Williams:

Siskiyou County has long taken a proactive approach to dealing with environmental issues that impact the constituency in our county, and as such, appreciates the opportunity to comment on this "groundbreaking approach to permitting" that can benefit public trust resources, landowners and water users in a synergistic way. This project is the result of the development of a Recovery Strategy for Coho Salmon and the Pilot Program on the Scott and Shasta River valleys for agricultural operations. We have the following comments:

1. It is critical that a very clear and complete description of the "programmatic" or "watershed-wide" nature of this CEQA process be included in the appropriate documents. The ESA Team stated in its workshop sessions that "types of measures" would be evaluated under CEQA, not specific measures or the specifics of measures. We think the manner and method of tiering this EIR to any needed EIRs for specific actions/projects that would be implemented as part of the avoidance, minimization, and mitigation measure process should be specifically stated, described, and analyzed. We feel that some type of Program EIR, Project EIR, Master EIR, or some other CEQA document may be necessary as a template for review and analysis of this "project." It is our understanding that one of the incentive benefits for prospective applicants is that the requirement for an individual CEQA review would be eliminated. Is there a possibility that a sub-permittee would have to do additional CEQA analysis and review under the program as currently outlined?

   We understand that the State and Regional Water Boards may have a template for CEQA analysis and review on a state-wide and region-wide basis regarding waste discharge requirements. Communication with them may have benefits to this CEQA review.

The ESA Team also stated that it would be impossible to quantify the take or the benefits to fish from the measures in the permit. The potential success of this project hinges on the ability of people to actually see that the take of anadramous fish is avoided, minimized, or fully mitigated, and that the 1600 requirements will indeed protect the riverine environment. Therefore, it is critical to fully communicate a complete description of the permitting program and the "project" to be reviewed under CEQA.

2. There is a tremendous advantage for the Department of Fish and Game, public trust resources of the valleys, and the citizens/water users/farmers and ranchers to participate in a watershed-wide, streamlined permitting system. This proposed permitting program institutes actions where those actions are not just tied to an individual applicant's property (as under a standard individual permit), but are focused and prioritized in the watershed where the benefit to the public trust resources, sub-permittees, and permit holders alike is maximized. This unique program will allow prospective applicants an incentive as well as a choice to apply through the "Watershed-wide Permitting Program." This is another reason why it is important to clearly describe and distinguish the "program" from the "project". It is important that the larger benefit from a watershed-wide approach be communicated and analyzed in the CEQA process.

   In order to realize these benefits, potential sub-permittees must see an advantage to working together for the benefit of other sub-permittees under the watershed-wide approach. Any financial burden in terms of potential costs and fees must be spread to all individuals participating considering the factors of equitability and proportionality. This burden needs to be less than the cost of applying for an individual permit. Under the watershed-wide approach, there must be equity and fairness across all resource users. The permit provisions and language must allow the RCDs, as permit holders, to implement the program in the best manner possible. Such permitting language should allow the RCDs the flexibility to organize and administer the permitting process in order to attract as many sub-permittees as possible. The RCDs must look at an appropriate fee structure, and may also need to specify measures that enable fair and equitable treatment, such as a mitigation banking program.

3. We suggest that this CEQA process prevent and clear up any existing confusion between the Recovery Strategy that is now being voluntarily implemented, and any stipulated permit measures that are currently designated as recovery tasks but which will become requirements under the Watershed-wide Permitting Program.

4. This permitting program must be economically sound. The opportunity to achieve strong resource management, a viable permitting program, and a user-friendly approach will pay dividends as open space in these river valleys continues to serve the needs of both citizens and public trust resources.

5. The manner and method that this project and program can interface with TMDL Action Plans and federal recovery plans should be discussed in the CEQA analysis. It makes sense that the two components, i.e., TMDL Action Plans and the federal recovery strategies should mesh, and this interactive approach will eliminate unnecessary and costly redundancy or conflict in achieving the objectives of both programs.

6. We encourage program paperwork simplification to the extent practical. Let's keep the process as simple as possible, and make it viable and attractive to potential applicants.

7. We encourage an evaluation of the use of hatcheries as replacement of habitat where that would be appropriate.

We think that the alternative of having permit applicants get an individual permit and be responsible for avoidance, minimization, and mitigation measures on that property is not as beneficial to resources and citizens as is the watershed-wide permitting approach currently being analyzed.

Sincerely,

Barry Shioshita
County Administrator

James DePree
Natural Resource Policy Specialist

Ad Hoc Committee

P.O. Box 484
Occidental, CA 95465
707 874-3855

Bob Williams
Department of Fish and Game
601 Locust Street
Redding, CA 96001

12/6/06

re: NOP DEIR Scott and Shasta River Watershed ITP and *Master* Streambed Alteration...

Dear Mr. Williams,

1. This ITP and "Master" streambed alteration agreement and its associated proposed Draft EIR are absolutely inappropriate and to the best of my knowledge and belief *illegal* -- a violation of CEQA and perhaps other California Codes. A "Master" agreement is outrageously wrong for the Scott and Shasta, especially considering the ongoing degradation of the Klamath watershed and the fact that the degradation is being used to justify the destruction of the commercial salmon fishing industry! We need analysis of *specific* projects and *specific* impacts, not a *generalized analysis* of activities *in general.*

The Klamath watershed is "degraded" (EPA assessment *over 10 years ago*). The Shasta has temperatures so high they are *lethal* for salmon. A once highly abundant resource has been reduced to threatened or nearly extinct, due to water diversions. The commercial salmon industry, along with the watershed, reduced to but a fraction of its former productivity and the the Siskiyou Resource Conservation District would consider a so-called "Master" streambed alteration agreement that would allow individual property owners and the RCD *to avoid* a specific analysis of proposed "bulldozing", "additional diversions", "cattle crossings", "flashboard dams", "gravel push-up dams", "pumps", "excavations" without requiring a *specific* EIR on each and every such potentially disastrous project proposal!!??

Such a proposition in the context of the collapse of the commercial salmon industry, *due to degradation of the Klamath,* is appalling. We don't need any additional siltation downstream from any projects -- even those *purporting* to be in the best interest of the coho. The best approach to saving coho and chinook and increasing their abundance, is to get the heavy equipment out of the streams, and *reduce*, not add to the already existing water diversions.

2. Since the MSAA and ITP are still in *draft form*, it is premature to attempt an environmental assessment of them! It is impossible to assess the adequacy of the "checklist" absent the Final MSAA and ITP. Do we evaluate generalities now, only to see the "Draft" changed later?

3. What about *cumulative* impacts? *How many* new diversions, push-up dams, bulldozers, cattle-crossings, etc, would the Master Plan allow? How could an EIR assess cumulative impacts without knowing the sum total of projects and where exactly they are proposed to be located?

4. It might sound positive, on its face, to plant shade plants along the banks, but often the road to disaster is paved with good intentions. We cannot just assume that the best judgment and best risk-benefit assessment will prevail in any given case. Willows have been planted where they do not grow, and bank stabilization projects have caused bank failures. We need to be analyzing and commenting on specific projects as they are proposed, not "agreement" generalities.

5. We believe that the "future studies" in the ITP and MSAA for both Shasta and Scott Rivers are in violation of CEQA per *Sundstrom v Mendocino*. If you proceed with this environmental assessment, specific analysis of any project would happen *in the future*, *after* this generalized, non-specific, environmental review, *outside the scope of public disclosure* and comment, which we believe, is in violation of CEQA.

6. "Future studies" examples:
Page 12, Scott River Environmental checklist (equivalent examples are in the Shasta document):

"...each sub-permittee...*will* implement specified requirements in an effort to eliminate 100% of the fish barriers...." *Future specifications*! We cannot *assume* these "specified requirements" will be adequate just because they will be reviewed by CDFG. Specified requirements need to be prepared for the public and other agency review *during, not after,* the CEQA process!

"...each sub-permittee *will be* required to provide...fish passage...at each diversion.... Where such passage appears to be inadequate, the sub-permittee must submit plans to CDFG for review and approval." More *future* plans and *future* review. Plans must be part of, *not outside* the CEQA process. The *public* and other Agencies have an obligation to review those plans by law (CEQA).

"If engineered drawings are deemed necessary [by CDFG], they *will be* submitted for review and approval prior to implementing the project." More *future* plans and *future* review, *after* this CEQA process. Those specific plans need to be part of CEQA review.

7. In general, we believe that the MSAA and ITP for both Shasta and Scott Rivers are an attempt to remove specific instream projects from public scrutiny contrary to CEQA. This must not be allowed. We say scrap this project. It runs counter to all the positive efforts being made to restore our the watershed. If RCD and CDFG review was adequate to protect the Klamath watershed and its resources from degradation, the Klamath would not be degraded today! There is need for radical departure from past practices and a need for public and other agency ideas *per CEQA*.

Sincerely,

Ann Maurice

Ann Maurice

CALIFORNIA TROUT

November 20, 2006

Bob Williams
Staff Environmental Scientist
Conservation Planning
California Department of Fish and Game
601 Locust Street
Redding, CA 96001

RE: Shasta and Scott River Watershed-Wide Permitting Program

Dear Mr. Williams,

California Trout appreciates the opportunity to comment on the California Department of Fish and Game's (CDFG) Shasta-Scott River Watershed-Wide Permitting Program (Program). We understand at this time we have the opportunity to comment on the scope and content of environmental information for the development of a Draft Environmental Impact Report (DEIR).

California Trout is a statewide conservation organization dedicated to protect and restore wild trout and steelhead waters throughout California. California Trout operates a field office in Mt. Shasta and has worked specifically in the Shasta River watershed since 2000. California Trout has served as a member of the statewide Coho Salmon Recovery Team and the Shasta-Scott Recovery Team (SSRT).

We are supportive of the Program to develop a watershed wide permitting process to implement coho salmon recovery tasks and facilitate compliance of agricultural activities and restoration projects with the California Endangered Species Act (CESA). However, for the program to succeed several fundamental issues must be addressed.

- The Program is intended to address Fish and Game Code Section 1602 but should not memorialize or provide any other explicit exemption for landowners to comply with the Fish and Game Code, including but not limited to Section 5937.
- California Trout recommends that these measures not be financed exclusively with public dollars. Diverse funding mechanisms for all

measures should be identified and include the contributions from applicants.

We are confident the above issues can be addressed and believe on the whole the implementation of the Program will facilitate implementation of Coho Recovery Strategy recommendations and improve habitat conditions for coho salmon in the Shasta and Scott Rivers. Below we provide our specific comments on the Initial Study by section and highlight issues in need of additional evaluation in preparing the Draft Environmental Impact Report (DEIR).

8.1 Project Overview

If DFG extends the Master Streambed Alteration Agreement (MSAA) an additional five years as proposed (pg. 2) there should be a public review process for the extension. The DEIR should evaluate the need for a public review process at the end of year five.

We look forward to reviewing and commenting on the specifics of the Incidental Take Permit (ITP) and the MSAA at the appropriate time. Our comments here are in the context of not reviewing the details of these plans because we understand they are still in draft form and not ready for public comment. We also understand these documents will be made available as part of the DEIR and we look forward to commenting then.

8.3 Environmental Baseline

CDFG defines environmental "baseline" conditions (pg. 6) as the date the application for an ITP is submitted. However, baseline conditions are what led to CESA and Federal ESA listings. The DEIR should evaluate the use of baseline conditions that provide a higher threshold than existing conditions.

8.4.1 Covered Activities

ITP and MSAA Covered Activity 1: Water Diversion Pursuant to a Legal Water Right.

All water rights should have mechanisms for verification as specified in the *Coho Recovery Strategy for Coho Salmon,* Table 10-1 recommendations WM-2a-d, pages 10.4 and 10.5. The DEIR should evaluate the potential impacts of the potential for legal water right diversion allocations to exceed available instream flows. The DEIR should identify and evaluate measures to protect coho salmon in these instances.

ITP and MSAA Covered Activity 2: Water Diversion Structures.

Covered Activities include flashboard dams, gravel push-up dams and other temporary structures. Gravel push-up dams "form a flow barrier that seasonally blocks the flow of the stream/river" (pg. 7). The DEIR should evaluate gravel push-up dams and their compliance with Fish and Game Code Sections 5901 and 5937.

8.4.2 Conditions of Approval

ITP General Condition C

This condition requires sub-permittees to provide “non-enforcement CDFG representatives written consent to access the sub-permittee’s property…..” (p. 11). California Trout requests that all CDFG employees be allowed access to sub-permittees property subject to the written consent and prior notice stipulations. Specifically denying access to CDFG enforcement representatives unnecessarily garners mistrust. Additionally the DEIR should evaluate the need for landowner access agreements for CDFG to inventory and assess fishery populations and habitat conditions in all areas covered by Program.

ITP General Condition D

This condition identifies sub-permittees as being responsible for any costs to implement any avoidance or minimization measures and that that the SVRCD is responsible for costs to implement any mitigation and monitoring measures. CalTrout agrees with this condition and we would also like to highlight the issue of funding these measures. CalTrout recommends that these measures not be financed exclusively with public dollars. Diverse funding mechanisms for all measures should be identified and include the contributions from applicants.

ITP General Condition F

The DEIR should explain and evaluate Condition F (pg. 11) regarding a $100,000 letter of credit for CDFG to draw against if the RCD or sub-permittee fails to comply with measures they are responsible for.

ITP Additional Avoidance and Minimization Obligation C: Fish Passage Improvements

This condition requires that “the SVRCD and each sub-permittee with fish passages issues will implement specific requirements in an effort to eliminate 100% of the fish barriers on a scheduled basis over the term of the ITP” (Initial Study, Page 12). CalTrout supports this measure. However, we note the contradiction of this measure when compared to *ITP Additional Avoidance and Minimization Obligation I: Dwinnell Dam and the Montague Water Conservation District (MWCD).* In regards to fish passage Obligation I requires the MWCD to shall develop a feasibility study to “investigate the *possibility* of providing fish passage at Dwinnell Dam” (Initial Study, Page 14, emphasis added). In the development of a Draft EIR this contradiction should be resolved by clearly identifying and evaluating potential measures to provide fish passage around Dwinnell Dam.

Flow Enhancement Mitigation 2: Improve Baseline Instream Flows Via Water Efficiency Improvements.

This mitigation measure states that “generally” a water transfer will utilize Water Code Section 1707 (p. 14). California Trout believes all transfers should be done under 1707 and request that the DEIR evaluate this water transfer issue.

Flow Enhancement Mitigation 3: Develop and Implement a Contingency Plan for Dry and Critically-Dry Water Years.

Flow Enhancement mitigation 3 (pg. 15) includes pumping groundwater to meet surface flow requirements during Dry and Critically-Dry Water Years. The DEIR should evaluate the potential impacts of pumping groundwater during dry years. Groundwater pumping during dry years has the potential to exacerbate low flow conditions.

Flow Enhancement Mitigation 4: Install Alternative Stock Water Systems.

Flow Enhancement mitigation 4 (pg. 15) also relies on groundwater pumping. As for *Flow Enhancement Mitigation 3* the DEIR should evaluate the potential impacts of groundwater pumping during dry years for stock water purposes. Specifically, connectivity and water right issues should be addressed.

8.5.3 Monitoring and Adaptive Management Program Under the ITP

The DEIR should evaluate the efficacy of allowing the SVRCD to be responsible for monitoring sub-permittees' compliance with the terms. We see the rationale in this arrangement given the SVRCD may be best suited to implement a monitoring program but the DEIR should clearly evaluate the relationship between the SVRCD and the CDFG as the enforcement agency. Our primary concern is that because the SVRCD is an organization representing member landowners and in certain circumstances be reluctant to report violations to CDFG and in some cases this may happen unintentionally. We believe these concerns can be alleviated by a clear evaluation in the DEIR of the role of the SVRCD in compliance and evaluation of the role of CDFG.

California Trout believes one of the most important parts of the Program is effectiveness monitoring. We recommend that the DEIR evaluate an effectiveness monitoring plan. We suggest an evaluation of the Integrated Status and Effectiveness Monitoring Program (ISEMP) currently being implemented in the Columbia River Basin. The ISEMP has been created as a cost effective means of developing protocols and new technologies, novel indicators, sample designs, analytical tools, data management, communication tools and skills, and restoration experiments. The most important and relevant part of the ISEMP is the Intensively Monitored Watershed (IMW) program designed to determine the effectiveness of restoration actions through an experimental management framework. We believe this program could provide an excellent framework for evaluating the success of the Program and California Trout stands ready to assist CDFG, SVRCD and landowners in establishing this program. Further information on the ISEMP program can be found at http://www.nwfsc.noaa.gov/isemp.

Conclusion

California Trout appreciates the opportunity to comment. We are supportive of CDFG, SVRCD and landowners efforts to develop the Program and are confident that a comprehensive Draft Environmental Impact Report will adequately address and evaluate our concerns. Any questions about California Trout's comments can be addressed to

Curtis Knight in our Mt. Shasta Area Office at (530)926-3755 or by email at caknight@jps.net.

Sincerely,

Curtis Knight
Mt. Shasta Area Manager

Received @ Shasta River Scoping meeting 10/24/06

SHASTA RIVER SCOTT RIVER WATERSHED–WIDE PERMITTING PROGRAMS
ENVIRONMENTAL IMPACT REPORTS

The public is invited to provide comment or concerns related to the Shasta River Watershed Project.

Name: Regina Chichizola - Klamath River Keeper

Address: PO Box 21 ~~8~~

City, State, Zip: Orleans CA 95556

Telephone: 530 627-3280

E-mail: klamath@riseup.net

Comments may be submitted tonight or mailed to:

Mr. Bob Williams,
Staff Environmental Scientist

Conservation Planning (CDFG)
601 Locust Street
Redding, CA 96001

(530) 225-2365 (phone)
(530) 225-2381 (fax)

COMMENT: The Shasta + Scott Rivers have most of the water diverted and need additional flows. The job of the agencies is to protect the Coho not only to work with water users. Down river communities are effected by the Scott + Shasta.

Additional water needs to be cold. Parks Creek should go it the river and not into Lake Shastina. Waterways should not be bulldozed or grazed + ground water needs to be included in the Scott. I will provide additional comments later. Please have a hearing for

Thank you for your participation: down river communities. We need to try to hard to give inpute. ~~I will do.~~

Thank you, Regina

Bob Williams
Staff Environmental Scientist
Department of Fish and Game-North Coast Region
601 Locus St.
Redding, CA 96001

RE: Scoping comments on the Scott River ITP/Watershed Wide Permitting Program

Thank you for the opportunity to comment on the Scott ITPs/Watershed wide permitting program. The following comments are from the Klamath Riverkeeper and the Klamath Siskiyou Wildlands Center.

Aspects of the ITP that we support

First let us say that we fully support all the restoration projects included in the project, such as cattle exclusion fencing, riparian restoration, and in stream structures for salmon, and believe that any possible take associated with these activities can be mitigated. We however do not support many of the other covered activities and are very disturbed that very little mitigation for these activities is presented, even though they are largely responsible for the decline of the salmon. It seems that avoidance and minimization is ignored all together.

Activities that may be beneficial in the long term, and those that will be harmful to fish until the end of the ITO and MSAA should be analyzed and permitted separately.

We do not however support the coupling of these beneficial activities with the non-beneficial covered activities such as, allowing stream crossings of cattle and vehicles in the river, allowing equipment in the creek to build push-up dams, grazing in waterways, and massive water diversions.

These are the activities that have cause the decline of the Coho Salmon and should be covered in a separate permit. Furthermore TIP's rely on the avoidance, minimization and mitigation of impacts, and although none of these are presented to the public, it seems that minimization and avoidance options are not going to be analyzed at all.

Many other activities that should be included in a watershed wide permit are not even mentioned in this document. Do these activities need a second permit, or it is the plan of the DFG to ignore the take of Coho from non-agriculture activities? These activities include road building and timber harvesting, public and private road work in creeks, permanent dams, sewage treatment plants, timber mills, flood control activities, ext.

The process thus far has been exclusively for select future permittees, and is a violation to CEQA, treaty rights, and violates the public trust

W believe the currently process is not transparent, is not scientifically motivated or supported, and the supporting information and information we are commenting on is being selectively distributed. Furthermore the Environmental Checklist, which is the only information provided to the non-agriculture community whom has not been allowed to be involved with the process, has very little information pertaining to either the needs of salmon, or the opinions of scientist or any stakeholders beyond the farming community. Furthermore it ignored all available science, the Coho recovery strategy, all cumulative affects to Coho, and does not quality any of its suggested covered activities or Contingency Plans. These factors leave the public, and other stakeholders, with next to no information to form their opinions on and generates mistrust.

We are very concerned that the farmers in the valley, whom are partially responsible for the problem, are the only people whom have been considered thus far in the process due to the fact the local RCD's only include them. The fishermen, tribes, scientist and other stakeholders have not had the opportunity to ever review the plan, let alone help to format it. This is a clear violation of the CEQA process and is extremely counter to the goal of recovery. We feel the covered activities, with the exception of the restoration activities cannot be mitigated as is, and the local RCDs have stated that the ITP are responsible to the farmers first and the Salmon second. Furthermore these activities will run counter to the Scott and ScottTMDLs, the Clean Water Act, the California Endangered Species Act, the Endangered Species Act, CEQA, the Port Cologne Act, public trust responsibilities, and tribal trust responsibilities, along with other applicable laws. We suggest that the DEIR include options that will protect salmon, avoidance and minimization, separate out restoration activities from degradation activities, use sound science and the Coho Recovery Plan.

ITP's and MSAA are virtually identical, and do not take into account watershed specific needs and limiting factors.

We are also very concerned that, with the exception of discussion of three fish barriers (none of which is the Dwinnell Dam), in the mitigation section, these ITPs are identical.

While both of these watersheds have similar issues, they have very different base line conditions and hydrology, therefore these watersheds having identical paperwork and permits is inappropriate. ITPs should be watershed specific, should be supported by sound science, and should be enforceable. In the draft form, this is certainly not the case. Of course due to the fact that we can not review the actually ITP but only the environmental checklist, we are assuming that the Environmental Checklist reflects the mistakes of the actual draft permit that we are not allowed to review.

Things that are different with the Scott River then the Shasta

As stated before the Scott River is naturally a very different river then the Scott. Although you are calling current conditions the baseline, this is not the case and in fact these watersheds have very different natural conditions.

Effects of forest management and the Scott River tempiture listing not addressed

"Channel scour in other lower Scott River tributaries may have also contributed to temperature increases. Loss of cold water contributions from these lower tributaries may have profound impact on ecosystem function in the lower Scott River."

The tributaries in the lower Scott, and some in the valley are the refugia that keeps Coho alive, however the watershed wide permit for the Scott does not mention this non the impacts of sediment to these tributaries. The whole Scott River is listed for sediment and the lower Scott is mainly on highly erosive Decompossed Granite soils. It is heavily roaded by both the Klamath National Forest and private timber companies. If any forestry adds sediment to the Scott River they should have to get a take permit.

Furthermore the impacts of the covered activities to sediment need to have a hard look. Many of the detrimental covered activities, such as creating gravel dams with equipment, and allowing vehicles and cows in waterways have a great chance of increasing sediment in the Scott River greatly and can most likely not be mitigated. Furthermore these activities will violate the Basin Plan, the Scott TMDL, and Porter Cologne.
We have data and photos that support both the covered activities and forestry impacts to sediment in the Scott River

That being said here are our comments on the Environmental Checklist, which is the only document that non-farmers currently have to review. We have very little faith in this process and are hoping the Fish and Game immediately change it to be more inclusive. We also suggest separating out the restoration activities from the degradation activities, and using the best available science in creating these permits. We also suggest the each sub-permittee within this process undergoes CEQA, as it is the law.

Forest Services water rights for salmon ignored

Within the Scott River watershed the US Forest Service has a water right that it holds for salmon protection near the mouth of the Scott River. This water right is regularly not fulfilled due to overuse and possibly ground water pumping by upstream agriculture users. It is apparent that water rights that are used for salmon are ignored, while water rights for upstream agriculture is not managed properly. Any watershed wide permitting process needs to deal with water management. The ITP must mitigate the loss of salmon due to lack of water and must finally regulate some instream flows. The ignore this issue will open the ITOP to possible litigation or lead to the opening of the Scott River adjudication.

Groundwater is a major issue in the Scott River

“ There appears to be a substantial increase in the number of days with extremely low flows (Figure A5-31). Moffett Creek lost perennial surface flow in the late 1950's as a result of ground water depletion (DWR, 1958). The drop in ground water has contributed to loss of riparian vegetation that in turn effects bank stability.”

The interconnectedness of the ground and surface water in the Scott River has been documented for many years and scientific studies have been done, and more are planned on this subject. However the proposal for when there is low flows to deplete ground water ignores this fact. Due to the great number of water diversions, and the continual ground water pumping in the Scott Valley, most of the Scott River tributaries are now subsurface, and many of the ground water diversions are actually directly next to these subsurface waterways. To ignore the role of groundwater in the Scott Valley, and the scientific controversy that surrounds it, is a violation of many laws. Furthermore by suggesting mitigating a flow issues, by using a practice that is one on the reasons there are such serious flow issues in the watershed is a violation of CEQA and public trust responsibilities. Indeed the continual denial of the interconnected nature of the ground water to surface water relationship in the Scott may be a limiting factor for Coho in itself and may lead to localized extinction of the Coho from the Scott Valley.

Cumulative effects within the Scott River

The Cumulative effects of the proposed ITP does not take into consideration the great impacts to the Scott River from the Dwinnell dam and Lake Shastina impoundment. This impoundments takes cold spring feed waters and makes them warm and nutrient rich. It also impounds and adds to all upriver pollution. Furthermore several large pollution sources, such as the Weed Wastewater Treatment Plant and the Roseburg Mill enter Lake Shastina, which compounds these sources of water quality problems. Are all these sources going to be included in the ITP? Does the Dwinell Dam, which not only blocks the Coho's migration, but also leads to the very conditions that cause salmon mortality, deserve to be included in this permit? Will it have it's own permit? Has the effects of this impoundment coupled with the covered activities been assessed? Will timber and population related take, be permitted? Is non-agriculture land management going to be assessed? Will the ITP include that the Scott River TMDL says that at minimum 45cfs is needed to keep salmon alive in the Scott River? Will CFS continue to insist that Coho only need voluntary restoration and not flow, even though this attitude led to the listing and ignores all available science and the Coho Recovery Plan? How will the ITP incorporate the Action Plan for the Scott River TMDL? How about the upcoming Stream and Wetland Protection Policy?

Many other activities that have a high potential to take Coho Salmon within the Scott River watershed are not addressed in any manner. This not only makes the Watershed Wide permitting process incomplete, but it will have substantial cumulative effects. These activities include: water diversions, groundwater diversions, road building and timber activities in a sediment listed watershed, chemical use, and public lands grazing.

Cumulative effectives within the Klamath Watershed

How these ITP's will interact with ongoing state and federal actions on the Klamath River is not discussed in the Environmental Checklist. Some of these, such as the recently litigated Biological Opinion on the effects of the Klamath Project on Coho Salmon, are extremely important to the survival of the same Coho Salmon that utilize the Scott River.

Other actions that will have a cumulative impact on Coho Salmon that are occurring in the Klamath are, the FERC Klamath Dams EIS, recent changes to Klamath Fishing management by the Pacific Fisheries Management Council, the CIP being planned by the Bureau of Reclamation, CDF timber harvest plans, The Federal Endangered Species Act

Bi-ops and Take Permits in the Scott and Shasta, the Hardy Flow Study, Ongoing Forest Service and BLM Management, the Klamath River TMDL, the Stream and Wetland Protection Policy, the State Water Board triennial review, and the implementation of the Non-point permitting program of the State Water Boards. It is also possible that due to the lack of action for the Coho that soon many other Klamath fisheries will soon be on the Endangered Species List.

The Environmental checklist does not use any science nor admit to scientific controversy
A wealth of science and Scientific Reports on the Klamath Coho, and the Scott and Scott exist, including reports and Documents from the Department of Fish and Game. Yet not even you own documentation or suggestion are included in the Environmental Checklist. Are you planning to ignore your own science or to pretend there is not existing analysis on the Coho Salmon? The failure to use supporting science or mitigation measures that are supported by science is a major downfall of this project. Your own Recovery Plan states that voluntary restoration has not stopped the de-watering of the Scott Watershed and thus the downfall of the Coho Salmon.

Suggested actions for Scott River Coho taken from the Coho Recovery Strategy
The ITP needs to address flow and groundwater use (even though it appears this is a bigger issue in the Scott). The Scott River is practically de-watered every year, and has a spring and glacier feed characteristic that makes the Scott unique, and very important to the Klamath River and to Coho Salmon. Peer reviews science states that the current serious degradation of the Scott River is more responsible then any other factor then perhaps the dams on the Klamath, to the decline of the Coho in the Klamath. The interconnected nature of the decline of the Klamath Coho and the Scott Coho, and the cumulative effects to the Klamath Coho from the impacts to the Scott impoundments and diversions, and the Klamath dams are not explored, or even mentioned. We suggest these relationships are explored.
Furthermore the almost yearly take of salmon due to dewatering, the impacts on smolt-juvinile production from low water quality and quantity, along with the impacts to the Coho both locally and cumulatively from fish decease need to be explored.

The following suggested actions are taken directly from the Coho Recovery Strategy and only reflect a very little of the pages and pages of discussion on the need of Coho to have flows to survive.

Flow
While the Coho Recovery Strategy focuses heavily on recovery and protection activities on the Scott and Shasta, yet very few of these Recommendations or limiting factors are addressed or even mentioned in the ITP.
All the restoration activities in the world will not work without water. The Scott River and tributaries are de-watered much of the year and riparian buffers are not used for agriculture throughout the watershed**. The ITP as presented in the Environmental checklist will be in violation of its own purpose**, which includes the following:

“Eliminate unauthorized take of Coho salmon caused by water diversions in the Scott River watershed and minimize and fully mitigate take of Coho salmon incidental to legal water diversions, recovery activities, and other lawful activities.

The discussion of flows and water users not being properly regulated is dominant in the Coho Salmon Recovery Strategy under the Shasta and Scott Pilot Program section, along with all available science on the Coho within the Shasta and Scott Rivers. However flow needs and regulation is barely mentioned in the scoping document. While it is impossible to know what is in the draft ITP for the general public whom is deprived of actual documentation to use for commenting, the fact is that until flows are addressed the permitting of actions that take salmon are not properly mitigated. Some quotes that support this fact are following:
The following science quotes support this claim. The Draft EIR should include scientific quotes to support not adding flow or dealing with ground water if this is not going to be include in the draft EIR

“Water temperatures in the Scott River can be limiting for salmonids, particularly in dry years. Flow depletion tends to contribute to temperature problems. Comprehensive temperature monitoring on the Scott and its tributaries has provided a greater understanding of how varying water years can effect temperature.”

“However, the anadromous fish production of the Scott River continues to be impaired by high sediment levels and high water temperature, which is partially related to flow depletion. There are some signs of sediment abatement through cooperative efforts in the French Creek drainage. However, sediment yield from some lower Scott River tributaries increased as a result of the 1997 flood and many reaches of the East Fork Scott, Moffett Creek and Shackleford Creek also suffered flood damage.”

“Reaches in the lower Scott Valley at Highway 3 may go dry in drought years as well. During the sequence of drought years from 1987 to 1992, tributaries such as Kidder Creek were dry even during winter months. Shackleford Creek continues to dry up before joining the Scott during late summer annually as a result of irrigation diversions. Long-term trends show that periods of critically low flow have tended to increase since 1942, when flow records began to be monitored consistently on the Scott River. A comparison was made of the number of days the Scott River has dropped below 40 cubic feet per second using U.S. Geologic Survey flow data. There appears to be a substantial increase in the number of days with extremely low flows (Figure A5-31). Moffett Creek lost perennial surface flow in the late 1950's as a result of ground water depletion (DWR, 1958). The drop in ground water has contributed to loss of riparian vegetation that in turn effects bank stability.”

“Water temperatures in the Scott River can be limiting for salmonids, particularly in dry years. Flow depletion tends to contribute to temperature problems. Comprehensive temperature monitoring on the Scott and its tributaries has provided a greater understanding of how varying water years can effect temperature.”

"Low instream flows, especially in dry years, limit habitat for Coho and other salmonids. There are no comprehensive plans to deal with providing instream flows for Coho salmon."
"In non-watermaster areas, diverters may not be diverting there correct allotment and there is no verification that diverters are correctly following their adjudicated right, if diverters are taking more then their right it may be impacting instream flows, Coho salmon habitat and water-right holders." "Careful management and verification of diversion amounts according to their existing decrees may increase flows. Recent DWR efforts to more precisely manage diversions on the watermaster sterns have produced higher prolonged instream flows in the summer season. Watermaster also are able to manage volunteered or dedicated instream flows"
"Short term: As an interim measure a

It is apparent that water rights that are used for salmon are ignored, while water rights for upstream agriculture is not managed properly. Any watershed wide permitting process needs to deal with water management. The ITP must mitigate the loss of salmon due to lack of water and must finally regulate some instream flows. The ignore this issue will open the ITOP to possible litigation or lead to the opening of the Scott River adjudication.

The Shasta and Scott Pilot Program chapter of the Coho Salmon Recovery Strategy goes on to talk about the need of water management for many pages, however none of these issues or solutions are addressed in the ITP. Some of these issues and solutions that would cover the mitigation responsibilities of CEQA are: the developing of the Dry Year Water Plan (this needs to be done before an ITP is issued), add additional oversight on water use (this should be done by a agency or third party), start voluntary slow measurements of non-watermaster areas, approach those with unused water rights and ask them to add to instream flows and oversee to make sure water remains, develop creative water management techniques to benefit Coho salmon, develop plan to predict flows and manage accordingly, develop a flow study that deals with flows and habitat

Water Quality needs to be addressed

Fish and Game Code 5937 ignored, as is many other applicable laws
Fish and Game Code 5937 provides that dam operators and irrigators must allow sufficient water to pass the facilities to maintain fish habitat below the dam/diversion "in good condition. As mentioned before the flow needs of Coho, though a large focus of the recovery plan, are not mentioned in this document beyond the purpose and need statement. Numerous articles and documents mention the policy of Fish and Game ignoring 5937 in the Shasta and Scott Valleys, as a factor in salmon decline. This is only one of the many laws that this current ITP proposal chooses to ignore.

The limited scoping documents ignores all scientific controversy and documentation, but instead chooses the unsupported status quo.

An emergency water plan does not mean the same as depleting ground water at will

Money to implementation the ITP and MSAA are already provided, activities are planned, and the draft is completed before scoping has begun, which makes a mockery of the CEQA process.

Measures to avoid, minimize and mitigation referenced but not provided
" The MSAA, which is currently in draft form, will identify activities that it will cover, referred to in the MSAA as "Covered Activities." The MSAA also will include mitigation measures necessary to protect fish and wildlife activities that any of the Covered Activities could substantially adversely effect."

Sub-permitting must be subject to CEQA
A recent decision in the Joy Road case stated that the California Department of Forestry could alter THP's without going through CEQA. Therefore all sub-permitting that is not covered in the initial ITP and MSAA need to go through the CEQA process. This is especially important when looking into cumulative impacts of the covered activities. For instance both moving cows across watersheds and in-stream use of heavy equipment to built push up dams for diversions are covered activities. However how many cows and how much instream work and the impacts of both are key issues that ass to the decline of salmon.

To allow these sort of watershed-impairing activities without quantifying how much will not be allowed, nor having provisions for additional sub-permittees or additional CEQA would make a mockery of the CESA and CEQA.

The mission of the RCD does is not to protect Endangered or Threatened Species and the RCD is made up the irrigators it is supposed to regulate
The Mission of the Scott River RCD is "to recognize, identify, and meet conservation and restoration needs through voluntary landowner/manager and resource user participation by providing technical, financial, and educational leadership within the bounds of SQRCD".
While it may be appropriate for the Scott River RCD to help write the take permits for their restoration and voluntary participation activities, nothing in the mission mentions to goal of recovering Coho Salmon, nor enforcing the laws of the state of California. Nor should they be asked to, as it is the job of the Department of Fish and Game, and it is a unacceptable conflict of interested as the RCD's in the Shasta and Scott are largely make up of irrigators that will be subject to the ITP and MSAA agreement. Furthermore the RCD's are appointed by Siskiyou County, which regularly speaks up against regulation for Salmon, the agencies that protect them, and citizens that are dependant on them.
While we very much appreciate the work of the RCD in regards to restoring the Scott River, the fact remains that there is less water for salmon and less salmon now then at

their conception, This proves that it is law enforcement, not only voluntary restoration in conjunction with harmful activities that is needs to keep Coho from going extinct in the Scott Valley.
This enforcement, and all monitoring, needs to be the responsibility of the CFG and other agencies that are representing the public and not the irrigators themselves. This is not fair to any party.

The RCD is the Scott and Scott has regularly shown their unwillingness to regulate, or be regulated. Testimony from the RCDs and Siskiyou County during the state listing petitions make it clear that the county and RCDs do not believe in, or support the ESA, or any law that restricts use of private land, or any water. The RCD's logs thousands of hours in the field investigating take and participate in meetings over take, yet not once have they filled a complaint or started an investigation. Within this time numerous stranding and take has occurred.

Quotes about monitoring from the Recovery Strategy
"Any monitoring program must be able to evaluate conditions at various scales and allow those involved (i.e., State and Federal agencies, counties, watershed organizations, landowners) to participate. In addition, the monitoring itself and the results and information generated must be defensible both scientifically and legally and must be acceptable to the counties and local communities where Coho salmon occur. This will require good data on the distribution, abundance, and population health of Coho salmon throughout California. A significant monitoring effort sustained over several decades will be required."

Baseline used is not the natural baseline: Conditions of watershed pre-agriculture and impacts of agriculture cumulatively is not addressed
"CDFG has determined the physical environmental conditions in the Program Area as the existed at the time SQRCD submitted its application for an OTP and MSAA notification constitute the baseline physical condition by which a determination will be made as to whether an impact is significant. For the purpose of the EIR, these conditions include legal agriculture operations, including legal water diversions, which were occurring in the Program area at the time"

This accretion is that the baseline is what was happening at the time of application is arbitrary and capricious, as is many of the similar un-scientific assertions. The baseline should the conditions pre-agriculture in the valley and should include what the Coho salmon needs. By following this logical the DFG is asserting that the baselines are rivers that are de-watered much of the year, are suffering from impoundments, and have had their natural course bulldozed out of them, and has cows grazing in it. Does this also mean that a population of Coho salmon that is so low that it is facing extinction, is also the baseline that we should strive for?

Avoidance and minimization requirements are ignored, and mitigation and BMPs are unspecified.

The ITP not only ignores all requirements for minimization and avoidance, but also only promised to make plans for mitigation. Some of these plans are called for in the "Shasta and Scott Pilot Project", of the Coho Salmon Recovery Strategy, yet many are not included. Most of these studies and plans have yet to be accomplished, yet the promise of mitigation plans and studies are expected to be acceptable mitigation under CEQA. However planning to mitigation harmful actions at a later time, after ignoring minimization and avoidance is not an acceptable mitigation under CEQA. CEQA puts much onus on mitigation and this mitigation needed to be spelled out, include a time, and include science that supports that his mitigation is appropriate. For instance, if riparian fencing were considered mitigation for low flows this would be inappropriate. However no list of mitigations that will actually happen, and the analysis of these mitigation is provided. Furthermore many of the areas that are to be mitigation, such as the critical parts of the watersheds where water efficacy improve projects are needed, are even specified despite a wealth of science knowledge in this area, and criteria is not disclosed either.

Fish decease, and factors that lead to fish deceases not discussed in ITP, and neither is juvenile fish kills

Fish decease and parasites, which are thought to be caused by water quality problems are not analyzed, or even mentioned in the Environmental Checklist. These deceases are the major factor in the killing all salmonids in the Klamath River, and are though to be present in up to 90% of the juvenile salmon in the Klamath River. Are these deceases not present in the Scott River? Are the Coho that come from the Klamath not infected any longer when they make it into the tributaries? Are the conditions that cause these deceases not present in the Scott?

Fish decease is now subject to numerous scientific reports on the Klamath, and an investigation as part of the Klamath TMDL by the Regional Water Quality Control Board. It is widely believed to be responsible for the 2002 fish kill of over 68,000 salmon (including some Coho) in the Klamath River. A fish decease investigations and a cumulative affects analysis should be included in this ITP.

Covered Activities 2: Water Diversion Structures.

The requirement to minimize and avoid activities that take Coho Salmon should include ending the practice of building Gravel push up dams. This is an unnecessary activity that impact salmon populations past the point of mitigation. The full impacts and cumulative of these activities, and necessary in-stream heavily equipment works needs to be addressed in the EIR. The impacts of this activity are great. First it greatly adds to sediment production in a sediment-impaired watershed, second these the building of their structures impacts the natural gravel recruiting process and compacts the streambed. In many situations these structures block salmon, which leads to too many salmon in one pool, and thus fish decease and kills. We are opposed to the continuing bulldozing of the Scott River and tributaries to allow this harmful practice. While we also so not approve of flashboard dams and other temporary structures and feel they need to be avoided and minimized, in may be possible to mitigation for some of these structures, if passage in both directions and for all age classes occur. This is not so with gravel push up dams.

Additionally the building and maintenance of pumps and sump ponds within in Scott River and tributaries channel will have huge impact on the cumulative impacts to the Scott River and to water quality of the impaired waters of the Shasta.

Whether these activities, that are, to be covered in the ITP and MSAA will violate the Clean Water Act and Porter Cologne Act and the Endangered Species Act needs to be discussed in the EIR.

This is also true with covered activity 4: Construction and Maintenance of Stream Access and Crossings and Covered Activity 10: Livestock Grazing.

Currently the ITP illegally suggest allowing Covered activities 2,4, and 10, which include in-stream and streamside grazing, heavy equipment use, damming of the river, without any provisions to avoid or minimize or frankly mitigate these illegal activities.

Mitigation should include the return of the River to its natural course. Both the Shasta River and Scott River have been channelized to provide for agriculture and then widened and compacted by continual grazing, bulldozing and bad land management. The return of the rivers to their natural course and the return of floodplains, which is what made these rivers Coho Rivers in the first place, need to be explored and used when possible.
It the rivers should re-contour themselves, the use of heavy equipment to re channelize the river should not be allowed unless the river is threatening the homes of valley residents.

Effectiveness should be reviewed by agencies often
The only tool for review presented in the Environmental Checklist is the statement that the irrigators thought the RCDs will be monitoring and enforcing the ITP and MSAA themselves. Either the CFG or a third party monitor paid by the state should be reviewing and monitoring these permits, and all Fish and Game Codes and all laws need to be enforced by Fish and Game. Furthermore this ITP should be reviewed yearly, not be the RCDs, but by the CFG, and provisions to protect Salmon should be added is expected take is exceeded or restoration and mitigation measures be proven ineffective.

All factors in the Elements Necessary for Recovery Section of the Recovery Plan should be used when AVIODING, MINIMIZING, AND MITIGATION agriculture permitting.

Some of these are below

I. HYDRODYNAMICS AND SEDIMENT TRANSPORT
II. SYSTEM PRODUCTIVITY

A. PRIMARY PRODUCTIVITY B. INVERTEBRATE C. FISH D. NUTRIENT CYCLING
III. FLUVIAL GEOMORPHOLOGY
A. SEDIMENT (embeddedness, suspended)
B. TURBIDITY
C. SUBSTRATE PARTICLE SIZE
D. LWD CYCLING
E. LAND SLIDING AND DEBRIS FLOW
IV. HYDROLOGY A. FLOW (rate, timing, quantity)
B. TEMPERATURE C. OTHER WATER QUALITY (i.e., DO)
V. ECOLOGICAL COMMUNITIES
A. RIPARIAN COMMUNITY
1. Vegetation composition
2. Invertebrate composition
3. Vegetation condition
4. LWD recruitment
B. NEARSHORE OCEAN CONDITION
C. ESTUARINE
1. Condition 2. Fish use
VI. WATER USE
A. EFFICIENCY
B. TRANSFER
C. STORAGE

VII. LAND USE A. EFFECTS ON HABITAT
B. EFFECTS ON FISH
C. LAND USE CHANGE TRAJECTORIES
D. ECONOMIC CONSIDERATIONS
1. Land use and owners
2. Local jurisdictions
VIII. FISHING
IX. BARRIERS TO MIGRATION
X. FISH POPULATION
A. RANGE
B. DISTRIBUTION
C. COHORT REPLACEMENT
D. ABUNDANCE
E. FISH HEALTH
XI. RECOVERY EFFOR
TS
A. IMPLEMENTATION B. EFFECTIVENESS
C. VALIDITY (fish response)

The ITP covers, provided as mitigation, and supplies money for actions that are needed to comply with laws, and couples them with activities that are against the law.

Many of the restoration actions in the Environmental Checklist are necessary under law. However they are covered with actions that are against the law, which defies logic. Many of these activities have already begun and are funded because they are necessary under the law. Subjecting these activities to CEQA with activities with like allowing cows and heavy equipment in a waterway, which is the opposite of what is legal, and the opposite is happing under the restoration activities does two things:

1. It makes activities that must happen under law subject to litigation along with those things that are illegal
2. Makes the restoration activities illegal to procede with until the CEQA process is over.

Some of the laws discussed are below

Water Pollution, Fish & Game Code §5650. Prohibits anyone from depositing in, permitting to pass into, or placing where it can pass into the waters of the State, specified items and "any substance or material deleterious to fish, plant life, or bird life," except a discharge or release expressly authorized by and in compliance with a WAR or waiver or in compliance with a Federal permit issued a water quality certification issued by the State Water Resources Control Board or regional board after public hearing. Commission Regulations,

Fish & Game Code §316.5. Authorizes Commission to "prohibit the taking or possessing of salmon in the same manner as the taking or possessing of salmon is prohibited by Federal law or by rules or regulations adopted by the United States Secretary of Commerce, notwithstanding any other provision of this code."

Examination of Dams, Fish & Game Code §5930. Requires the Department, from time to time, to examine all dams in all rivers and streams in the State naturally frequented by fish.

Fishways, Fish & Game Code §5931. Provides that if, in the opinion of the Commission, there is not free passage for fish over and around any dam, the Department shall cause to be furnished suitable fishway plans and order the owner in writing to provide the dam, which shall be completed to the Department's satisfaction.

Additional Fishways, Fish & Game Code §5932. Requires that when article 2(dams and structures) has been complied with, if in the opinion of the Commission changed conditions make additional structures desirable for free passage of fish, the Department may make such additional structures and necessary expenditures.

Dam Construction and Enlargement, Fish & Game Code §5933. Requires the Commission to be given a copy of any application to DWR for new dam or enlargement of dam. If the Commission deems fishway necessary for preservation and protection of fish and construction and operation of fishway is practicable, it shall set a date for hearing. Where the Commission finds after hearing fishway is necessary and practicable, prohibits construction without prior written approval of Commission. Fishway Maintenance,

Fish & Game Code §5935. Requires owner of any dam upon which a fishway has been provided shall keep the fishway in repair and free from obstructions to passage of fish at all times.
Fish Passage, Fish & Game Code §5937. Requires owner of any dam to allow sufficient water at all times to pass through a fishway, or in the absence of a fishway, allow sufficient water to pass over, around, or through the dam, to keep in good condition any fish that may be planted or exist below the dam.
Fish & Game Code §2105et seq. Sets forth requirements for Recovery Strategy. Sets forth criteria for Commission approval of Recovery Strategy. Authorizes inclusion of guidelines for issuance of memoranda of understanding under
FGC §2081. Provides that the Recovery Strategy itself shall have no regulatory significance, shall not be considered to be a regulation for any purpose, and is not a regulatory action or document. Fully Protected Species,
Fish & Game Code §3511, 4700, 5050, 5515. Prohibits take and possession of specified fully protected species, except collecting for "necessary scientific research" as authorized by the Commission. No provision of the FGC or any other provision of law shall be construed to authorize the issuance of permits or licenses to take any fully protected species.
California Endangered Species Act (CESA), Fish & Game Code §2080et seq. Prohibits take of California-listed and candidate species, except as otherwise authorized. Natural Community Conservation Planning Act,
Fish & Game Code §2080et seq. Authorizes take of any species whose conservation and management is provided for in an approved natural community conservation plan.
Lake and Streambed Alteration Protection, Fish & Game Code §1600et seq. Prohibits any person from substantially diverting or obstructing the natural flow, or substantially changing the bed, bank, or channel of any river, stream or lake without first notifying the Department of the activity. Prohibits a person from commencing any activity until:
1.The Department has found that it will not substantially adversely affect existing fish and wildlife resources; or
2.The Department's proposals as to measures necessary to protect fish and wildlife resources (as agreed to), or the decision of a panel of arbitrators, have been incorporated into the activity. Where the Department has found the activity will substantially adversely affect existing fish and wildlife resources, prohibits any person from engaging in the activity unless it is conducted in accordance with the department's proposals (as agreed to) or the decisions of the panel of arbitrators.
The Department shall not condition a streambed alteration agreement on the receipt of another State or Federal permit
Screening Diversions Deleterious to Salmon and Steelhead, Fish & Game Code §6100. Requires dam owners to screen any new diversion of water from any stream having populations of salmon and steelhead which is determined by the Department to be deleterious to salmon and steelhead. Authorizes the Department to make onsite investigation prior to proposing measures necessary to protect fishlife. Prohibits commencement of diversion until the Department has determined the protective measures have been incorporated into plans and construction of diversion.

In Closing

In closing we feel this ITP being up for public comment without it being available to the public is pre-mature, and Fish and Game and the RCD should use the recovery plan and best available science to make sure that the ITPs and MSAA are legal and are based on the best available science. Tribes, the downriver public, fishermen, scientist and other agencies should be involved in this process, and at the time an inclusive science based ITP is formed that public should be provided with it to base their comments on. In this process beneficial (and required) activities should be separated into two ITP's, and non-irrigation take should be included or have a separate process.
Currently there are very few applicable laws this proposal does not conflict with and these permit may very well lead to localized extinction of Coho salmon.

Thank you,

Regina Chichizola
Klamath Riverkeeper
P.O. Box 21
Orleans, CA 95556

George Sexton
Conservation Director
Klamath Siskiyou Wildlands Center
PO Box 102
Ashland, OR 97520

Zeke Grader
Pacific Coast Federation of Fishermen's Associations (PCFFA)
PO Box 11170, Eugene, OR 97440-3370

North Coast Consumer's Alliance
P.O. Box 351
Redwood Valley, CA 95470

To: Bob Williams
Staff Environmental Scientist
Conservation Planning, CDFG
601 Locust St.
Redding, CA 96001
FAX: 530 225-2381

Re: Notice of Preparation of a Draft Environmental Impact Report, Shasta River Watershed-wide Permitting Program.

Dear Mr. Williams,

Thanks for taking a special effort to provide me with the two NOP's on the Shasta and Scott Rivers and for allowing me time to study the documents and to respond. It is very much appreciated.

The covered activities permitted through the watershed-wide program have not been sufficiently described in scope, number or intensity of streambed disruption. New diversions? It doesn't exclude them.

Under the Program, heavy equipment may operate in the streambed every day of every summer for ten years. This is an unacceptable amount of streambed disturbance.

Permitting new wells for stock watering without doing a thorough groundwater/surface water relationship study is unacceptable. Agricultural activity can be economically sustainable over time if it is environmentally sustainable. If you don't know how much water is in the aquifer and if you don't know how that quantity relates to river flow, how can you tell what level of water extraction is sustainable? High temperature/low flow conditions might give you a clue, however, that too much water is being diverted. The NOP considers this condition as merely an opportunity get heavy equipment into the streambed, possibly to create new diversions. This is not acceptable.

Grazing of livestock in the streambed will become a permitted activity, approved by the CDFG. Not acceptable.

The Program will permit the current amount of tailwater returns for several years. Not acceptable.

The Program will allow the continued entraining of fish into the fields for fertilizer for too long. Not acceptable.

The timetable for changing to more fish-friendly diversion techniques and for reducing tailwater returns is so slow that it almost guarantees the demise of the coho.

The hopefully beneficial actions outlined in the NOPs for both the Shasta and the Scott (opening up fish passage barriers, dam removal etc.) have not been adequately described. Each project may require its own EIR to comply with CEQA. Without such, the public may be locked out of the information needed to respond. This Program is already illegal in that it authorizes continued activities that harm Coho. It will be doubly illegal if it thwarts CEQA.

The uncorrected over-extraction of water from the tributaries and continued pollution by animal wastes have contributed to the diminished carrying capacity of the Klamath, which in turn has shut down the commercial salmon fishing industry along the North Coast. The closures are due to concerns about the "weakest stock." The coho in the Shasta and the Chinook in the Klamath are designated as weakest stock. While the CDFG Program is permitting take of Coho in the Shasta and adversely impacting the Chinook, the PFMC is shutting down the commercial salmon fishery due to this take. Any EIR must be widened to include a discussion of this unfortunate set of regulations. Scoping sessions must be conducted near the fishing communities along the coast that are the most deeply impacted economically.

In summary, the Program institutionalizes the horrendous management practices that got the Shasta in the sorry condition it is now. It is a prescription for ongoing mismanagement for the next ten years. In order to comply with CEQA, alternatives must be considered. Instead of twisting CESA and section 1602 to comply with the current mismanagement:

- Give the ag interests a disincentive to continue entraining fish into the fields for fertilizer. Fine them heavily. Stop unscreened diversions now!
- Give them a similar disincentive for creating tailwater returns. Fine them. Let the new regulations stop tailwater returns NOW not ten years from now.
- No new water diversions!
- Encourage the NCWQCB to use its power to cut back on the water rights of the most egregious water wasters.
- Get tough! Use whatever enforcement powers you have to trim the beef industry of wasteful and destructive practices and of unsustainable overproduction.

There is a built-in incentive for producing sustainably farmed beef. The public will pay more for it.

Yours truly,

Ellen Faulkner

Ellen Faulkner

Bob Williams
Staff Environmental Scientist
Department of Fish and Game
601 Locust Street
Redding, California 96001
October 29, 2006

Re: Scott and Shasta Incidental Take Permits for Coho Salmon; Scoping Comments

Dear Mr. Williams,

The Draft Take Permit should be released for review by downstream affected interests. Involvement of downstream fishing communities, tribal governments, Counties, and the public is essential to developing a plan that will achieve recovery goals for listed coho salmon. The Coastal Commission also has an interest, and should be included in the development of the ITP. Agreements between State and Federal agencies for fisheries protections and public funding must also be considered.

Water pollution problems in the Scott and Shasta Rivers are exacerbated by low and no-flow conditions in the rivers and their tributaries at times of year crucial to coho survival. The Draft ITP Applications for the Scott and Shasta Rivers do not contain a goal of achieving minimum flow requirements for coho salmon. Buying water each year from willing sellers does not provide for flows in dry years. Long-term solutions must be found to provide the needed water flows, such as permanent transfer of water dedicated for fish. Since coho salmon live in fresh water for a year before migrating to the ocean, year-round cold water must be provided for them in order to begin recovery.

Dwinnell Dam must be addressed for its contribution to temperature and low dissolved oxygen pollution in the Shasta River, and also because it blocks access to significant spawning habitat upstream. Dwinnell Dam is currently in violation of state laws requiring flow releases. It does not provide any electricity generation.

Cold, oxygen-rich water would also contribute to the ocean fishery for chinook, which is limited in good years by restrictions on coho. The Klamath river system is essential to a viable commercial fishery in the ocean, and hearings should be held in coastal communities. Fishing economies of cities from as far away as Morro Bay in Southern Central California to ports in Northern Oregon are severely affected by the health of fisheries in the Scott and Shasta Rivers. Ninety percent of California ocean commercial salmon permits have been dropped in the last twenty years, largely due to area closures to protect Klamath River fish stocks. Fishing closures began 27 years ago, in 1979, for Klamath stocks, only to have habitat continually degraded in the river. The 2006 ocean season was the most restrictive in history. Scott and Shasta Rivers are major tributaries, and should be producing healthy fish runs. Instead, the rivers are dewatered for months in some years, leading to fish kills and late spawning.

Groundwater pumping must be fully mitigated in order to allow an exemption for groundwater pumping. Much of the agricultural diversion from the Scott River is from wells connected to the river; this must be addressed in the ITP. Compliance with provisions of the ITP must be monitored and enforced by other than irrigators affected by the requirements, who serve on the Resource Conservation District. The RCD has a history of publicly opposing any regulation of their water-use activities, and is not likely to be effective in protecting the interests of the fish. The Department of Fish and Game, whose officials are sworn to uphold laws that prevent dewatering of the rivers, also have a twenty-year history of not enforcing Fish and Game laws related to minimum flows needed for salmonids in the Scott and Shasta Rivers.

The California Endangered Species Act (CESA) and CEQA require specific actions with timelines for recovery of threatened coho salmon. The California Recovery Strategy for coho salmon contains six goals for recovering coho salmon populations, and before de-listing can be achieved:

- Maintain and improve the number of key populations and increase the number of populations and cohorts of Coho salmon.
- Maintain and increase the number of spawning adults.
- Maintain the range, and maintain and increase distribution of Coho salmon.
- Maintain existing habitat essential for Coho salmon.
- Enhance and restore habitat within the range of Coho salmon.
- Reach and maintain Coho salmon population levels to allow for the resumption of Tribal, recreational, and commercial fisheries for Coho salmon.

The de-listing goals should be met before irrigators are exempted for "take."

Minimizing "take" at diversions is a good idea, and a legal requirement with which irrigators have been out of compliance for years. California's Fisheries Restoration Program maintains public confidence in the distribution of public moneys for restoration by requiring that the funds not be used for compliance with existing laws. Preliminary documents of the ITP suggest the intention is to pay for regulatory compliance with public money, reducing opportunities for other effective projects not already required of the landowner. In fact, a large part of ten million dollars of restoration money was recently directed through CDFG to do just that, ostensibly to buy cooperation with the ITP from landowners. Involving a larger body of the interested public would open the process to considering the benefit of all parties, instead of re-creating a 1950's style "smoke-filled rooms," back-scratching situation of mutual self-interest.

Fencing out cattle and planting riparian vegetation will not be effective without cold water flows at critical times for juvenile and adult salmon. Coho salmon populations will not recover without water. Stranding of fish when portions of the stream are dewatered is a direct "take," illegal before CESA listing, but historically un-enforced in the Scott and Shasta Valleys. But stressful and lethal hot water temperatures for fish when they cannot access cold water refuges must also be mitigated for the agricultural exemptions to be mitigated. Acquisition of sources of cold water from springs and enforcement of existing laws such as 5937 would help. Side-channels and backwaters can be good refuges for juvenile fish—very effective examples have been created on the Mattole River. The California Environmental Quality Act, CEQA, requires full mitigation before take can be permitted.

CDFG should fulfill its obligations as an agent of the State of California to benefit all the people of the state, including all interested parties in development of an effective recovery for threatened coho populations that belong to all of us before taking part in any agreements that will further divide communities in the Klamath Basin. All legal obligations to protect and restore threatened coho populations must be met before irrigators are exempted for "take."

Vivian Helliwell
Pacific Coast Federation of Fishermen's Associations
P.O. Box 307
Eureka, CA 95502

The public is invited to provide comment or concerns related to the Shasta River/Scott River Watershed Project.

Name: Gary Black

Address: 5916 Eastside Rd

City, State, Zip: Etna CA 96027

Telephone: 530 467-~~5402~~

E-mail: gblack@sisqtel.net

Comments may be submitted tonight or mailed to:

Mr. Bob Williams,
Staff Environmental Scientist

Conservation Planning (CDFG)
601 Locust Street
Redding, CA 96001

(530) 225-2365 (phone)
(530) 225-2381 (fax)

COMMENT: John Menke made comment about specific issues being considered. His example is not specific but has not been addressed. ~~A~~ There are numerous flumes that cross streams which require maintenance, repair, and replacement ~~In~~ sections that cover diversions & diversion ~~str~~ structures, flumes or construction of alternatives may need to be included as a ~~State~~ standard.

Thank you for your participation!

Scott Scoping meeting
10/25/06

Received @ Shasta River Scoping Mtg 10/24/06

SHASTA RIVER SCOTT RIVER WATERSHED–WIDE PERMITTING PROGRAMS
ENVIRONMENTAL IMPACT REPORTS

The public is invited to provide comment or concerns related to the Shasta River Watershed Project.

Name: Jack Cowley

Address: 7335 Ball Mtn Rd

City, State, Zip: Montague Calif 96064

Telephone: 530 459 5506

E-mail:

Comments may be submitted tonight or mailed to:

Mr. Bob Williams,
Staff Environmental Scientist

Conservation Planning (CDFG)
601 Locust Street
Redding, CA 96001

(530) 225-2365 (phone)
(530) 225-2381 (fax)

COMMENT: The Program has become to Complex, Time Consuming + Expense.

The Fish + game state They are Following The will of The People, Therefore The People (state) should Pay All The Costs. The burden should Not be shouldered by The Landowners.

The Loss of water For irrigation will Forever destroy Sustainable Agriculture in Shasta Valley.

The only alternative is To destroy Shasta Valley As A Prestige Area of Calif. Forever!

RCDs Are Voluntary Thus Too much of a burden is Placed on Volunteers.

Thank you for your participation!

Monique

D-WIDE PERMITTING PROGRAMS
VIRONMENTAL IMPACT REPORTS

The public is invited to pr
to the Shasta River/Scott River Watershed Project.

Name: Monique Dixon

Address: 6816 E. Callahan Rd

City, State, Zip: Callahan CA 96014

Telephone: 530-410-2054

E-mail: auntnique@hotmail.com

Comments may be submitted tonight or mailed to:

Mr. Bob Williams,
Staff Environmental Scientist

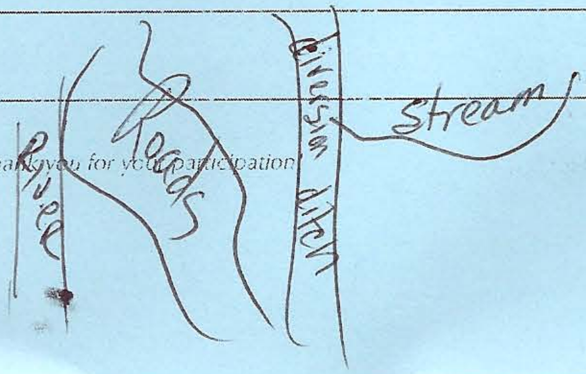
Conservation Planning (CDFG)
601 Locust Street
Redding, CA 96001

(530) 225-2365 (phone)
(530) 225-2381 (fax)

COMMENT: RE: MSAA

Have you considered those streams that may not have access to the river because of blockage, but the water does flow through diversions & eventually end up back in the river.

I realize you aren't considering upslope issues, but the MSAA should be applicable to all streams in the watershed.



Thank you for your participation

Shasta River Program
Scoping meeting 10/25/06

Margaret Draper / Attorney at Law / POB 176 / Bayside / CA 95524

November 13, 2006

Bob Williams
Staff Environmental Scientist
Dept. of Fish and Game
601 Locust St.
Redding, CA 96001

Re: TMDL / ITP Shasta and Scott Rivers

Dear Mr. Williams:

I am writing with regard to the Shasta and Scott rivers – significant tributaries to the beleaguered Klamath system. As a prior Shasta Valley Resource Conservation District Director, I can attest to the fact that much was known 20 years ago regarding the high contributions of heat and silt pollution from those two rivers to the Klamath River. Additionally, all the dire events warned of at the time, by tribal groups, independent scientists, fishermen and conservation groups (among others), regarding the viability of downstream fish populations have, sadly, come to pass. Mere warnings have done little to motivate change sufficient to improve fish survival.

The current science on the subject does not appear to show any improvement in the way that landowners and agencies have cooperated to solve the problems of temperature/oxygen content and siltation – let alone chemical pollution. If the "proof is in the pudding," the progress report is dismal.

While I am sympathetic to the needs of landowners and agriculture, destruction of riparian habitat, diversion, and other pollution problems can, and should, be mitigated. Without strict TMDLs this will not occur. Landowners, where pocketbooks are slim, need assistance from agencies to address proper goals – it is an investment government can and should make. Assistance to landowners should not come in the form of easing restrictions, but rather in enabling them to participate in improving water quality. Allowing excessive incidental take permits is not the road public policy should follow in the face of fishery extinction and severe compromising of the Public Trust with regard to the state's waters.

I understand that the North Coast Regional Water Quality Control Board (NCRWQCB) approved the Shasta TMDL on June 29, 2006 and it will be considered for adoption before the State Water Resources Control Board (SWRCB) on November 15, 2006. The Boards website refers to TMDLs as a

> 'pollution budget' designed to restore the health of a polluted body of water. The TMDL process provides a quantitative assessment of water quality

> problems, contributing sources of pollution, and the pollutant load reductions or control actions needed to restore and protect the beneficial uses of an individual waterbody impaired from loading of a particular pollutant...

In *Pronsolino et al. vs. Nastri et al (2002) at pp 9 et seq.),* the U.S. Court of Appeals Ninth Circuit provides great insight into the role of TMDLs:

> (The TMDL)... shall be established at a level necessary to implement the applicable water quality standards... Section 303(d)(1)(C)....TMDLs serve as a link in an implementation chain that includes federally regulated point source controls, state or local plans for point and nonpoint source pollution reductions, and assessment of the impact of such measures on water quality, all to the end of attaining water quality goals for the nations waters.

The Clean Water Act thus provides an opportunity to employ TMDLs productively to protect water quality for sensitive and endangered fish species – but only if they are meaningfully applied. Your responsibility is to use the best available science – including use of prior studies and findings – to establish such loads.

In my opinion, the Shasta TMDL model should have included pH because pH values have exceeded Basin Plan objectives for years and are high enough to stress salmonids. This has been known for some time and there is no reason to omit it from the model. It is inconceivable to me that *all* forms of nitrogen were not properly measured and modeled. This has been a significant known problem in the system for decades!

Flood siltation from Parks Creek was an issue raised within the Shasta Valley RCD in the early 80s. I remember letters in the file, written to and probably by the Shasta Valley Resource Conservation District. The fact that such loading was not included in the model is a gross oversight.

While the Shasta TMDL does acknowledge that Dwinell Reservoir is a major contributor to Shasta River problems, there is no mention of considering dam removal. Given the current status of dam removal, it should be on the table for consideration when it comes to water quality protection.

With regard to the Scott River, the TMDLs also appear less than useful. Vague monitoring measures proposed may well to lead to extinction for fisheries, because adaptive management is impossible without sufficient information as conditions change – likely worsen. Decisions regarding Waste Discharge Requirement permits depend on good monitoring.

Assigning groundwater and flow studies to the Siskiyou County, rather than a less biased and less financially challenged office like the SWRCB, almost guarantees such studies will be skewed or incomplete. I speak from experience, having lived and worked in Siskiyou County for more than a decade.

It is again most surprising that the extinction risk of Coho Salmon populations in the basin are not emphasized or noted, and that the decline in the Scotts fall Chinook run is not addressed. Some sort of interim plan to protect these species short term needs inclusion.

Not only is a healthy fish population a good measure of good water quality in itself, but a wonderful benefit. Significantly, the potential importance of the fishery economy has been estimated to exceed the economic value of timber in Northern California since the early 1980s. Certainly, Tribal communities and the public need a healthy fishery.

One of the great frustrations of trying to protect anadromous fish populations in prior years was the fact that the Clean Water Act was not being enforced with regard to non-point source pollution. Now that the Act has been ruled to include such pollution since 2002, agencies and scientists should be actively pursuing goals and standards that actually make a difference in water quality. If "TMDLs serve as a link in an implementation chain," as the court noted above, it is your obligation to improve standards so California can actually ameliorate quality in the Klamath Basin, instead of continuing the frustrating charade that has taken place in the course of my lifetime.

Thanks for your attention to these comments, which I ask be incorporated into the public record at your agency.

Sincerely,

Margaret Draper

Margaret Draper

Cc to: Donald Koch

Dean Estep
P. O. Box 2179
Ft. Bragg, Ca., 95437
707 - 964 - 3700

Bob Williams
Department of Fish and Gme
601 Locust Street
Redding, Ca. 96001

re: Scott and Shaster River Watershed ITP and Master, Streambed Alteration...

Dear Mr. Williams:

I, would start by saying that I, strongly oppose this master streambed alteration.
This agreement is so vague how can there be a honest E.I.R., how could this be in compliance with CEQA.
To suggest incidental take permits and more water deversions is outrages.

The sub-permittee must submit plans to CDFG for review and approval. How can this be in compliance with (CEQA)?
It sounds like you sign and we'll fill in the blanks later. "NO THANK-YOU"

The Shasta and the Scott are part of the Klamath watershed. Which has been used to destroy the commercial salmon industry.
The flow in the Shasta is already to low, with temperatures that are lethal to salmon. I see nothing in your report about chinook salmon, does this mean you don't need a I.T.P. to kill them?

It sounds like you are trying to under mine what the north regional water board is doing.

The idea of bulldozers, backhoes and other heavy equipment in and around the Scott and the Shasta Rivers at any time of the year is adding more degradation to the already troubled Klamath River.!!

If you would like pictures to show the impact this has had on Fort Bragg and the commercial salmon fishermen?

I, would be happy to send them. They just ground up 2 more salmon boats and hauled them off in large dumpsters
to hazard waste dumps.!!

Sincerely,
Dean Estep
Dean Estep
Commercial Salmon Fisherman:

Scott River Program Workshop

SHASTA RIVER SCOTT RIVER WATERSHED–WIDE PERMITTING PROGRAMS
ENVIRONMENTAL IMPACT REPORTS

The public is invited to provide comment or concerns related to the Shasta River/Scott River Watershed Project.

Name: Don Gutleben

Address:

City, State, Zip:

Telephone:

E-mail:

Comments may be submitted tonight or mailed to:

Mr. Bob Williams,
Staff Environmental Scientist

Conservation Planning (CDFG)
601 Locust Street
Redding, CA 96001

(530) 225-2365 (phone)
(530) 225-2381 (fax)

COMMENT: The fish are going through the screens & getting stuck - they can't get back through. They are living in the ditch & not going back through. Actually those JUNK fish are TROUT!

The "junk fish" are still a valuable food source for other species of animals.

Thank you for your participation!

Scott River Program - Workshop
10/25/06

Received @ Shasta River workshop 10/24/06

SHASTA RIVER SCOTT RIVER WATERSHED–WIDE PERMITTING PROGRAMS
ENVIRONMENTAL IMPACT REPORTS

The public is invited to provide comment or concerns related to the Shasta River Watershed Project.

Name: Justin Ly

Address:

City, State, Zip:

Telephone:

E-mail: justin.ly@ca.usda.gov

Comments may be submitted tonight or mailed to:

Mr. Bob Williams,
Staff Environmental Scientist

Conservation Planning (CDFG)
601 Locust Street
Redding, CA 96001

(530) 225-2365 (phone)
(530) 225-2381 (fax)

COMMENT: Pg. 7 of Initial Study – water diversion is covered if ag operator uses water for domestic use. Why not cover domestic use (if theres any) regardless of whether the user is an ag operator or not?

Pg. 36 CA red legged frog – I'm not aware of CA red-legged frogs in our area, but it never hurts to check. Will there be surveys done to assess/confirm, ~~at~~ and if so, what avoidance, minimization and/or mitigation measures will be implemented?

Pg. 37 – Coho Recovery Strategy is the recovery plan so the statement that the "Recovery Strategy is the preliminary step toward a state recovery plan" is incorrect.

Thank you for your participation!

The public is invited to provide comment or concerns related to the Shasta River/Scott River Watershed Project.

Name: John and Jennifer Menke

Address: 10935 Quartz Valley Rd.

City, State, Zip: Ft. Jones, CA 96032

Telephone: 530-468-5341.

E-mail: none

Comments may be submitted tonight or mailed to:

Mr. Bob Williams,
Staff Environmental Scientist

Conservation Planning (CDFG)
601 Locust Street
Redding, CA 96001

(530) 225-2365 (phone)
(530) 225-2381 (fax)

COMMENT:

Agricultural Resource and Infrastructure Protection

Two additional streambed alteration activities not included in the list of common ones (page 7, section 8.4.1 Covered Activities, in Environmental Checklist—Initial Study) need to be added and analyzed by the consulting team doing the EIR. We have both needs on our ranch in Quartz Valley. First, periodic maintenance of gravel push-up barriers to re-create a single unbraided channel is needed to counter the effect of buildups of cobble, gravel and sediment that cause Mill Creek to leave its channel, wash out our flume culvert crossing over Mill Creek, breach our irrigation delivery ditch which transports water from Shackleford Creek to the south end of our ranch, and flood the county road. Secondly, we need to do periodic maintenance of gravel push-up barriers and channel restoration at a big sweeping bend in Mill Creek to deflect the creek from flowing across our irrigated pastures. These activities are occurring in unvegetated rubble areas where stream flows aboveground typically only occur from late December until July. We were allowed to do both activities with agency on-site review but without costly permits during the dry season when no flow was occurring in Mill Creek following the 1997 unusual storm runoff event and the first activity in 2006 following a similar high flow event (2 times in 13 years with cost-share assistance from FSA). Similar needs exist at other locations in Scott and Quartz Valleys. During the FSA, NRCS, RCD 2005-2006 winter flood damage tour, lack of periodic channel maintenance like the two activities addressed above contributed to extensive damage to landowners' property along Sniktaw and Kidder Creeks.

Thank you for your participation!

SHASTA RIVER SCOTT RIVER WATERSHED–WIDE PERMITTING PROGRAMS
ENVIRONMENTAL IMPACT REPORTS

The public is invited to provide comment or concerns related to the Shasta River/Scott River Watershed Project.

Name: Danielle Quigley
Address: 8937 Horse Range Ln
City, State, Zip: Etna, CA 96027
Telephone: 530 467 3247
E-mail: deerbrush@sisqtel.net

Comments may be submitted tonight or mailed to:

Mr. Bob Williams,
Staff Environmental Scientist

Conservation Planning (CDFG)
601 Locust Street
Redding, CA 96001

(530) 225-2365 (phone)
(530) 225-2381 (fax)

COMMENT: This EIR should focus on currently existing areas of key (A) coho habitat (Yokel 2005, Quigley 2005), and identify mitigation to ensure protection of those areas. A particular concern is the use of heavy equipment instream to maintain diversions please ensure that measures are identified to keep them out of stream during key periods (ie identified spawning period Nov 15 - Jan 1) ~~and~~ and critical low flow rearing period ~ eg when key reaches become disconnected. If it is within the scope of the EIR, please identify best possible practices or standards for gravel push-up dams, etc. [(A) also key areas of Chinook spawning habitat]

Thank you for your participation!

Scott River Program
Scoping meeting 10/25/06

APPENDIX F
Long-Profiles of the Scott River and Selected Tributaries

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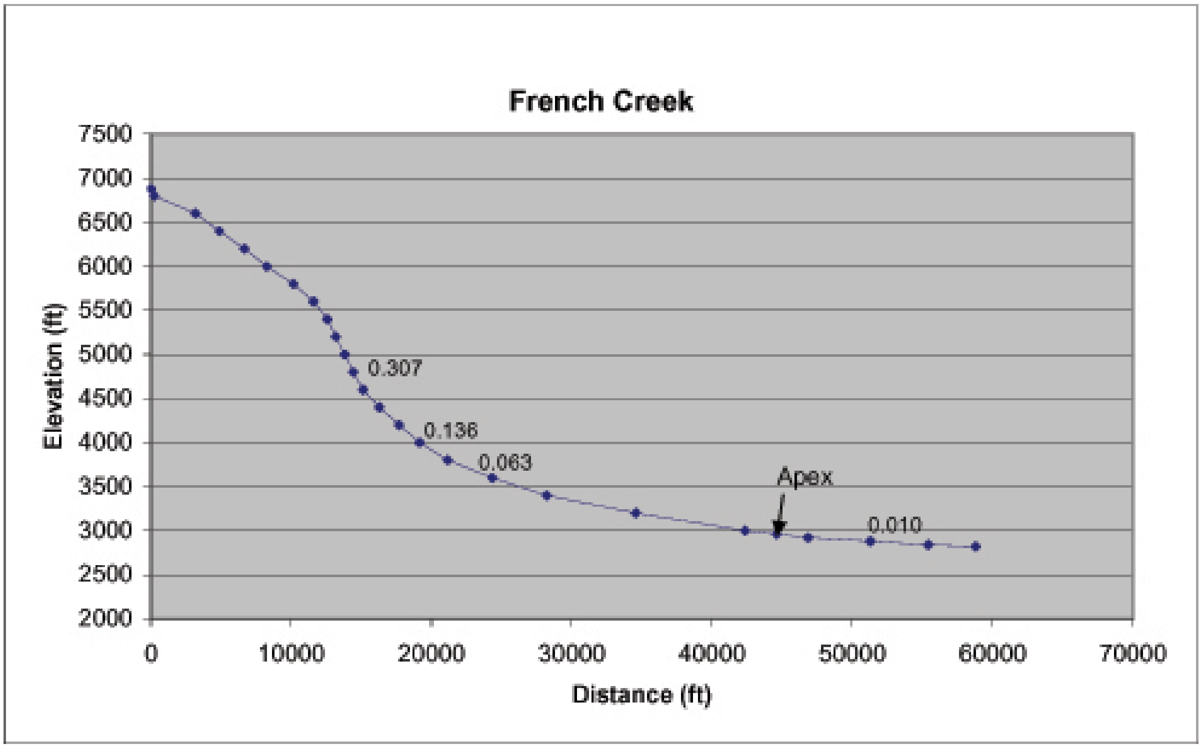
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Elevation (ft)
Distance (ft)
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0.136
0.063
Apex
0.010
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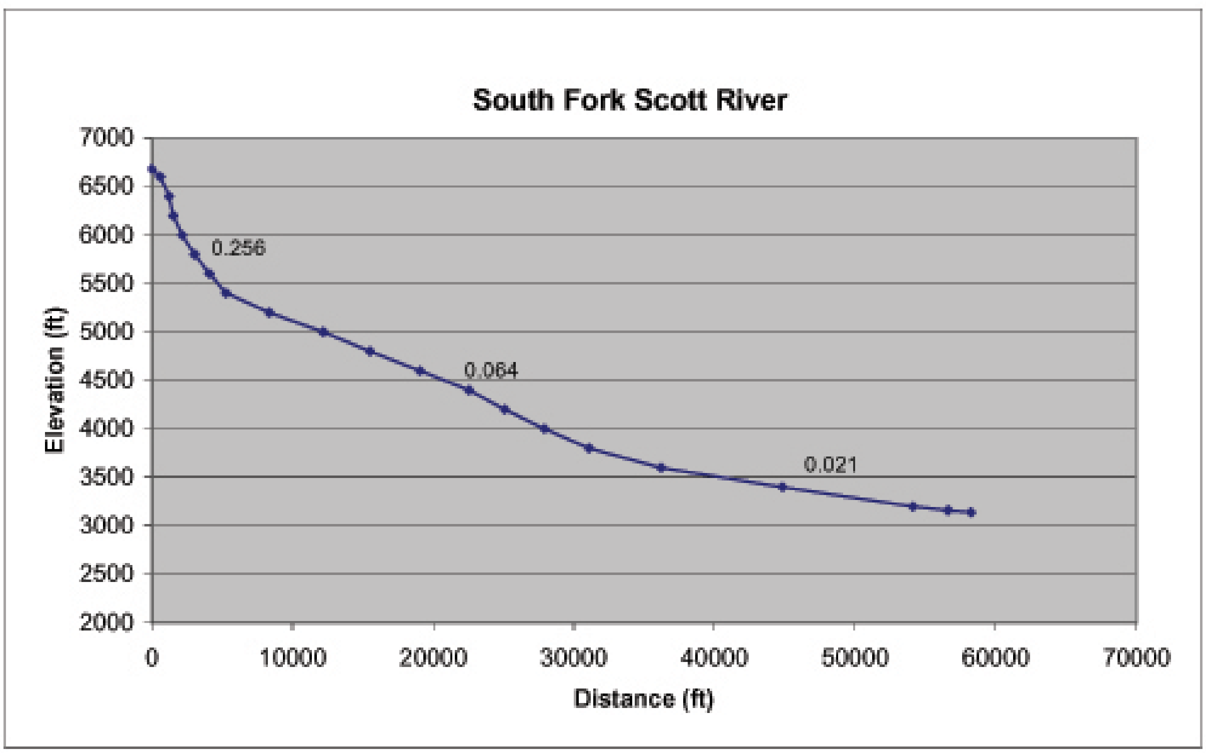
7000
6500
6000
5500
5000
4500
4000
3500
3000
2500
2000
0
10000
20000
30000
40000
50000
60000
70000


South Fork Scott River
Elevation (ft)
Distance (ft)
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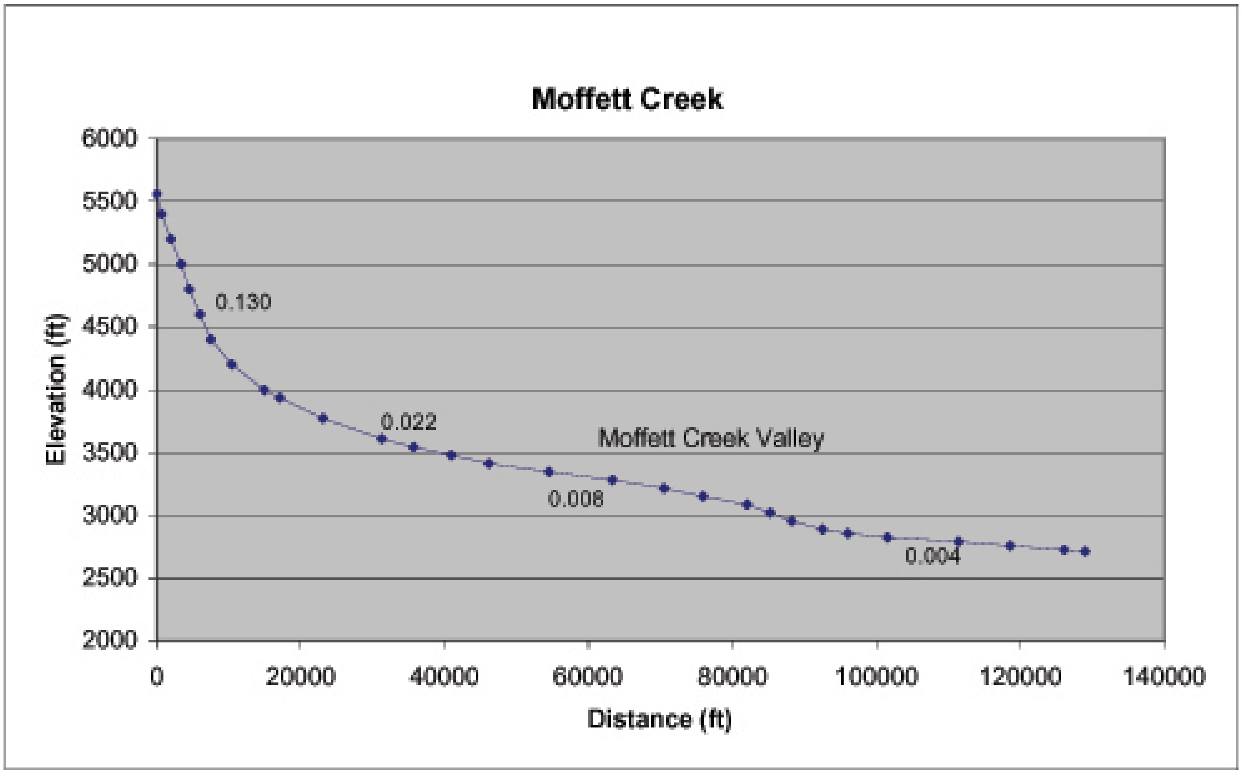
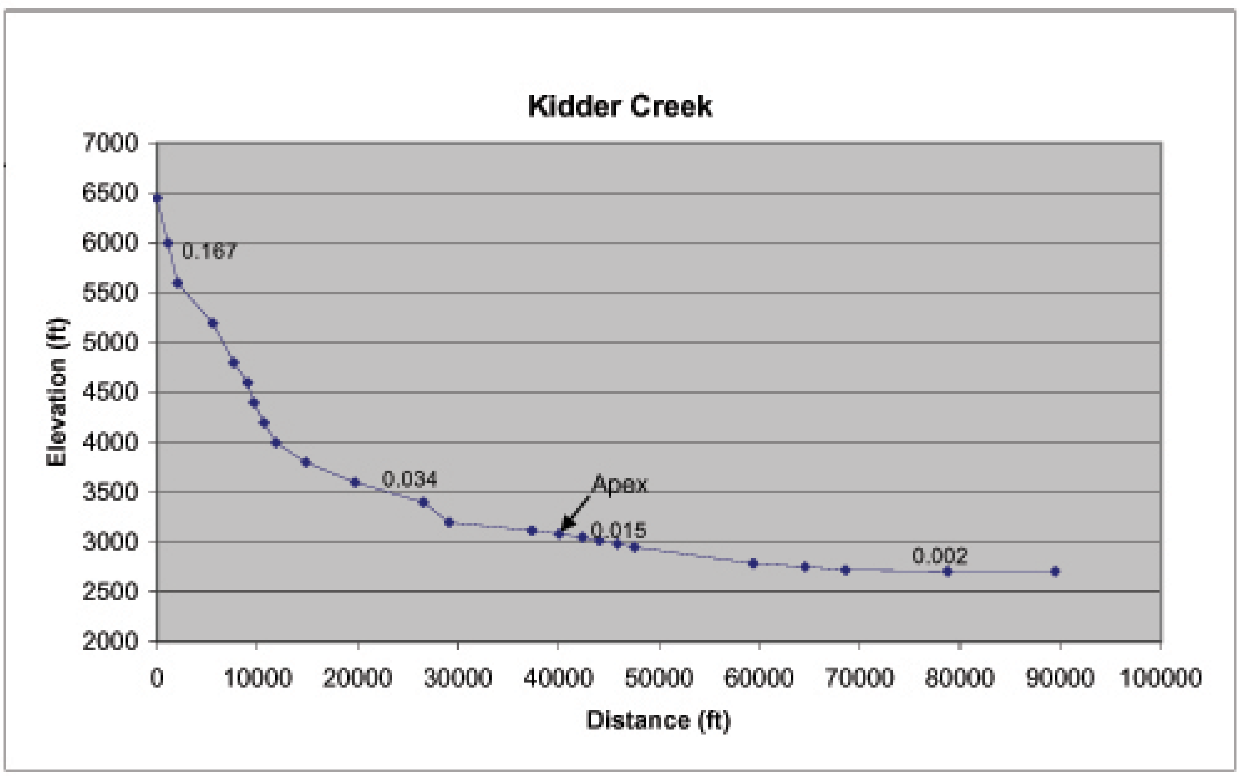
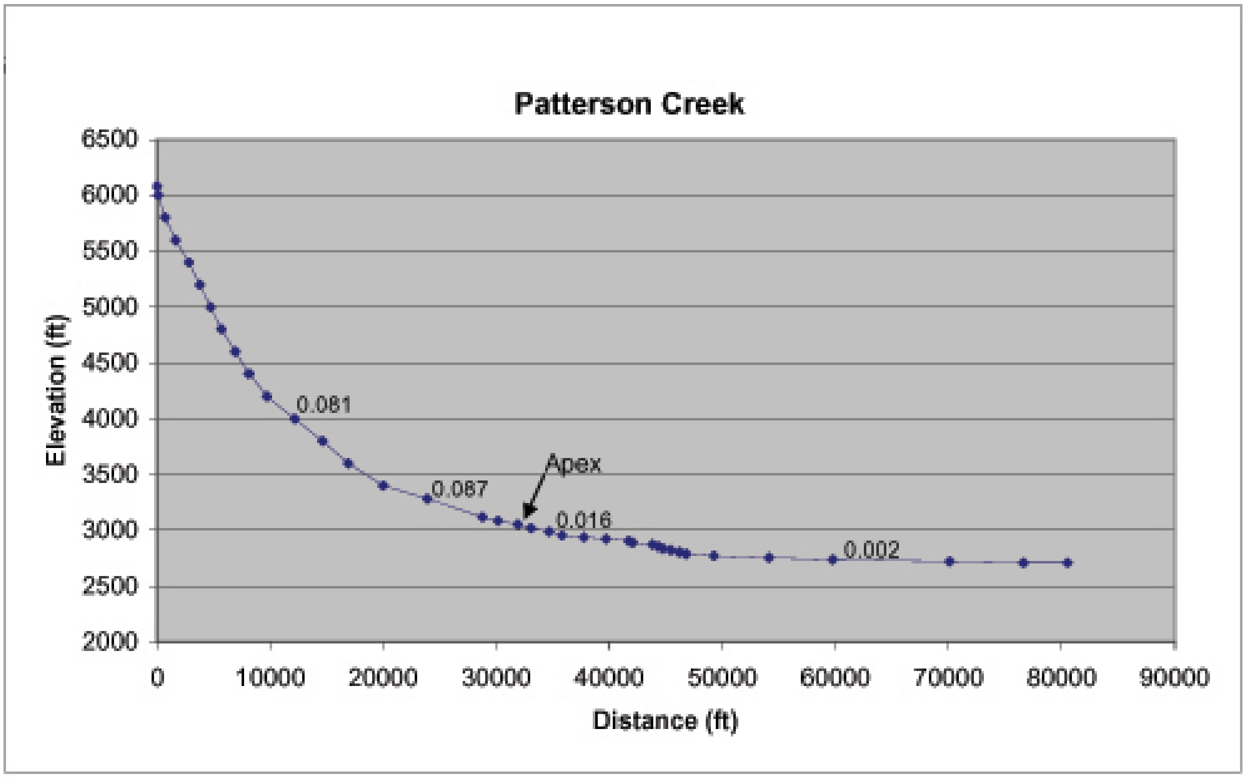
0.064
0.021
7000
6500
6000
5500
5000
4500
4000
3500
3000
2500
2000
0
10000
20000
30000
40000
50000
60000
70000

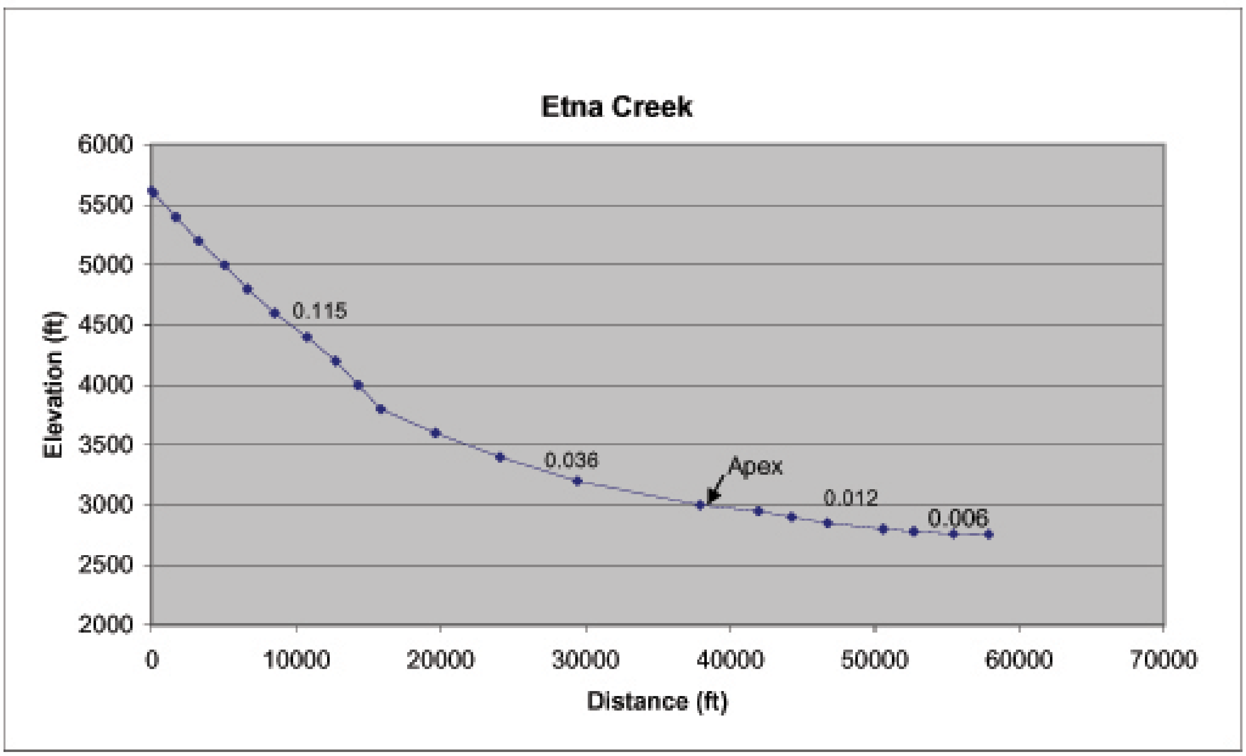


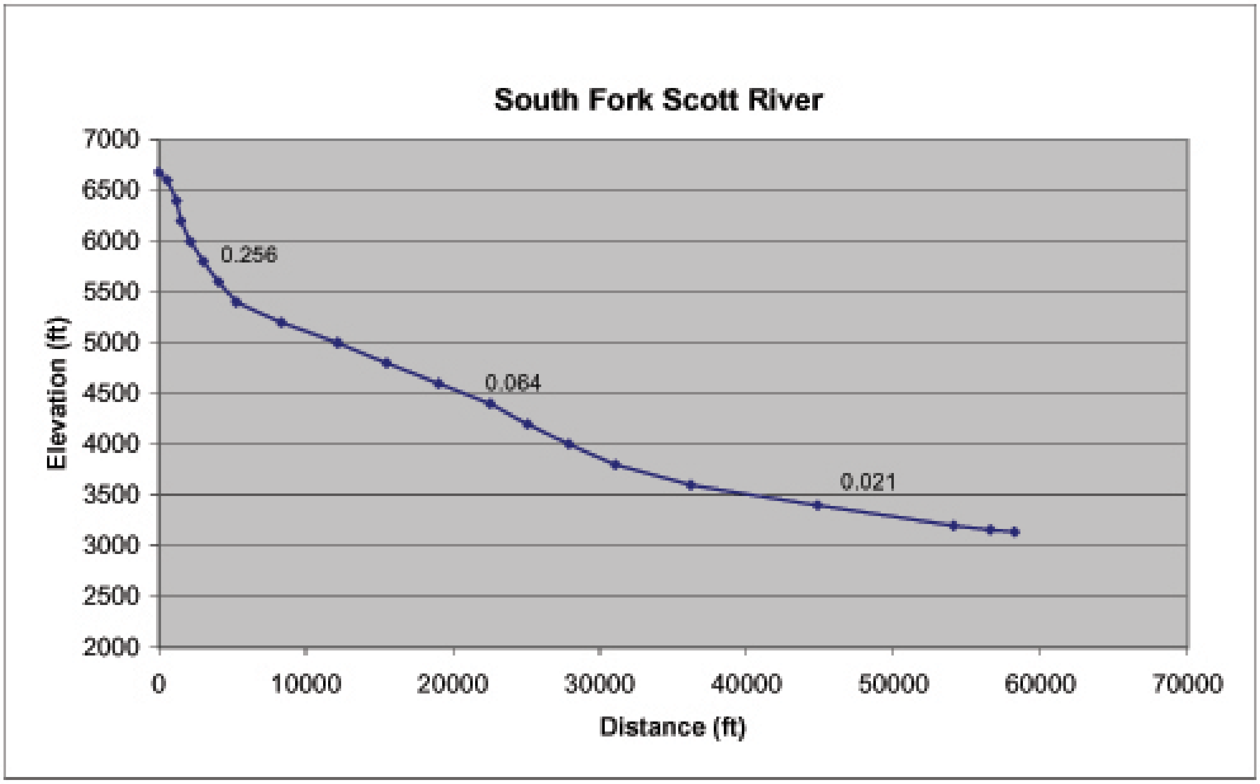
Moffett Creek
Elevation (ft)
6000
5500
5000
4500
4000
3500
3000
2500
2000
0
20000
40000
60000
80000
100000
120000
140000
Distance (ft)
0.130
0.022
Moffett Creek Valley
0.008
0.004

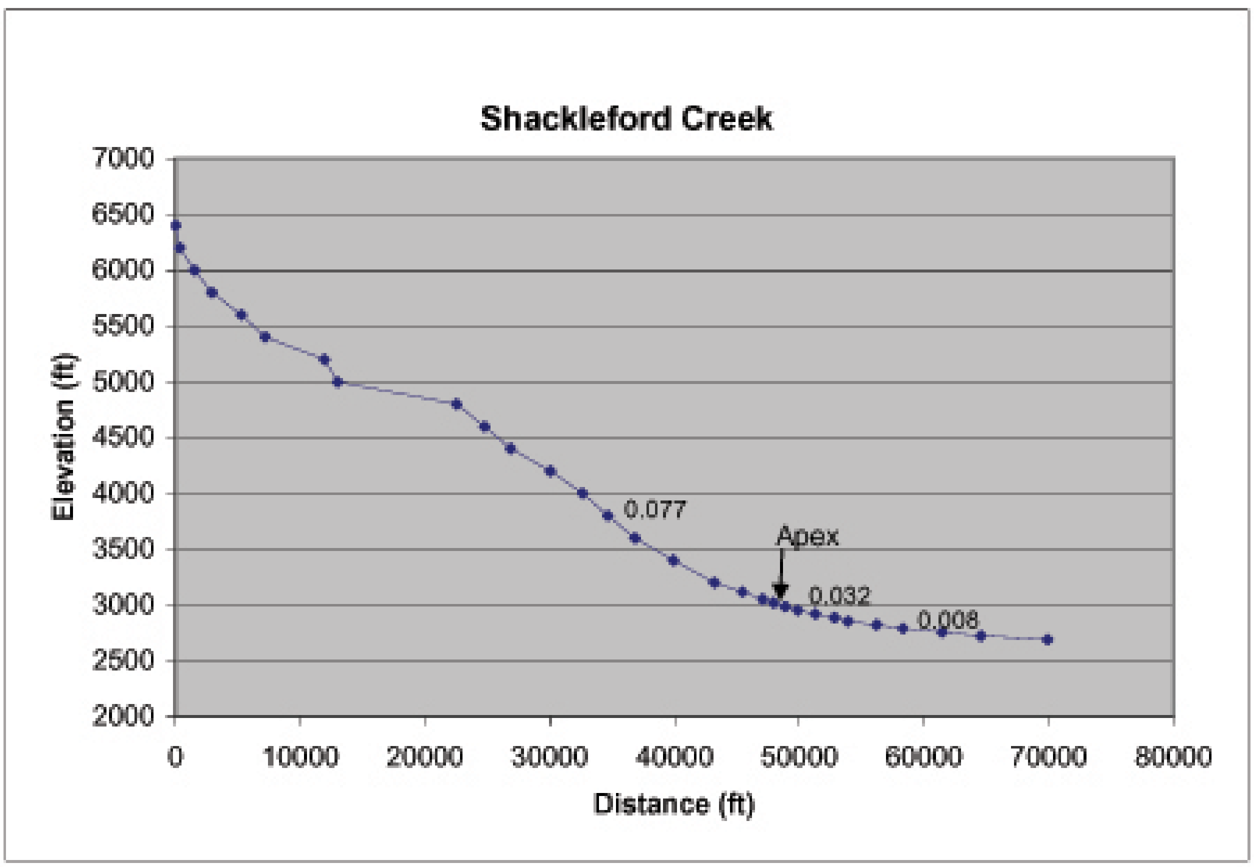


Kidder Creek
Elevation (ft)
7000
6500
6000
5500
5000
4500
4000
3500
3000
2500
2000
0
10000
20000
30000
40000
50000
60000
70000
80000
90000
100000
Distance (ft)
0.167
0.034
Apex
0.015
0.002


Patterson Creek
Elevation (ft)
Distance (ft)
6500
6000
5500
5000
4500
4000
3500
3000
2500
2000
0
10000
20000
30000
40000
50000
60000
70000
80000
90000
0.081
0.087
Apex
0.016
0.002


Etna Creek
Elevation (ft)
Distance (ft)
6000
5500
5000
4500
4000
3500
3000
2500
2000
0
10000
20000
30000
40000
50000
60000
70000
0.115
0.036
Apex
0.012
0.006


South Fork Scott River
Elevation (ft)
Distance (ft)
7000
6500
6000
5500
5000
4500
4000
3500
3000
2500
2000
0
10000
20000
30000
40000
50000
60000
70000
0.256
0.064
0.021


Shackleford Creek
Elevation (ft)
Distance (ft)
7000
6500
6000
5500
5000
4500
4000
3500
3000
2500
2000
0
10000
20000
30000
40000
50000
60000
70000
80000
0.077
Apex
0.032
0.008