FINAL
RESTORATION PLAN FOR NATURAL RESOURCE INJURIES FROM IRON MOUNTAIN MINE

Photos by Nick Iadanza, NOAA

IRON MOUNTAIN MINE TRUSTEE COUNCIL

U.S. Fish and Wildlife Service
California Department of Fish and Game
National Oceanic and Atmospheric Administration
Bureau of Land Management
Bureau of Reclamation

April 2002

RESTORATION PLAN
FOR NATURAL RESOURCE INJURIES FROM IRON MOUNTAIN MINE

Prepared By the Iron Mountain Mine Trustee Council:

United States of America
Fish and Wildlife Service
National Oceanic and Atmospheric Administration
Bureau of Reclamation
Bureau of Land Management

State of California
Department of Fish and Game

Citation

Iron Mountain Mine Trustee Council. 2002. Final Restoration Plan for Natural Resource Injuries From Iron Mountain Mine. Report of the Iron Mountain Mine Natural Resource Trustee Council, U.S. Fish and Wildlife Service, U.S. Bureau of Land Management, U.S. Bureau of Reclamation, California Department of Fish and Game, and National Oceanic and Atmospheric Administration.

Copies may be requested from:

Eva Grey, USBR,
2800 Cottage Way, mp-150
Sacramento, CA, 95825
916-978-5522
email egrey@mp.usbr.gov

Acronyms

CDFG - California Department of Fish and Game
CERCLA - Comprehensive Environmental Response, Compensation and Liability Act
CEQA - California Environmental Quality Act
CFR - Code of Federal Regulations
CFS - Cubic Feet per Second
CVP - Central Valley Project
CWA - Clean Water Act
CZMA - Coastal Zone Management Act
DOI - Department of Interior
EA - Environmental Assessment
EFH - Essential Fish Habitat
EIR - Environmental Impact Report
EIS - Environmental Impact Statement
ERP - Ecological Restoration Program
ESU - Evolutionarily Significant Unit
EO - Executive Order
EMZ - Ecological Management Zones
USEPA - United States Environmental Protection Agency
ESA - Endangered Species Act
FED. REG. - Federal Register
FONSI - Finding of No Significant Impact
Km - Kilometer
IMM - Iron Mountain Mine
ISRMA - Interlakes Special Recreation Management Area
NCP - National Contingency Plan
NEPA - National Environmental Policy Act
NMFS - National Marine Fisheries Service
NOAA - National Oceanic and Atmospheric Administration
NRDA - Natural Resource Damage Assessment
NPL - National Priorities List
NPS - National Park Service
OPA - Oil Pollution Act
OREHP - Ocean Resources Enhancement and Hatchery Program
OSPR - Office of Spill Prevention and Response
RBDD - Red Bluff Diversion Dam
RM - River Mile
RP - Responsible Party
SARA - Superfund Amendment and Reauthorization Act
USBR - U.S. Bureau of Reclamation
USBLM - U.S. Bureau of Land Management
USFWS - U.S. Fish and Wildlife Service

RESTORATION PLAN
FOR NATURAL RESOURCES INJURIES FROM IRON MOUNTAIN MINE

Contents

List of Acronyms ii

1.0 Introduction, Purpose of And Need For Restoration 1
1.1 Introduction 1
1.2 Purpose 1
1.3 Overview 3
1.4 Settlement of Natural Resource Claims 4
1.5 Natural Resource Trustees and Authorities 4
1.6 Public Participation 4
1.7 Administrative Record 5

2.0 The Affected Environment 5
2.1 Physical Environment 5
2.2 Biological Environment 6
2.3 Federal and California Endangered and Threatened Species 7
2.3.1 Central Valley Chinook Salmon *(Oncorhynchus tshawytscha*) 7
2.3.2 California Central Valley Steelhead trout (*Oncorhynchus mykiss*) 8
2.3.3 Bald Eagle (*Haliaeetus leucocephalus*) 9
2.3.4 Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*) 9
2.3.5 California Red Legged Frog (*Rana Aurora draytonii*) 10

3.0 Injured Resources 11
3.1 Anadromous Fish 11
3.2 IMM Site Creeks 11
3.3 Riparian Habitat 11
3.4 Lost Human-Use 12

4.0 Restoration Planning 12
4.1 Restoration Strategy 12
4.1.1 Ecological Restoration Actions Identified and Evaluated by CALFED ERP 13
4.1.2 Lost Human-Use Restoration 15
4.2 Criteria Used to Evaluate Restoration Projects 17
4.2.1 Screening Criteria 17
4.2.2 Ranking Criteria 18
4.3 Funding Mechanisms 19

5.0 Applicable Laws and Regulations 20
5.1 Overview 20
5.2 Key Statutes, Regulations and Policies 20
5.2.1 State Statutes 20
5.2.2 Federal Statues 20
5.2.3 Other Potentially Applicable Laws and Regulations 23
6.0 References, Persons, and Agencies Consulted 24

6.1 Documents Referenced 24
6.2 Agencies, Organizations, and Individuals Contacted 25

7.0 List of Preparers 26

APPENDIX A: Public Involvement A-1

Tables

Table 1. Animal Species Presently Listed Under the Federal and/or State Endangered Species Acts Occurring Within the Affected Area of the Iron Mountain Mine Releases. 10

Figures

Figure 1. Map of Geographic Area 2

Figure 2. Life history time sequence of Sacramento River chinook salmon at and upstream of Red Bluff, California. 8

Figure 3. Parcels of land to be acquired by BLM. 16

..

RESTORATION PLAN
FOR NATURAL RESOURCES INJURIES FROM IRON MOUNTAIN MINE

1.0 Introduction, Purpose and Need For Restoration

1.1 Introduction

This document is prepared by the Iron Mountain Mine Natural Resources Trustee Council (The U.S. Department of the Interior represented by the U.S. Fish and Wildlife Service (USFWS), U.S. Bureau of Reclamation (USBR), U.S. Bureau of Land Management (USBLM); the National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce; and the State of California, represented by the Department of Fish and Game (CDFG)). This document is to inform the public regarding the affected environment, and the proposed restoration actions to compensate for natural resource injuries and lost human-use caused by hazardous substance releases from the Iron Mountain Mine (IMM) complex, Redding, California.

1.2 Purpose

The purpose of restoration planning is to identify and evaluate restoration alternatives and to provide the public an opportunity for review and comment on the selected restoration alternatives. Restoration planning provides the link between injury and restoration. The goal of the proposed restoration actions presented in this document is to address injuries to, or lost use of natural resources and services resulting from IMM releases. This will be accomplished through the restoration, rehabilitation, replacement, or acquisition of equivalent natural resources and services collectively referred to as restoration. The specific goals for this plan are to restore the following natural resources affected by IMM releases: salmonids, riparian habitat, and instream ecological functions. In addition, restoration projects to compensate for the lost use of public areas and public services will be implemented. Additional environmental compliance may be required prior to actual implementation of proposed and accepted projects.

Restoration for each of the injured ecological resources will be accomplished by implementing one or more restoration project types as identified in the CALFED Ecosystem Restoration Program (ERP) and chosen by the Trustee Council using the criteria identified in section 4.2. Proposed restoration actions will occur along the Sacramento River and its tributaries between Keswick Reservoir and Red Bluff Diversion Dam, Redding to Red Bluff, California (Figure 1). The replacement of lost human-uses, primarily lost recreational uses, will be accomplished by the acquisition and enhancement of IMM land by BLM.

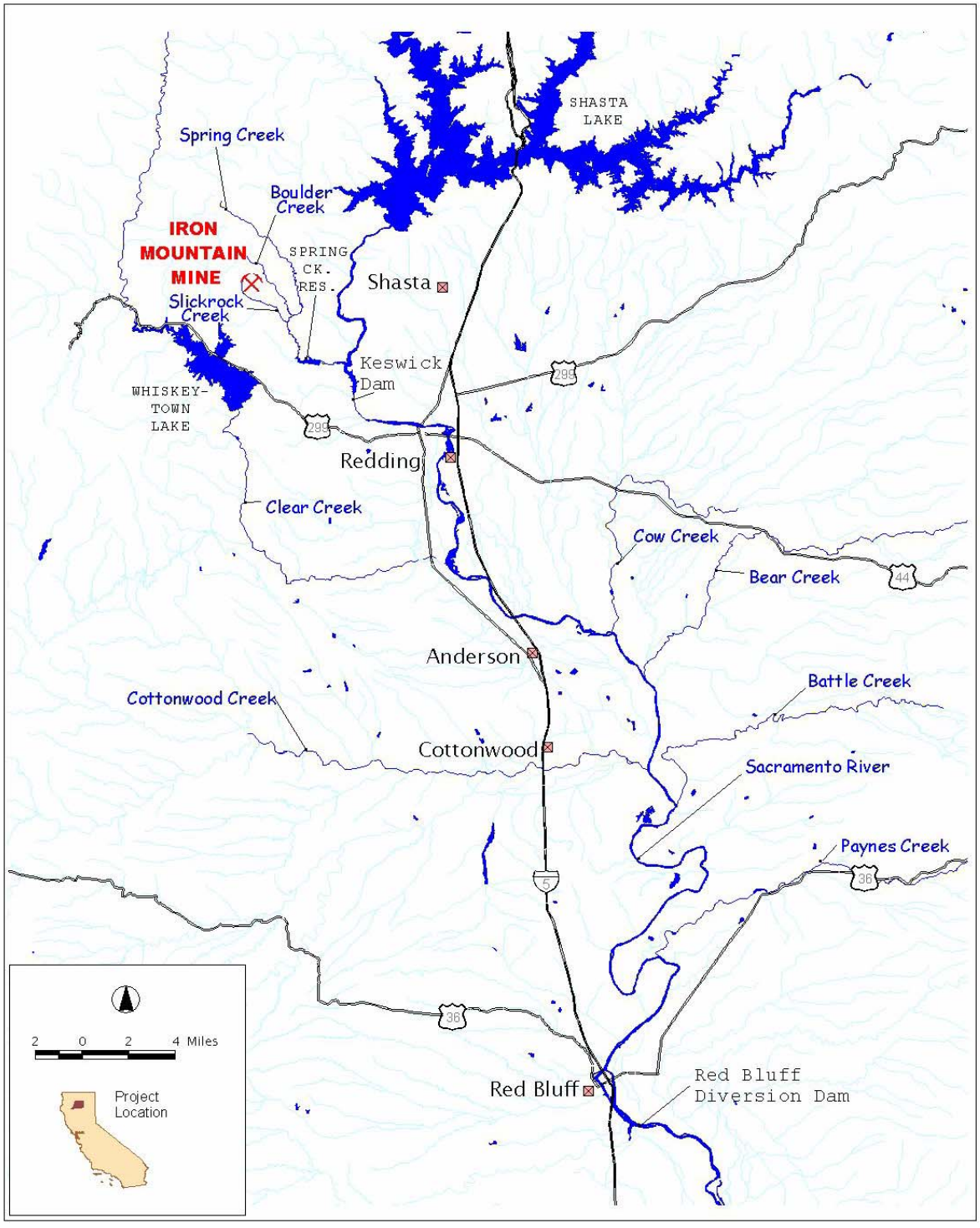

Figure 1. Map of Geographic Area. Iron Mountain Mine, Shasta County, CA

1.3 Overview

From the 1860s through 1963, the 4,400-acre IMM site was mined for iron, silver, gold, copper, zinc, and pyrite. Though mining operations were discontinued in 1963, underground mine workings, waste rock dumps, piles of mine tailings, and an open mine pit still remain at the site. Historic mining activity at IMM has fractured the mountain, exposing minerals in the mountain to surface water, rain water, and oxygen. When pyrite is exposed to moisture and oxygen, sulfuric acid forms. This sulfuric acid runs through the mountain and leaches out copper, cadmium, zinc, and other heavy metals. This acid flows out of the seeps and portals of the mine. Much of the acidic mine drainage ultimately is channeled into the Spring Creek Reservoir by creeks surrounding IMM (figure 1). The low pH level and the heavy metal contamination from the mine have caused the virtual elimination of aquatic life in sections of Slickrock Creek, Boulder Creek, and Spring Creek (Slotton et al. 1998).

Historic records describe numerous cases of adult salmon and steelhead trout mortality beginning shortly after mining activity began, with salmon kills reported as early as 1899-1900. There have been 39 documented fish kills near Redding since 1940 due to contamination from IMM (Stratus 1999). Although the USBR regulates the releases of Spring Creek waters into Keswick Reservoir in a manner designed to provide dilution of the low pH and metal laden water, on occasion, uncontrolled spills and excessive waste releases have occurred when Spring Creek Reservoir reached capacity. Without sufficient dilution, the release results in harmful quantities of heavy metals into the Sacramento River.

The remediation[1] of the IMM site includes six stages: 1) emergency actions, 2) water management, 3) cleanup of major sources in Boulder Creek, 4) the Old Mine/No. 8 mine site, 5) non-point source AMD discharges, and 6) sediments. In late 1986, the EPA selected cleanup remedies addressing several parts of the Water Management Area. Clean up activities include: capping selected cracked and caved ground areas; diverting clean upper Slickrock Creek water around waste rock and mine tailing piles; diverting upper Spring Creek; diverting clean surface water in South Fork Spring Creek to Rock Creek; enlarging the Spring Creek Debris Dam; and performing hydrogeologic studies and field-scale pilot demonstrations to better define the feasibility of controlling acid mine drainage formation. In 1989, the EPA capped the cracked and caved ground areas and the open pit mine on Iron Mountain. The EPA completed the diversion of Slick Rock Creek in early 1990. The site owner completed construction of the upper Spring Creek diversion in early 1991. EPA has not yet constructed two of the actions, the south fork of Spring Creek Diversion and the enlargement of the Spring Creek Debris Dam. EPA has proposed an alternate treatment approach that may reduce the need for these water management actions.

The EPA has studied the nature and extent of contamination in the Boulder Creek Watershed. In late 1992, the EPA selected an interim remedy to treat the acid mine drainage discharges from the Richmond and Lawson tunnels by constructing a treatment plant. The treatment plant has been built and is operating. Treatment will continue to assure all cleanup goals are met until an equivalent alternate remedy can be developed to recover metals or control the discharges.

The installation and operation of the full-scale neutralization system, the capping of areas of the mine, and the diversion of Slickrock Creek have significantly reduced the acid and metal contamination in surface water at the Iron Mountain Mine site. Cleanup activities are continuing and additional studies are taking place. The diversion of Upper Spring Creek has greatly increased the ability of the EPA and the USBR to manage the continuing release of contaminants from the site to minimize harm to the Sacramento River ecosystem until a final remedy can be selected and implemented.

As part of the natural resources damage assessment (NRDA) for the IMM site, the Trustees conducted a preliminary evaluation of injuries and natural resource damages based on the analysis of existing data and information. The anadromous fish portion of this analysis estimated that releases of hazardous substances in connection with the IMM site killed approximately 20 million fall-run chinook salmon between 1981 and 1996 (Stratus 1999). The

[1] "Remediation"refers to the efforts led by the EPA to clean up the IMM site and is distinct from the restoration efforts addressed by this document.

Trustees believed that this was a conservative loss estimate as it accounted only for the acute mortality to fall-run chinook fry due to copper exposure. It did not consider injuries to other chinook runs, effects to other life stages, effects of other metals (zinc and cadmium are also components of IMM acid mine drainage), or other injuries (reduced growth, delayed smoltification, food web contamination, adult and juvenile avoidance).

Injury to instream resources was estimated from available data on site creek water quality conditions (e.g., metal concentrations and pH), results of toxicity tests conducted using water collected from the creeks, and aquatic biota community surveys. It was determined that the site creeks were 100% injured and not restorable until remediation of toxic waste was complete. Injury to riparian habitat was estimated from digitized, high resolution areal photographs and from digital elevation models. These photographs showed approximately 39 acres of riparian habitat along the IMM site creeks devoid of vegetation and are determined to be 100% injured (Stratus 1999).

The United States owns several parcels of land within the Spring Creek drainage near the IMM site. Hazardous substance releases from the IMM site were likely to have reduced recreational use of the these lands due to restricted access from locked gates on public roads, and from public avoidance from the public's perception of contamination. It was determined that the public lost the recreational use of approximately 2,024 acres of public lands.

1.4 Settlement of Natural Resource Claims

The United States and the State of California reached a settlement agreement with Aventis CropScience USA Inc. (formerly known as Rhone Poulenc), on December 8, 2000. Under the terms of the agreement, as set forth in the attached Consent Decree (www.darcnw.noaa.gov/imm.htm) , Aventis paid approximately $160 million for a complete release of all environmental liability for hazardous waste contamination at Iron Mountain. The agreement creates a trust fund to pay for cleanup. About $61 million of the total settlement will go into a privately managed investment account with a guaranteed payout of $514 million in 2030 to pay for long-term operation and maintenance. Another $80 million dollars of the total settlement will be used for cleanup of the site until then. Approximately $8 million of the settlement was allocated to EPA for various costs.

The remaining $11 million dollars was paid to the Trustees for natural resource damages. Of the funds paid for natural resource damages, approximately $2 million was used to reimburse the Trustees' for past assessment costs. The remaining $9 million will be used for ecological and lost human-use restoration. As additional compensation for natural resource damages, the settlement included an option for the United States to acquire 14 tracts of land, approximately 1,250 acres, owned by Aventis. The lands would be transferred into public ownership to be administered by USBLM.

1.5 Natural Resource Trustees and Authorities

This Restoration Plan has been jointly prepared by the USFWS, USBR, USBLM, NOAA, and CDFG (collectively, the Trustees or Natural Resource Trustees). Each Trustee agency is authorized to act on behalf of the public under state and/or federal law to assess and recover natural resource damages and to plan and implement actions to restore natural resources and resource services injured or lost as the result of a discharge of oil or releases of hazardous materials. The Trustees authority rests specifically in the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. 9607, Executive Order (EO) 12580, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR 300.600.

1.6 Public Participation

Public review of the Draft Restoration Plan is considered integral to the restoration planning process. Through the public review process (February 11,2002- March 12, 2002), the Trustees sought public comments on the projects being proposed to restore injured natural resources or replace services provided by those resources. The Restoration Plan provided the public with information about the general nature and extent of the natural resource injuries identified. It also described the types of restoration activities to address these injuries found in the CALFED ERP and the Interlakes Special Recreation Management Area (ISRMA) plan. The IMM restoration plan was placed on the IMM website on December 31, 2001. Between December 2001 and March 2002, the Restoration Plan was

viewed 265 times. An email address for a contact person was provided for the submission of comments; no comments were received. The Final Restoration Plan documents are available to the public at the repositories listed below, and at the following NOAA website: **www.darcnw.noaa.gov/imm.htm**

A public meeting was held on the Restoration Plan in Redding, California on February 5, 2002. Comments received during the public meeting are provided in Appendix A of this Final Restoration Plan.

1.7 Administrative Record

The Trustees have compiled an administrative record containing documents considered by the Trustees to plan, select and implement restoration. The administrative record facilitates public participation and will be available for use in future administrative or judicial reviews of the Trustees' actions to the extent provided by federal or state law. Additional information and documents, including public comments received on the Restoration Plan and other IMM related restoration planning documents, will become a part of the administrative record and will be submitted to the repositories upon their completion. The documents comprising the administrative record can be viewed at the following locations and at the NOAA website : www.darcnw.noaa.gov/imm-ar.htm

California Department of Fish and Game
601 Locust Street,
Redding, CA 96001

United States Fish and Wildlife Service
2800 Cottage Way, Room W-2605,
Sacramento, CA 95825

2.0 The Affected Environment

The following section is excerpted from the Sacramento River Conservation Handbook, 2000 and CALFED Bay Delta Program Ecosystem Restoration Program, Vol 2.

The aquatic and riparian habitats affected by releases of hazardous substances at or from the IMM site include the site creeks (Boulder, Slickrock, Flat, and Spring) and the main stem and tributaries of the Sacramento River from Keswick Reservoir to Red Bluff Diversion Dam (Figure 1). Boulder and Slickrock creeks, within the IMM complex, flow into Spring Creek. Spring Creek enters waters of the Sacramento River at Keswick Reservoir, approximately 1.5 miles upstream of Keswick Dam (located near Redding, California).

2.1 Physical Environment

The Sacramento River from Keswick Reservoir (approximately 7 miles below Shasta Dam) to the Red Bluff Diversion Dam (59 miles from RM 302 to RM 243), passes through the cities of Redding and Anderson, then continuing through Iron Canyon and the City of Red Bluff (Figure1). This reach includes the mouths of Ash, Bear, Cow, Inks, Stillwater, Anderson, Battle, and Paynes creeks draining Mt Lassen, and of Spring, Clear, and Cottonwood creeks draining the coast range and Klamath Mountains. Much of the river in this reach flows through confined canyons, although portions have a broader floodplain. About 4 miles below Keswick Dam, the river widens to about 500 feet, where if flows in a relatively confined channel for 55 miles, before entering the alluvial plain of the Sacramento Valley below Red Bluff.

The geologic characteristics of the Keswick-Red Bluff Reach vary greatly. From Keswick Dam to Redding, the river flows through volcanic and sedimentary formations. The canyon is relatively narrow here with little floodplain and a correspondingly narrow riparian corridor. From Redding to the Cow Creek confluence there are limited areas where the river has meandered over a broader floodplain of alluvium derived from the Klamath Mountains and the Coast Ranges. From the Cow Creek confluence to near Red Bluff the river is almost entirely controlled by the Tuscan Formation (DWR, 1981). Here the channel is often narrow and deep, between high canyon walls. Table Mountain, a two-mile long volcanic plateau adjacent to the river, and steep-sloped Iron Canyon (RM 250-253) are both examples of Tuscan Formation outcrops. At Red Bluff the river flows out onto the broad alluvial floodplain of the Sacramento Valley. The potential for riparian habitat restoration is closely related to soils and geology. Portions of the Keswick–Red Bluff Diversion Dam Reach have deep loamy soils suitable for both agricultural use

and the growth of riparian forests. The bed material and floodplain deposits of this portion of the Sacramento River consist generally of well-rounded material composed of various metamorphic, sedimentary, and igneous rocks. The size of this material ranges from clay fines to boulders (DWR, 1981). Since the completion of Shasta Dam in December of 1943, the transport of sediment from reaches upstream of the dam has ceased. During high flow events, the water of the Sacramento River has a great capacity to transport sediment resulting in an armored channel surface below Keswick dam (DWR, 1981). Two other factors influence the sediment supply in this reach:

1. The urbanization of the Redding-Anderson area and increasing value of riverfront property has resulted in reduced bank erosion due to the installation of bank protection and levee.

2. Large quantities of sand and gravel are being mined at locations in and adjacent to the Sacramento River and its tributaries (DWR, 1981). Because tributaries contribute a significant amount of sediment to the river, the effects of the lower sediment supply to the river are less obvious with distance downstream.

The Keswick-Red Bluff Diversion Dam Reach is highly influenced by the altered hydrology resulting from the operation of the Central Valley Project (CVP). The operation of the CVP in this reach includes Shasta and Keswick dams on the main stem of the Sacramento River as well as the diversion of Trinity River and Clear Creek water to Keswick Reservoir via the Spring Creek tunnel. CVP operations reduces flood peaks during the winter and spring and increases discharge between floods during the summer and autumn. For example, without the CVP a 100-year flood (a flood with a probability of occurring one time in 100 years) is calculated to be about 336,000 cubic feet per second (cfs) at Bend Bridge. Under the controlled operation of the project, however, this is reduced to 202,000 cfs. A smaller two-year flood (a flood with a probability of occurring 50 times in 100 years) is reduced from 110,000 cfs to 70,800 cfs (TNC, 1996). Since 1963, the mean monthly flows on the Sacramento River at Keswick in July, August, and September have been nearly 400 percent higher, than the mean monthly flows prior to 1943 (DWR, 1981). The effect of these changes to hydrology is most obvious directly below the dams. Because of the influence of tributaries with distance downstream, the hydrologic changes due to the CVP are less pronounced in the lower reaches. The principal west side tributaries to the Sacramento River in the Keswick-Red Bluff Reach include Clear, Cottonwood and Dibble creeks. These creeks flow from the valley floor and parts of the Klamath Mountains to the Sacramento River. Main east side tributaries include Churn, Stillwater, Cow, Bear, Ash, Battle and Paynes creeks. Battle and Paynes creeks originate in Cascade mountains east of Redding.

The Keswick-Red Bluff Diversion Dam Reach has a variety of land uses—urban, residential, industrial and agricultural. About 37 percent of the area is in agriculture, and about 12 percent is urban, residential or industrial. The most predominant agricultural crop is walnuts, (1,920 acres) with mixed pasture (989 acres) and prunes (708 acres) also important (DWR, 1994; DWR 1990).

Industrial land uses within the Keswick-Red Bluff Diversion Dam Reach include lumber mills and gravel removal operations. Residential and commercial land uses are common within the cities of Redding, Anderson, and Red Bluff. This reach has the most recreational facilities on the Sacramento River.

2.2 Biological Environment

The Sacramento River is an essential spawning, rearing, and migratory pathway for many anadromous fish populations, such as: winter-run, fall-run, late-fall-run, and spring-run chinook salmon, steelhead trout, white sturgeon, green sturgeon, lamprey, striped bass, and American shad.

Ecological factors having the greatest influence on the anadromous fish in the Sacramento River include stream flow, coarse sediment supply (including gravel for fish spawning and invertebrate production), stream channel dynamics (meander), and riparian and riverine aquatic habitat. Stressors, including dams, legal and illegal harvest, high water temperature during salmon spawning and egg incubation, toxics from mine drainage, hatchery stocking of anadromous fish, and unscreened or poorly screened irrigation diversions, have affected the health of anadromous fish populations.

Keswick Dam blocks upstream migration of anadromous fish. The Sacramento River and its tributaries upstream of Shasta Dam have a cold temperature regime. Water temperature below Shasta Dam is generally suitable for salmon reproduction due to the selective release of cold water from Shasta and Whiskeytown dams. During years of extreme drought or consecutive dry years, water releases are excessively warm causing the loss of many salmon in their earliest embryonic life stages.

The NMFS has determined that critical habitat for the endangered Sacramento winter-run chinook salmon includes the entire Sacramento River from Keswick Dam, river mile (RM) 302 to the Golden Gate Bridge, San Francisco (NMFS 1993). The NMFS has also proposed that all Central Valley stream reaches that are accessible to steelhead trout be designated as critical habitat, except for the San Joaquin River and tributaries upstream of the River confluence. Other fish dependent on the Sacramento River Ecological Management Zone include spring-run chinook salmon, late-fall-run chinook salmon, fall-run chinook salmon, steelhead trout, lamprey, green sturgeon, white sturgeon, American shad, striped bass, and a resident native fish community, including the Sacramento splittail. Due to declining populations, many of these are species listed under provisions of the state or federal endangered species acts.

One of the important attributes of the zone is its riparian forest, which supports a variety of neotropical migrant bird species, the valley elderberry longhorn beetle, and many other terrestrial species. The riparian vegetation is a significant contributor to the food web and large riparian forests effectively moderate air temperatures. Riparian corridors along the tributaries provide important connections for wildlife between the Sacramento Valley and the surrounding foothills and mountains. The most current survey of the riparian resources within this reach is based on aerial interpretation of 1991 photos of Shasta County and 1993 photos of Tehama County. Initial interpretation was performed by the Geographic Information Center at California State University, Chico, California. Because portions of the channel within the Keswick-Red Bluff Diversion Dam Reach are geologically confined, the width of riparian vegetation is often very narrow. Areas with potential for the development of large tracts of riparian vegetation are often converted to agriculture or are under other types of development. Approximately 128 acres of valley oak woodland are contiguous with the outer boundaries of the 100-year flood line. Unlike the downstream reaches, a large amount of native upland vegetation (such as chaparral and various woodland types) occurs within the Keswick-Red Bluff Diversion Dam Reach.

2.3 Federal and State Endangered and Threatened Species

2.3.1 Central Valley Chinook Salmon (*Oncorhynchus tshawytscha*)

The four Central Valley chinook salmon Evolutionarily Significant Units (ESU) or subspecies (winter, spring, fall and late-fall) are named on the basis of their upstream migration time and defined by adult migration timing, spawning period, length of juvenile residency and timing of smolt migration (Boydstun et al.1992)(Figure 2). In 1989, the National Marine Fisheries Service (NMFS) took emergency action to list the winter-run chinook salmon as threatened under the Endangered Species Act (ESA) and to designate the Sacramento River from Red Bluff Dam to Keswick Dam as a critical habitat for the winter-run (58 FR 33212). During that same year, winter-run chinook salmon were listed as endangered under the California Endangered Species Act (CESA). In January 1994, the NMFS issued its final rule reclassifying the winter run-chinook salmon as an endangered species (58 FR 440) (NMFS 1997).

Central Valley spring-run chinook exhibit a characteristic run timing and other adaptive features which allow them to enter the upper reaches of river systems prior to the onset of the low flows and high water temperatures that inhibit access to these areas during the fall. The run appears in the Sacramento River and its tributaries from February to July and spawning occurs from late August through early October, with a peak in September. Central Valley spring-run chinook exhibit an ocean-type life history, emigrating as fry, sub-yearlings, and yearlings, and mature primarily as age-three adults. The chinook salmon Central Valley fall-run ESU is designated as a candidate for listing by the NMFS due to concerns over specific risk factors. The ESU includes all naturally spawned populations of fall-run chinook salmon in the Sacramento and San Joaquin River Basins and their tributaries, east of

Carquinez Strait, California. This ESU was directly impacted by the IMM metal releases (Section 3.1).

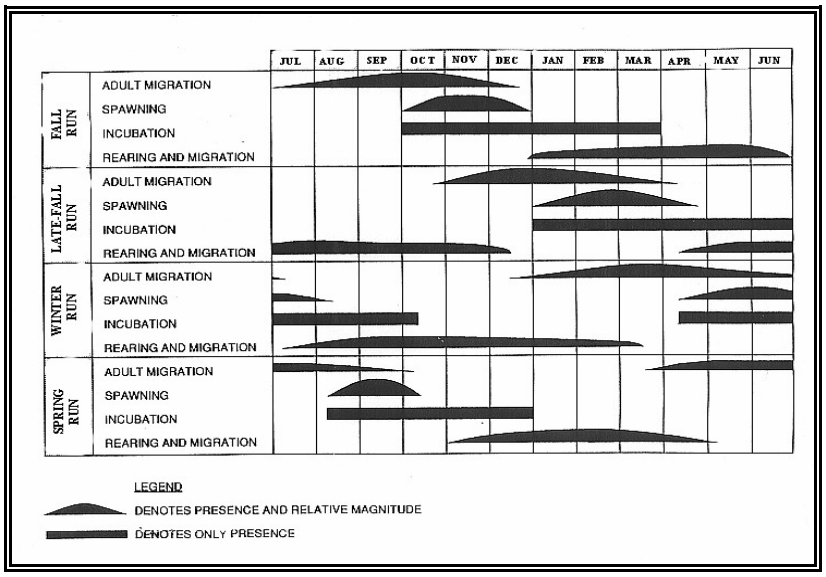

Figure 2. Life history time sequence of Sacramento River chinook salmon at and upstream of Red Bluff, California (Reprinted from U.S. Bureau of Reclamation, 1991).

2.3.2 California Central Valley Steelhead Trout (*Oncorhynchus mykiss*)

Oncorhynchus mykiss exhibit perhaps the most complex suite of life history traits of any species of Pacific salmonids. They can be anadromous or freshwater resident. Resident forms are usually called rainbow trout. Those that are anadromous can spend up to seven years in fresh water prior to smoltification, and then spend up to three years in salt water prior to first spawning. The half-pounder life history type in southern Oregon and northern California spends only two to four months in salt water after smoltification, then returns to fresh water and outmigrates to sea again the following spring without spawning. Another life history variation is the ability of this species to spawn more than once, whereas all other species of *Oncorhynchus*, except *O. clarki*, spawn once and then die.

The Sacramento and San Joaquin rivers offer the only migration route for anadromous fish to the drainages of the Central Valley that originate in three mountain ranges. The distance from the ocean to spawning streams can exceed 300 km, providing unique potential for reproductive isolation among steelhead trout in California. Steelhead trout have already been extirpated from most of their historical range in this region. Central Valley steelhead trout were listed as threatened in 1998 under the ESA. Habitat concerns in this ESU focus on the widespread degradation, destruction, and blockage of freshwater habitats within the region, and the potential results of continuing habitat destruction and water allocation problems.

Currently, all steelhead trout in the Central Valley are considered winter steelhead trout by the California Department of Fish and Game (CDFG), although "three distinct runs," including summer steelhead trout, may have occurred there as recently as 1947 (McEwan and Jackson 1996). Steelhead trout within this ESU have the longest freshwater migration of any population of winter steelhead trout. There is essentially a single continuous run of steelhead trout in the upper Sacramento River. River entry ranges from July through May, with peaks in September

and February; spawning begins in late December and can extend into April (McEwan and Jackson 1996).

2.3.3 Bald eagle (*Haliaeetus leucocephalus)*

The bald eagle is a large raptor of the family Accipitridae. It is well known as our Nation's symbol and is the only endemic North American representative of the fish or sea eagles. The characteristic adult plumage consists of a white head and tail with a dark brown body. Juvenile eagles are completely dark brown and do not fully develop the white head and tail until the fifth or sixth year.

Breeding generally occurs February to July and ends approximately August 31 when the fledglings have begun to disperse from the immediate nest site. Nesting territories are normally associated with lakes, reservoirs, rivers, or large streams and are usually within two miles from water bodies that support an adequate food supply. Most nests in California are located in ponderosa pine and mixed-conifer stands and nest trees are most often ponderosa pine (*Pinus ponderosa*) (Jurek 1990). Bald eagles are susceptible to disturbance by human activity (such as recreational activities, fluctuating fish populations and number of roost trees as a result of reservoir level fluctuations, risk of wild fire, fragmentation of habitat, home sites, campgrounds, mines, timber harvest, and roads) during the breeding season, especially during egg laying and incubation; such disturbances can lead to nest desertion or disruption of breeding attempts. Nesting and foraging eagles are known to avoid areas of human use or development, and individual nesting pairs exhibit varying levels of tolerance to disturbance.

The bald eagle once nested throughout much of North America near coasts, rivers, lakes, and wetlands. Today the bald eagle continues to be found throughout much of North America and breeds or winters throughout California, except in the desert areas. In California, most breeding occurs in Shasta, Butte, Lake, Lassen, Modoc, Plumas, Siskiyou, and Trinity Counties. The species suffered population declines throughout most of its range, including California, due primarily to environmental contamination as with the use of DDT and other persistent organochlorine compounds, habitat loss and degradation, shooting, and other disturbances. The drastic decline of the species led to its listing on February 14, 1978, and protection under the ESA (43 Fed. Reg. 6230). In addition to the ESA, the bald eagle is protected under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §§703-712) and the Bald Eagle Protection Act of 1940, as amended (16 U.S.C. §§668-668d).

2.3.4 Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus)*

The valley elderberry longhorn beetles (family Cerambidae) are characterized by stout, elongate, and cylindrical bodies, with long antennae that often exceed two thirds of the body length. Adult males have red-orange elytra (wing covers) with four elongate spots. The red-orange fades to yellow on some museum specimens. Adult females have dark colored elytra.

There are four stages in the animal's life: egg, larva, pupa and adult. The species is nearly always found on or close to its host plant, elderberry (*Sambucus*). Females lay their eggs on the bark. Larvae hatch and burrow into the stems. The larval stage may last 2 years, after which the larvae enter the pupal stage and transform into adults. Adults are active from March to June, feeding and mating.

The valley elderberry longhorn beetle, though wide-ranging, is in long-term decline due to human activities that have resulted in widespread alteration and fragmentation of riparian habitats, and to a lesser extent, upland habitats, which support the beetle. The beetle's current distribution is patchy throughout the remaining riparian forests of the Central Valley from Redding to Bakersfield. The USFWS database lists observations of valley elderberry longhorn beetle within five miles of Iron Mountain Mine and in the greater Redding area. The valley elderberry longhorn beetle was listed as threatened in 1980 (45 Fed. Reg. 52803). Critical Habitat was designated at the same time (45 Fed. Reg. 52803).

2.3.5 California Red-legged Frog (*Rana aurora draytonii)*

The California red-legged frog is the largest native frog in the western United States, ranging from 4 to 13 centimeters (1.5 to 5.1 inches) in length. Abdomen and hind legs of adults are largely red; the back is characterized by small black flecks and larger irregular dark blotches with indistinct outlines on a brown, gray, olive, or reddish

background color. Dorsal spots usually have light centers, and dorsolateral folds are prominent on the back.

California red-legged frogs spend most of their lives in and near sheltered backwaters of ponds, marshes, springs, streams, and reservoirs. Largest densities of California red-legged frogs currently are associated with deep pools with dense stands of overhanging willows (*Salix spp*.) and an intermixed fringe of cattails (*Typha latifolia*).

Historically, this species was found throughout the Sierra Nevada foothills and Central Valley, from Shasta County south to Tulare County, but these populations have been fragmented and nearly eliminated. Currently, only a few drainages in the Sierra Nevada foothills are known to support California red-legged frogs, compared to over 60 known historic localities. CDFG Natural Diversity Database does not list any records for this species within five miles of the mine site. However, historic occurrences are known in the Redding area and much of the area remains unsurveyed. The most secure aggregations of California red-legged frogs are found in aquatic sites that support substantial riparian and aquatic vegetation and lack non-native predators. Habitat loss, non-native species introduction, and urban encroachment are primary factors that have adversely affected California red-legged frog throughout its range. California red-legged frogs have been extirpated or nearly extirpated from over 70 percent of their former range and were listed as threatened by the USFWS on May 23, 1996 (61 Fed. Reg. 25813).

Table 1. Animal Species Presently Listed Under the Federal and/or State Endangered Species Acts Occurring Within the Affected Area of the Iron Mountain Mine Releases.

Common Name	**Scientific Name**	**Status of Listing**
Winter-run chinook salmon	*Oncorhynchus tshawytscha*	*ESA: endangered* *CESA: endangered*
Spring-run chinook salmon	*Oncorhynchus tshawytscha*	*ESA: threatened* *CESA: threatened*
Fall and late-fall chinook salmon	*Oncorhynchus tshawyscha*	*ESA: candidate*
Steelhead trout	*Oncorhynchus mykiss irideus*	*ESA: threatened*
Bald eagle	*Haliaeetus leucocephalus*	*ESA: threatened* *CESA: endangered*
California Red-legged Frog	*Rana aurora draytonii*	*ESA: threatened*
Valley elderberry-longhorn beetle	*Desmocerus californicus dimorphus*	*ESA: threatened*

3.0 Injured Resources

3.1 Anadromous Fish

Releases of acid mine drainage and toxic metals from IMM have been shown to directly impact fall-run chinook salmon within the Sacramento River. Comparing toxic release episodes with salmonid distribution data indicate that from 1981 to 1996, an estimated 20 million fall-run chinook salmon fry were killed due to exposure of IMM metal releases (Stratus Consulting, 1999). A model that incorporates information on copper concentrations in the Sacramento River downstream of the IMM site on the presence of fry in areas where copper concentrations are elevated, and on the expected mortality response resulting from the copper exposure, estimated the number of fall-run fry killed. The model only estimated mortality to fall-run chinook salmon, other chinook salmon runs in the Sacramento River were expected to have had less exposure to IMM metals releases.

The chinook salmon Central Valley fall-run ESU, which is targeted to benefit from restoration actions as a part of this proposed plan, is designated as a candidate for listing by the NMFS due to concerns over specific risk factors. The ESU includes all naturally spawned populations of fall-run chinook salmon in the Sacramento and San Joaquin River basins and their tributaries, east of Carquinez Strait, California. Major river basins containing spawning and rearing habitat for this ESU comprise approximately 13,760 square miles in California.

3.2 Instream/IMM Site Creeks

Releases of acid mine drainage and toxic metals from IMM have severely degraded instream resources of the creeks that drain the mine area, eliminating ecological services and reducing the viability of biological resources. Site creek injuries were determined with measurements of metals concentrations and pH of the water, toxicity tests using creek water, and surveys of the creeks' biotic communities. Waters in the 2.3 mile reach of Boulder Creek and the 2.6 mile reach of Slickrock Creek affected by IMM carry copper and zinc concentrations that exceed ambient water quality standards by hundreds of times. These metal releases have made these reaches essentially lifeless (Slotton et al, 1998). Fish are absent and benthic invertebrates are sparse at best, compared to the abundances of both upstream of IMM influences. Spring Creek, which receives both Boulder and Slickrock creeks, is also severely impacted by copper and zinc. Because Spring Creek is affected by other metals sources upstream, however, it was not included in the claim for stream reaches injured by IMM. The Trustees regard Boulder and Slickrock creeks below IMM to be 100 % injured. Since some reaches are not restorable, and recovery of biological resources cannot begin until after remedial actions are complete, compensatory instream restoration will take place within the Keswick- Red Bluff Diversion Dam Reach.

Flat Creek also is affected by IMM. Waters in Flat Creek were affected by zinc and copper loading from seepage of nearby IMM tailings, until their removal in 1989. EPA data (EPA 1997) indicate that tailing removal reduced zinc and copper loading, via seepage, by two orders of magnitude. Water quality since 1989 has been sufficient to support macroinvertebrates, but other factors have limited the occurrence of fish.

3.3 Riparian Habitat

Releases of acid mine drainage and toxic metals from IMM are believed to have severely impacted stream-side soils and habitats, reducing the viability of biological resources, and degrading ecological and habitat services in sections of the riparian areas along Boulder, Slickrock, Spring, and Flat creeks. For years Boulder, Slickrock, and Spring creeks have conveyed large amounts of copper and zinc depositing these metals in the bed and bank of the stream.

Based on aerial photography interpretation and field investigation, the Trustees determined that approximately 39 acres of riparian habitat are essentially devoid of vegetation, and are considered 100 % injured (Stratus 1999). In Flat Creek, the physical structure of the channel and banks has been permanently altered because of water diversions into Flat Creek that dramatically increased Flat Creek's average flow volume. The erosion resulting from this diversion removed or altered an estimated 10 acres of aquatic/riparian habitat.

Permanent diversion of upper Spring Creek into Flat Creek is required to reduce inflow volume to the Spring

Creek's Diversion Dam to provide more control of waste discharge. This has disrupted stream dynamics and rendering Flat Creek essentially a trough. The stream hydrology has not readjusted to this increased volume, and expected habitat features, such as stream meanders, gravel bars for spawning habitat, stream-side vegetation, and riparian habitat, are not reestablished. In contrast to the riparian vegetation and supportive habitat features found upstream of mine influences approximately 39 acres along the creeks are devoid of vegetation and habitat features; based on aerial photography interpretation and field investigation, and an estimated 10 acres that would be present in a healthy riparian system, have been washed away. The Trustees regard those riparian habitats in the Spring Creek drainage to be 100 % injured.

3.4 Lost Human-Use

The public has lost the recreational use of approximately 2,024 acres of public lands that lie within the National Priorities List (NPL) site boundaries of IMM. Because of the site's designated status as highly contaminated, which precludes public entry, and the public's perceptions regarding site dangers, normal recreational uses have been unavailable there. The Trustees consider the period of lost use to be from 1980, when natural resource damage authority was established under CERCLA, until 2010, when public access will be allowed to the site with the completion of remedies. The predominant recreational uses in the IMM area were off-highway vehicle use, small game hunting, and equestrian use, although others such as hiking, birding, and hunting were also common.

4.0 Restoration Planning

4.1 Restoration Strategy

The goal of restoration under NRDA is to restore injured resources and seek compensation for any public losses.. This goal can be achieved by returning injured natural resources to their baseline condition and by compensating for any interim losses of natural resources and services during the period of recovery to baseline.

NRDA regulations require that Trustees consider a range of possible alternatives and actions for the restoration, rehabilitation, replacement and/or acquisition of the equivalent of the injured natural resources and lost services. Restoration activities can range from natural recovery, to actions that prevent interference with natural recovery, to more intensive actions expected to return injured natural resources and services to baseline faster or with greater certainty than natural recovery. Restoration may also restore resources or services beyond baseline conditions as a means of compensating for interim losses.

The CALFED ERP is a comprehensive effort to restore anadromous fish and stream and riparian habitat within the Sacramento Valley as well as the Bay Delta ecosystem. The compatibility between some aspects of the CALFED ERP and the IMM Trustees' restoration goals has led the Trustees to propose to use the CALFED restoration project proposal solicitation and review process to identify potential restoration projects for the restoration of damages to natural resources from IMM. As CALFED has developed an ongoing proposal solicitation process, there are many advantages of this approach. The Trustees anticipate that these advantages will include spending less time, money and effort in soliciting and evaluating proposals, and avoidance of duplication of effort on the part of both grant seekers and proposal evaluators. The Trustee Council will also gain the benefit of CALFED's extensive scientific, technical, engineering, and regional/community review of restoration proposals.
Working with the CALFED ERP, the Trustees will also be able to expedite the environmental analysis of the restoration process. The Trustees will be able to use an environmental documentation process that tiers from the broader programmatic EIS already completed by CALFED. The Trustees propose to use the preferred alternatives analysis within the CALFED Final Programmatic EIS/EIR to evaluate ecological restoration actions for the IMM injuries. The restoration actions ultimately chosen however will be specific to the IMM natural resource injuries, and will be reviewed by the Trustee Council under the selection criteria specified in section 4.2 of this restoration plan.

As a general planning-level document, the Programmatic EIS/EIR does not analyze site-specific impacts of future projects at proposed locations. The impact analysis document therefore cannot predict with certainty which impacts will occur and what site-specific mitigation (restoration) measures will be imposed. Later EAs, and EISs will be

able to incorporate the long-term impact analyses of this programmatic document and add detail about specific projects.

To address the lost human use resource injury, the United States, through USBLM, will undertake selected recreation enhancement projects, and acquire all or part of fourteen parcels of land (Figure 3) identified within the Consent Decree (www.darcnw.noaa.gov/imm.htm). The Trustees propose to use a tiering process similar to that described for ecological restoration, by using projects found in the ISRM plan. The ISRMA plan describes recreation management goals and plans of federal and local agencies to develop recreation in response to demand in northern California. The ISRMA is available in the Administrative Record.

4.1.1 Ecological Restoration Actions Identified and Evaluated by CALFED ERP.

The IMM Consent Decree (www.darcnw.noaa.gov/imm.htm) allows the Trustees to consider projects that include, but are not limited to, projects that enhance habitat or improve water quality and quantity in the Sacramento River and its tributaries between Keswick Reservoir and Red Bluff Diversion Dam. The Trustees have chosen to select from the actions found within the CALFED ERP for the restoration of injuries from the IMM releases.

For the purposes of the IMM NRDA restoration plan, only projects identified within the Keswick Reservoir - Red Bluff Diversion Dam Reach will be considered from the solicitations gathered by the CALFED process. Restoration actions identified by the CALFED ERP, and to be selected by the Trustees, are considered in this section and are based on conceptual designs rather than detailed engineering design work or operational plans. Therefore, details of specific projects, including actual cost information, may require additional refinements or adjustments to reflect site conditions or other factors prior to implementation. Additional environmental compliance may be needed pursuant to NEPA, CEQA, CERCLA, ESA or other state and federal laws and regulations as these conceptual plans evolve to specific courses of action.

CALFED's ERP is a large comprehensive, and inclusive environmental restoration program. It provides new perspective to restoration science by focusing on the rehabilitation, protection, or restoration of ecological processes that create and maintain habitats needed by fish, wildlife and plant species dependent on the Delta and its tributary systems. The goal of the CALFED ERP is to improve and increase aquatic and terrestrial habitats and improve ecological functions in the Bay-Delta system to support sustainable populations of diverse and valuable plant and animal species. The CALFED ERP identifies programmatic actions designed to restore, rehabilitate, or maintain important ecological processes, habitats, and species within 14 ecological management zones (EZM).
The Keswick Reservoir - Red Bluff Diversion Dam Reach is identified as one of the Ecological Management Units within the Sacramento River EMZ described in the CALFED Bay-Delta System Program. Of the 600 restoration actions identified within the CALFED ERP, the Trustee Council has identified nine actions that would help restore the injured ecological resources from the IMM releases. By using the restoration actions defined by the ERP as well as using the CALFED framework for announcing and disbursing funds (section 4.3), the IMM NRDA restoration plan will be functionally integrated within the CALFED ERP program. As part of this functional integration, potential IMM NRDA and CALFED projects will undergo concurrent analysis as well as scientific and technical review to ensure the most appropriate and beneficial projects are implemented and to ensure the best use of funds.

The suite of actions listed below were chosen from CALFED's Programmatic EIS/EIR . The Trustees determined that most of these actions, which were selected under the preferred alternatives of the CALFED PEIS, best represented the restoration needed to address the injured resource categories (salmonids, instream, and riparian). The actions summarize project ideas that are explained in greater detail in CALFED's Volumes I and II of the ERP Plan, and the ERP Strategic Plan for Ecosystem Restoration.

Salmonid Restoration:

1. Fish Passage Improvement

a. Culverts

Negotiate removal or modification of culvert crossings. Removal or alteration of culverts will aide upstream movement by juvenile salmonids. It will also assist in the downstream movement of sediment, woody debris and organic material. Restoring fish passage is an effective way to increase the availability of habitat and can result in relatively large increases in potential fish production for a nominal cost.

b. Fishways and ladders

Improve fish passage through modifications or removal of locally owned dams and small diversion dams. Improve fish migration to access upstream habitat and relieve pressure on over-utilized downstream reaches by upgrading fish ladders. Restoring fish passage is an effective way to increase the availability of habitat and can result in relatively large increases in potential fish production for a nominal cost. Updating such fishways such as wiers will help prevent hybridization of fish species.

c. Fish Screen Implementation

Screen diversions along the Keswick-Red Bluff Diversion Dam Reach to the extent that they no longer impair other efforts to restore anadromous and resident fish. Water diversions ranging from several cfs to several thousand cfs lead to the loss of millions of juvenile anadromous and resident fish. Significant progress has been made in screening larger diversions, but screens are needed on the remaining unscreened largest, many mid-sized, and small diversions. Losses at these diversions continue to threaten the health of anadromous fish populations.

2. Water Acquisition Rights

Acquisition of water rights from willing sellers to improve instream flows and habitat for salmonids.

3. Gravel Addition

Periodically place spawning gravel in the upper Sacramento River between Keswick Dam and the Red Bluff Diversion Dam by 10,000 to 20,000 cubic yards annually to provide adequate spawning habitat for targeted levels of salmon and steelhead trout and to sustain stream meander processes below Red Bluff.

Instream Restoration:

4. Instream Habitat Restoration

Implementation of large-scale restoration projects on selected streams and rivers, in cooperation with local participants. Develop habitats (e.g., artificial riffles and placement of woody debris). Assist existing agency programs to reduce turbidity and sedimentation; reduce the impairment caused by low dissolved oxygen conditions.

Riparian Restoration:

5. Exclusionary Fencing

Construction of livestock exclusion fencing to restore degraded riparian habitats and improve spawning and rearing conditions for salmon and steelhead trout.

6. Stream Bank Restoration

Riparian vegetation will be planted to provide streambank stability, shade, and a future source wood, all of which are important to healthy streams. Enhance and maintain the riparian corridor to improve streambank and channel

rearing habitat for juvenile salmonids.

7. Riparian Land Acquisition

The purchase of property or easements will allow habitat to improve naturally. Fee title purchase is the purchase of land from willing sellers. It has been the most common method of riparian habitat protection by wildlife agencies and conservation organizations along the Sacramento River.

8. Conservation Easements

Conservation easements help to preserve and improve existing stream meander an important natural process. A natural meander will provide near-optimal habitat for spawning, rearing, and migration. Several state and federal agencies currently use conservation easements as a tool to protect valuable habitat and river processes along the Sacramento River.

9. Invasive Plant Species Management

Reduce the area of invasive non-native woody species, such as giant reed (i.e., Arundo or false bamboo) and salt ceder (Tamarisk), that compete with native riparian vegetation.

4.1.2 Lost Human-Use Restoration

The human use restoration component of the settlement will address recreational losses in the geographic area of IMM in two ways. First as partial compensation for lost recreational use, the consent decree (www.darcnw.noaa.gov/imm.htm) provides that BLM has the option to acquire all or part of fourteen parcels of land (1250 acres) (Figure 3) from the RPs. The fourteen parcels are located on the east and southeast side of the EPA-designated Superfund site. The parcels are primarily surrounded by BLM-managed lands and consolidating public ownership in this area would help facilitate public access and further attempts to restore recreational activity.

The second part of human use restoration includes providing funds for projects to benefit recreational opportunities at and around Iron Mountain, including lands acquired by BLM under the consent decree. The Trustees intend to use the ISRMA, an interagency plan that identifies goals and numerous projects, to develop and implement recreational activities. Some of the proposed projects under the ISRMA plan include improvement of the Rails to Trails corridor, developing bike trails, developing loop trails to enhance hiking activities, improving motor vehicle access to trails and enhancing equestrian opportunities.

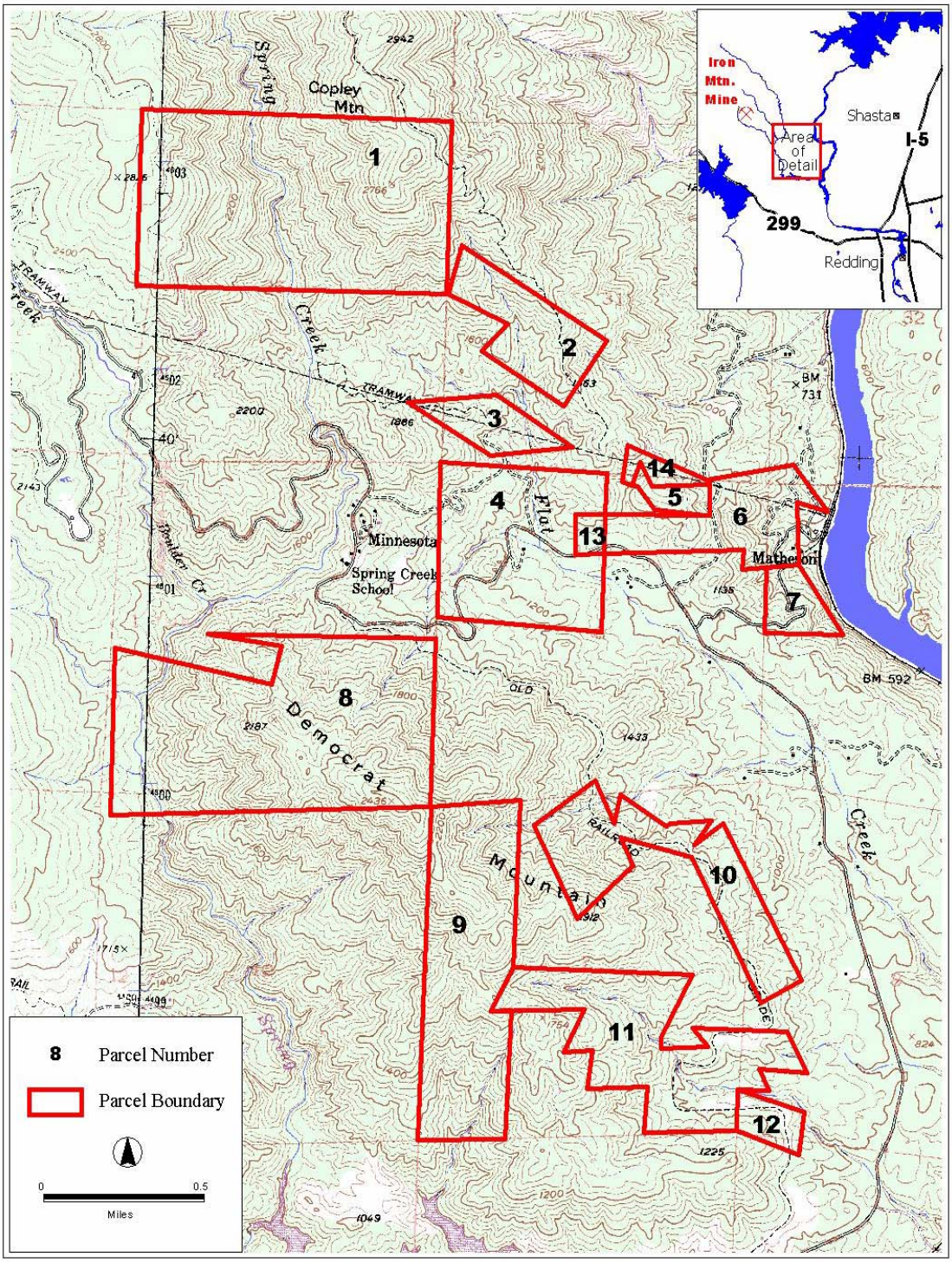

Figure 3. Parcels of land to be acquired by U.S. Bureau of Land Management. Description of parcels can be found in Appendix B, Table 1.

4.2 Criteria Used to Evaluate Restoration Projects

The Trustees developed criteria to evaluate and prioritize the types of restoration projects that address the injured resources (salmonids, instream, riparian, and recreational loss) from the IMM releases. Projects submitted through CALFED will first have to pass the criteria and priorities set by CALFED for the Sacramento Region. These criteria can be found at:

www.calfed.water.ca.gov/adobe_pdf/ecosystem_docs/Section3.pdf

Restoration projects submitted through CALFED or BLM will then be reviewed by the Trustee Council and be evaluated by the screening and ranking criteria listed in 4.21 and 4.2.2.

4.2.1 Screening Criteria

Projects must pass screening criteria to be considered further in the planning process. These criteria were developed by the Trustees to eliminate those projects that are clearly inconsistent with the requirements of the council. In essence, the screening criteria stipulate that a restoration project must comply with all applicable laws and regulations, address resources or services at least broadly connected to those injured by IMM releases, and be technically feasible.

- **Relationship to injured resources and services:** Projects that restore, rehabilitate, replace, enhance or acquire the equivalent of the same or similar resources and services injured by the releases are preferred to projects that benefit other comparable resources or services. The Trustees will consider the types of resources or services injured by the releases, the location, and the connection or "nexus" of project benefits to those injured resources

- **Consistency with the Trustees' restoration goals:** The project must meet the Trustees' intent to restore, rehabilitate, replace, enhance or acquire the equivalent of the injured natural resources or the services those resources provided. In addition, projects in this restoration plan should not duplicate other efforts already ongoing at the same location.

- **Opportunities for collaboration:** The Trustees will consider the possibility of matching funds, in-kind services, or volunteer assistance, as well as coordination with other ongoing or proposed projects. External funding and support services that reduce costs or extend benefits are preferable.

- **Cost effectiveness:** The Trustees will consider the relationship of expected project costs to the expected resource and service benefits from each project alternative. Trustees will seek projects with the least costly (i.e., most cost efficient) approach to deliver an equivalent or greater amount and type of benefits.

- **Technical feasibility:** The project must be technically and procedurally sound. The Trustees will consider the level of uncertainty or risk involved in implementing the project. A proven track record demonstrating the success of projects utilizing a similar or identical restoration technique can be used to satisfy this evaluation standard.

- **Compliance with laws:** The project must comply with all applicable Federal and State laws.

- **Public health and safety:** The project cannot pose a threat to the health and safety of the public.

4.2.2 Ranking Criteria

The Trustees have developed criteria to evaluate and rank potential restoration projects. These criteria reflect the Trustee's requirements and priorities for restoration.

- **Public acceptance:** The Trustees will consider the degree of public acceptance of projects and the avoidance or minimization of adverse effects on the human environment.

- **Likelihood of adverse impacts:** The project should avoid or minimize adverse impacts to the environment and the associated natural resources. Adverse impacts may be caused by collateral injuries when implementing, or as a result of implementing, the proposed project alternative. The Trustees will consider the avoidance of future short-term and long-term injuries as well as mitigating past injuries when evaluating projects.

- **Likelihood of success:** The Trustees will consider the potential for success and the level of expected return of resources and resource services. The Trustees will also consider the ability to monitor and evaluate the success of the project; the ability to correct any problems that arise during the course of the proposed project alternative; and the capability of individuals or organizations expected to implement the alternative. Performance criteria should be clear and measurable.

- **Multiple resource benefits:** The Trustees will consider the extent to which the project benefits more than one natural resource or resource service. This will be measured in terms of the quantity and associated quality of the types of natural resources or service benefits expected to result from the project.

- **Time to provide benefits:** The Trustees will consider the time it takes for benefits to be provided to the target ecosystem or public. A more rapid response to providing benefits is preferable though this must be balanced with duration, quantity and quality of expected benefits.

- **Duration of benefits:** The Trustees will consider the expected duration of benefits from the project. Long-term benefits are the objective.

- **Importance of NRDA funding to success of the project:** The Trustees will consider whether NRDA funding is the optimum source. This determination will be based on whether the project is required as mitigation under state or federal statutes, or another legal requirement.

- **Protection of implemented project:** The Trustees will consider the opportunities to protect the implemented project and resulting benefits over time through conservation easements, land acquisition, or other types of resource dedication. Long-term protection of the project site and the benefits it provides is preferable.

- **Comprehensive range of projects:** Trustees will evaluate the extent to which a project contributes to the more comprehensive restoration package. The project will also be evaluated for the degree to which it benefits any uncompensated release injuries.

- **Completion of appropriate permits, NEPA/CEQA documents and ESA consultation:** The Trustees would prefer projects that do not require additional funding to finish the appropriate documents or permits.

4.3 Funding Mechanisms

In order to minimize additional costs associated with the solicitation of proposals and disbursement of funds, the solicitation and funding of IMM NRDA restoration projects will occur through the CALFED program and the ISRMA BLM recreation planning process . However, if needed, the Trustees may also develop a process of soliciting requests for proposals (RFPs). Each funding mechanism is described below.

CALFED

To reduce costs associated with the management of funds and the solicitation process, solicitation of restoration project proposals and disbursement of settlement implementation funds for restoration projects for the IMM releases will be managed in conjunction with the CALFED program. Only projects that are identified within the Keswick-Red Bluff Diversion Dam Reach and meet the Trustees' criteria for project approval (section 4.2) will receive funding through the joint IMM NRDA/CALFED funding process. All projects that receive funding through the CALFED process with IMM settlement funds will be recognized as such in project plans and associated reports.

BLM (& in-kind)

BLM has two years from the date of the Consent Decree (December 2002) in which to determine which parcels it wishes to accept from the RPs. Transfer of the lands would take place upon completion of the surveys, evaluations, site assessment required under federal law, and concurrence from the Secretary of the Interior. BLM has funded all environmental and realty work completed to date. The transfer of lands requiring restoration, such as the rail line areas on four parcels, would not be possible without the assurance that funding for the restoration is available from the Trustee Council and other sources. With the approval of the Trustee Council, funds necessary for the restoration would be allocated in whole or in part to BLM for use in establishing a contract to carry out the restoration. Recreation development, particularly on lands managed by USBR or BLM, could be partially funded from the NRDA settlement and made available directly to BLM, as a cooperating agency on the ISRMA plan.

REQUEST FOR PROPOSALS (RFP)

If the Trustees do not identify a sufficient range of restoration projects through the CALFED process, the Trustees may conduct an independent process of soliciting requests for proposals (RFP). Within this process, the public would have an opportunity to submit project proposals. The Trustees may choose to issue an RFP through federal, state or non-profit agencies for implementation of restoration projects which will address the injuries as defined by section 3.0.

5.0 Applicable Laws and Regulations

5.1 Overview

Implementation of the restoration of the injured resources and services for the IMM releases must comply with CEQA and NEPA. These laws set forth a specific process of impact analysis and public review. In addition, the Trustees must comply with other applicable laws, regulations and policies at the federal, state and local levels. The potentially relevant laws, regulations and policies are set forth below.

In addition to laws and regulations, the Trustees must consider relevant environmental or economic programs or plans that are ongoing or planned in or near the affected environment. The Trustees must ensure that their proposed restoration activities neither impede nor duplicate such programs or plans. By coordinating restoration with other relevant programs, including the CALFED ERP and the ISMRA, the Trustees can enhance the overall effort to improve the environment affected by the toxic releases.

5.2 Key Statutes, Regulations and Policies

5.2.1 State Statutes

California Endangered Species Act, Fish and Game Code §§ 2050 *et seq.*

It is the policy of the State of California that state agencies should not approve projects as proposed which would jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat essential to the continued existence of those species if there are reasonable and prudent alternatives available. If reasonable alternatives are infeasible, individual projects may be approved if appropriate mitigation and enhancement measures are provided. Under this act, the Fish and Game Commission established a list of threatened and endangered species based on criteria recommended by the Department of Fish and Game. The Trustees will consult with the State prior to approving any project that may potentially affect any State-listed species.

California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA)(Pub. Res. Code §§ 21000-21178.1) was adopted in 1970 and applies to most public agency decisions to carry out, authorize or approve projects that may have adverse environmental impacts. CEQA requires that agencies inform themselves about the environmental effects of their proposed actions, consider all relevant information, provide the public an opportunity to comment on the environmental issues, and avoid or reduce potential environmental harm whenever feasible.

The CEQA process begins with a preliminary review as to whether CEQA applies to the project in question. Generally, a project is subject to CEQA if it involves discretionary action by an agency that may cause a significant effect on the environment. Once the agency determines that the "project" is subject to CEQA, the lead agency must then determine what type of CEQA documentation is required.

The CALFED EIS/EIR satisfies the initial requirements under CEQA. Project-specific NEPA and CEQA documents may be needed for some of the proposed restoration projects.

5.2.2 Federal Statutes

Clean Water Act (CWA) (Federal Water Pollution Control Act), 33 USC 1251, *et seq.*

The CWA is the principal law governing pollution control and water quality of the nation's waterways. Section 404 of the law authorizes a permit program for the disposal of dredged or fill material into navigable waters. The U.S. Army Corps of Engineers (Corps) administers the program. In general, restoration projects which move material into or out of waters or wetlands -- for example, hydrologic restoration of marshes -- require Section 404 permits.

Under Section 401 of the CWA, restoration projects that involve discharge or fill to wetlands or navigable waters must obtain certification of compliance with state water quality standards. Generally, restoration projects with minor wetlands impacts (i.e., a project covered by a Corps general permit) do not require Section 401 certification, while projects with potentially large or cumulative impacts must undergo a certification review.

Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA or Superfund) 42. U.S.C. 9601 et seq.

This is the principle statute governing the cleanup of sites contaminated with hazardous substances and responses to spills of those substances. The statute establishes liability for site cleanup, prescribes a procedure for identifying and ranking contaminated sites, provides funding for site cleanups, reduces uncontrolled releases of hazardous substances, establishes cleanup procedures that provide protection for humans and the environment, and restores injured natural resources through provisions administered by the Natural Resource Trustees. In conjunction with OPA, it mandates a "National Oil and Hazardous Substances Pollution Contingency Plan (NCP)" to provide the organizational structure and procedures for preparing for and responding to discharges of oil and releases of hazardous substances, pollutants, and contaminants. The statute was amended by the Superfund Amendment and Reauthorization Act (SARA) in 1986, which adds extensive public "right-to-know" and emergency planning requirements, establishes a fund for leaking underground storage tanks, and imposes worker safety requirements for hazardous materials.

The IMM sites were designated as a CERCLA Superfund site in 1983. The EPA and the state will be consulted prior to final acceptance of any NRDA restoration project to ensure that there are no adverse impacts to ongoing cleanup activities on any mitigation actions that they may require.

Endangered Species Act (ESA), 16 USC 1531, *et seq.,* 50 CFR Parts 17, 222, 224

The federal ESA directs all federal agencies to conserve endangered and threatened species and their habitats and encourages such agencies to utilize their authorities to further these purposes. Under the Act, the NMFS and the USFWS publish lists of endangered and threatened species. Section 7 of the Act requires that federal agencies consult with these two agencies to minimize the effects of federal actions on endangered and threatened species. Prior to implementation of these projects, the Trustees will conduct Section 7 consultations in conjunction with Essential Fish Habitat (EFH) consultation.

As noted in the draft Restoration Plan, several federal and state-listed species frequent the areas impacted by the releases. They are also in areas where the Trustees are considering restoration projects. Some listed species, such as chinook salmon, will benefit from the proposed restoration projects. Should it be determined that any of the proposed projects will adversely affect a threatened or endangered species, the Trustees will either redesign the project or substitute another project.

Executive Order (EO) 12898 - Environmental Justice

On February 11, 1994, President Clinton issued EO 12898 and later amended by EO 12948 (60 Fed. Reg. 6387, Feb 1, 1995), Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. This EO requires each federal agency to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority and low income populations. EPA and the CEQ have emphasized the importance of incorporating environmental justice review in the analyses conducted by federal agencies under NEPA and of developing mitigation measures that avoid disproportionate environmental effects on minority and low-income populations. The Trustees have concluded that there are no low income or ethnic minority communities that would be adversely affected by the proposed restoration activities.

Executive Order (EO) 11988 - Construction in Flood Plains

This 1977 Executive Order directs federal agencies to avoid to the extent possible the long- and short- term adverse impacts associated with the occupancy and modification of flood plains and to avoid direct or indirect support of development in flood plains wherever there is a practicable alternative. Each agency is responsible for evaluating the potential effects of any action it may take in a flood plain.

Before taking an action, the federal agency must determine whether the proposed action will occur in a flood plain. For major federal actions significantly affecting the quality of the human environment, the evaluation will be included in the agency's NEPA compliance document(s). The agency must consider alternatives to avoid adverse effects and incompatible development in flood plains. If the only practicable alternative requires siting in a flood plain, the agency must: (1) design or modify the action to minimize potential harm, and (2) prepare and circulate a notice containing an explanation of why the action is proposed to be located in the flood plain.

Executive Order 13112--Invasive Species

In 1999, President Clinton implemented this Executive Order to establish protocols and encourage agencies to prevent the introduction of invasive alien species (IAS) into the United States. It is the intention of this effort to provide for the control of IAS and to minimize the economic, ecological, and human health impacts that invasive species cause. In particular," (3) not to authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm." The Trustees will review proposed project sites consistent with this order.

Fish and Wildlife Coordination Act (FWCA), 16 USC 661, *et seq.*

The federal FWCA requires that federal agencies consult with the USFWS, NMFS, and state wildlife agencies for activities that affect, control or modify waters of any stream or bodies of water, in order to minimize the adverse impacts of such actions on fish and wildlife resources and habitat. This consultation is generally incorporated into the process of complying with Section 404 of the Clean Water Act, NEPA or other federal permit, license or review requirements.

The Trustees believe that the proposed restoration projects will have no adverse effect onfish and wildlife resources or habitat. The Trustees will consult with USFWS, NMFS, and CDFG prior to implementation of any restoration project occurring in an area covered by the FWCA..

Magnuson-Stevens Fishery Conservation and Management Act, 16 USC 1801 *et seq.*

The federal Magnuson-Stevens Fishery Conservation and Management Act as amended and reauthorized by the Sustainable Fisheries Act (Public Law 104-297) establishes a program to promote the protection of EFH and critical habitat in the review of projects conducted under federal permits, licenses, or other authorities that affect or have the potential to affect such habitat. After EFH has been described and identified in fishery management plans by the regional fishery management councils, federal agencies are obligated to consult with the Secretary of Commerce with respect to any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken, by such agency that may adversely affect any EFH.

The Trustees believe that the proposed restoration projects will have no adverse effect on EFH and will promote the protection of fish resources and EFH. The Trustees will consult with the NMFS prior to implementation of any restoration project occurring in an area covered by the Pacific Fishery Management Council.

National Environmental Policy Act (NEPA), as amended, 42 USC 4321, *et seq.*, 40 CFR Parts 1500-1508

Congress enacted NEPA in 1969 to establish a national policy for the protection of the environment. NEPA applies to federal agency actions that affect the human environment. NEPA established the Council on Environmental Quality (CEQ) to advise the President and to carry out certain other responsibilities relating to implementation of NEPA by federal agencies. Pursuant to Presidential Executive Order, federal agencies are obligated to comply with the NEPA regulations adopted by the CEQ. These regulations outline the responsibilities of federal agencies under NEPA and provide specific procedures for preparing environmental documentation to comply with NEPA. The CALFED EIS/EIR satisfies the initial requirements under NEPA. Project-specific NEPA and CEQA documents may be needed for some of the proposed restoration projects.

Rivers and Harbors Act, 33 USC 401, *et seq.*

The federal Rivers and Harbors Act regulates development and use of the nation's navigable waterways. Section 10 of the Act prohibits unauthorized obstruction or alteration of navigable waters and vests the Corps with authority to regulate discharges of fill and other materials into such waters. Restoration actions that require Section 404 Clean Water Act permits are likely also to require permits under Section 10 of the Rivers and Harbors Act. However, a single permit usually serves for both. Therefore, the Trustees can ensure compliance with the Rivers and Harbors Act through the same mechanism.

5.2.3 Other Applicable Laws and Regulations

This section lists other laws that potentially affect NRDA restoration activities. The statutes or their implementing regulations may require permits from federal or state permitting authorities.

- Archaeological Resources Protection Act, 16 USC 470, *et seq.*
- National Historic Preservation Act of 1966 as amended (16 USC 470-470t,110)
- Clean Air Act, 42 USC 7401, *et seq.*
- Migratory Bird Treaty Act, 16 U.S.C. 703, *et seq.*

6.0 References, Persons, and Agencies Consulted

6.1 Documents Referenced

Boydstun, L.B., R.J. Hallock, and T.J. Mills. 1992. Salmon *in*: California's living marine resources and their utilization. W.S. Leets, C.M. DeWees, and C.W. Haugen eds. Sea Grant Publication UCSGEP-92-12. 257p.

California Department of Water Resources. (1981). Upper Sacramento River Baseline Study: Hydrology, Geology, and Gravel Resources. Northern District.

California Department of Water Resources. (1990). Sutter County Land Use Survey.

California Department of Water Resources. (1994). Shasta County Land Use Survey.
Interagency Ecological Program Steelhead Project Work Team. 1999. Monitoring, Assessment, and Research on Central Valley Steelhead: Status of Knowledge, Review of Existing Programs, and Assessment of Needs. *In* ComprehensiveMonitoring, Assessment , and Research Program Plan, Tech. App. VII-11

Jurek, R. M. 1990. California bald eagle breeding population survey and trend, 1970-1990. California Department of Fish and Game, Wildlife Management Division, Nongame Bird and Mammal Section, Sacramento.

McEwan, D And T.A. Jackson. 1996. Steelhead Restoration and Management Plan for California. California Department of Fish and Game. 234 p.

National Marine Fisheries Service. 1997. NMFS proposed recovery plan for the Sacramento River winter-run chinook salmon. National Marine Fisheries Service, Long Beach, CA. March 6, 1996. 233 p.

Stratus Consulting. 1999. Preliminary Quantification of Acute Mortality Injuries to Chinook Salmon. Iron Mountain Mine Injury Assessment, Quantification, and Restoration Review, Final Report, Rep. No. NOAA 50-DSNC-7-90031.

Strategic Plan for Ecosystem Restoration. 2000. CALFED Bay-Delta Program, Programmatic EIS/EIR Technical Appendix. July 2000**.**

Slotten, D.G., S.M. Ayers And C.R. Golman. 1998. Keswick Reservoir Fall 1997 Benthic Invertebrate Study. CH2MHill. Contract 147350, EPA Contract 68-W6-0036. 39p. Available from: U.S.EPA Region VI 1445 Ross Avenue Suite 1200 Dallas, Texas 75202

The Nature Conservancy. 1996. Reconnaissance Investigation of Streambank Erosion and Conceptual Recommendations for Treatment at the Flynn Unit of the Sacramento National Wildlife Refuge. Prepared by Graham Matthews.

U.S. Bureau of Reclamation. 1991. Guide to Upper Sacramento River Chinook Salmon Life History. Prepared by David A. Vogel and Keith R. Marine, CH2M Hill, Redding, CA.

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

U.S. Bureau of Land Management. (1998). Interlakes Special Recreation Management Area, Record of Decision.

6.2 Agencies, Organizations, and Individuals Contacted

CALFED Bay-Delta Program
Rebecca Fris , CALFED Ecosystem Restoration Program, Sacramento, CA

California Department of Fish and Game
Habitat Conservation Program, Region 1, Redding, CA
Mark Stopher, Environmental Program Manager, DFG, Redding, CA

CH2MHILL
John Spitzley, Geologic Engineer, CH2MHILL, Redding, CA

Bureau of Land Management
Redding Field Office, BLM, Redding, CA

Bureau of Reclamation
Kerry Rae, Special Assistant to the Deputy Regional Director, Sacramento, CA

United States Environmental Protection Agency
Rick Sugarek, Remedial Project Manager, EPA Superfund**,** San Francisco, CA

National Oceanic and Atmospheric Administration
Jim Bybee, Supervisor, Habitat Conservation Division, National Marine Fisheries Service, NOAA, Santa Rosa, CA
David Chapman, West Coast Damage Assessment Coordinator, NOAA, Silver Spring, M.D
LTJG Elizabeth Jones, Damage Assessment and Restoration Program, NOAA, Silver Spring, M.D
Ramona Schreiber**,** NEPA Coordination, Office of Policy & Strategic Planning**,** NOAA**,** Washington D.C
Gary Stern, Fisheries Biologist, National Marine Fisheries Service, NOAA**,** Santa Rosa, CA

U.S. Department of the Interior
Clementine Berger, Acting Regional Solicitor, Sacramento, CA

U.S. Fish and Wildlife Service
Dan Castleberry, USFWS, Sacramento,CA
Mike Thabault, USFWS, Sacramento, CA
Tom Suchanek, NRDA Branch Chief, USFWS, Sacramento**,** CA

7.0 List of Preparers

This report has been prepared for the Iron Mountain Mine Trustee Council. The individuals that participated in the development of this Restoration Plan are listed below. The role (technical or legal) of the individual and whether they were the primary lead, or alternate, for their respective agency is also identified.

- Laura Allen, USBR, Trustee, Primary
- Natalie Cosentino-Manning, NOAA, Technical
- Dr. Russell Bellmer, NOAA, Technical
- LCDR Michael Devany, NOAA, Trustee, Primary
- Richard Forester, BLM, Trustee, Primary
- Charlene Hall, USFWS, Technical
- Nick Iadanza, NOAA, Technical
- Paul Meyer, BLM, Trustee, Alternate
- Harry Rectenwald, DFG, Trustee, Alternate
- Steve Schwarzbach, USFWS, Trustee, Primary
- Gail Siani, NOAA, Legal
- Robert Taylor, NOAA, Legal, Trustee Alternate
- Triscilla Taylor, DOI, Legal
- Steve Turek, DFG, Trustee, Primary
- Daniel Welsh, USFWS, Trustee, Alternate
- Diane Wisniewski, USBR, Trustee, Alternate

APPENDIX A: Public Involvement

A public meeting and poster session on the Draft Restoration Plan was held on February 19, 2002, at the Holiday Inn, Redding, California. The audience members provided a number of comments to the Trustees. Listed below is a brief summary of their comments and the Trustee responses.

COMMENT: How was it determined that the blame of the project was at Keswick Dam and down river and the focus on salmon? (P.Sullivan)

> ***RESPONSE****: The answer to the salmon question can be found in sections 1.3 and 3.1 of the Restoration Plan, and the answer to the geographic constraints are addressed in the consent decree.*

COMMENT: I would like to see you re-vegetate the entire site as part of the riparian vegetation component. Restore the soils too (the soil profile and re-vegetate). That whole site (IMM) is a visual eye sore and should be re-vegetated. (P.Sullivan)

> ***RESPONSE:*** *Within the Consent Decree, we can only use the settlement funds to address riparian, salmonid and instream restoration between the area of the Keswick Reservoir and Red Bluff Diversion Dam.*

COMMENT: Regarding easements as a use. Is there any determination of enlarging the floodplain and levees? What is the amount of private property you're looking at acquiring, and how property owner-friendly will you be? There are many ways to persuade people to sell their property. Also, is information available on watershed organizations and groups and their contact people? (J. Claussen)

> ***RESPONSE:*** *Community acceptance is one of our criteria for choosing a restoration project, and as mentioned in sections 4.1 and 4.3 we will only be looking at proposals that have been reviewed by the CALFED process. The CALFED process has a geographic review component to review community acceptance and we would seek to work with watershed groups to identify willing participants.*

COMMENT: You say that you're applying money for Iron Mountain Mine, but it doesn't seem like what you're proposing has any relation to Iron Mountain Mine. Can you explain how they're related? (E. Cassano)

> ***RESPONSE:*** *The overview (section 3.0) discusses the differences between restoration and remediation. The settlement funds are for restoration of the injured resources.*

COMMENT: Are you going to have a solicitation package coming out for proposals? When will they be available? Is there a particular time when those monies will be available? (T. Parker)

> ***RESPONSE:*** *As mentioned in section 4.3 of the Restoration Plan, we will be looking at proposals that come through the CALFED Proposal Solicitation Package. The proposals for 2002 have been submitted to the Ecosystem Restoration Program (ERP) and we will be looking at the proposals as part of the CALFED process.*

COMMENT: What role does the Water Quality Control Board play in this process? (T. Parker)

> ***RESPONSE:*** *The Water Quality Control Board enforces water quality standards under federal and state law. While they do not have a direct role in our restoration activities they may, for example, under any in-water permits that may be required. We are not sure at this early stage what, if anything, that may entail.*

COMMENT: Liked very much that upland erosion control and re-vegetation actions were included as well as invasive plant management strategies. (Anonymous)

RESPONSE: *Comment noted by Trustee Council*

COMMENT: What about widening channels, removing leeves, or moving leeves back?(Anonymous)

RESPONSE: *Yes, we will consider any of these projects as long as they have been approved through the CALFED process.*

COMMENT: How or will the public know what projects were funded? (Scott Hamelberg)

RESPONSE: *The CALFED ERP will document on their web site (www. calfed.water.ca.gov) the proposals that have been accepted.*

COMMENT: Is it true that a minority of those proposals [CALFED restoration proposals] are near the Sacramento River [Trustee Council focus area]? (H. Nakashima)

RESPONSE: *Yes. For this year, there have not been very many proposals submitted through the CALFED PSP process that fall within our area of restoration (Keswick to Red Bluff Diversion Dam).*

COMMENT: How long will this project run – 2-5 years or until the money runs out? (H. Nakashima)

RESPONSE: *The Trustee Council has nine million dollars to spend on restoration and when those funds are expended and the projects completed the Trustee Council will be dissolved.*

COMMENT: CALFED project solicitation process is not user friendly to smaller watershed groups. (M. Ames)

RESPONSE: *Noted.*

COMMENT: "Regarding that bucket of acid water (from slide), that acid water is extremely weak and does little damage. I could put it all over my face and hands – it might sting a little, but that's all." (T. Arman)

RESPONSE: *Noted*

COMMENT: "About the seriousness of copper. I think what you are trying to imply is that it is Iron Mountain Mine's problem. But Shasta Lake has 16 mines around it and they also contribute to the copper. You should include everything in the area. I don't believe there is any mention of Spring Creek either." (T. Arman)

RESPONSE: *This meeting is to discuss with the public the NRDA restoration planning activities funded by the settlement with Iron Mountain Mine rather than discuss any remedial activities that may or may not be occurring at other locations.*

ATTENDEES

Laura Allen
BOR
Sacramento, CA

Marcia Ames
Shasta Land Trust Sulfur Creek Camp
Redding, CA

Ted Arman
IMM
Folsom, CA

Mary L. Borzi
USBR
Shasta Lake City, CA

Rudolf Carver
Local Citizen
Palo Cedro, CA

Eric Cassano
Local Citizen
Shasta Lake, CA

Julie Clausen
Senator Johannessen's office,
Redding, CA

Erik Christensen
IT
Redding, CA

LCDR Michael Devany
NMFS
Santa Rosa,CA

Dick Forester
BLM
Sacramento CA

Scott Hamelberg
USFWS
Anderson, CA

Andy Isola
BLM
Redding, CA

Glen R. Miller,
BLM
Redding, CA

Natalie Cosentino-Manning
NMFS
Santa Rosa, CA

Hide Nakashima
WSRCD
Redding, CA

Michelle Prowse
USBR
Sacramento CA

Harry Rectenwald
CDFG
Redding, CA

Mary Schroeder
WSRCD
Redding,CA

Steve Schwarzbach
USFWS
Sacramento CA

Patrick Sullivan
Caltrans
Redding, CA

Steve Turek
CDFG
Redding, CA

Diane Wisniewski
USBR
Shasta Lake, CA