RECLAMATION

Managing Water in the West

New Melones Lake Area Resource Management Plan and Environmental Impact Statement

Resource Inventory Report

U.S. Department of the Interior
Bureau of Reclamation
Central California Area Office

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Acronyms

Acronym	Full Phrase
AADT	Annual average daily traffic
AD	Anno domini
ADA	Americans with Disabilities Act
AIRFA	American Indian Religious Freedom Act of 1978
APCD	Air pollution control district
ARPA	Archaeological Resources Protection Act
BC	Before Christ
BEA	Bureau of Economic Analysis
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BMP	Best management practice
ca.	circa
Cal-IPC	California Invasive Plant Council
CARB	California Air Resources Board
CDF	California Department of Forestry and Fire Protection
CDFG	California Department of Fish and Game
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CERFA	Community Environmental Response Facilitation Act of 1992
CFR	Code of Federal Regulations
CHP	California Highway Patrol
CNDDB	California Natural Diversity Database
CNEL	Community noise exposure level
CNPS	California Native Plant Society
CO	Carbon monoxide
CWA	Clean Water Act of 1972
D&S	Directives and standards
dBA	A-weighted decibels
DOF	California Department of Finance
DOI	US Department of the Interior
DM	US Department of the Interior Manual
DRMP	Draft resource management plan
EA	Environmental assessment
EIS	Environmental impact statement
EMT	Emergency medical technician
EO	Executive Order
EPA	US Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act of 1986
ESA	Endangered Species Act
FMB	Foothills Metamorphic Belt

Acronym	Full Phrase
FMP	Fire management plan
FMU	Fire management unit
FR	Federal Register
FRCC	Fire regime condition class
GIS	Geographic information system
IF	intraformational
ITA	Indian Trust Assets
Jm	Mariposa slate
LND	Land Management and Development Program
Master Plan	New Melones Lake Area Master Plan of 1976
Mba	meta-basalt agglomerate
MIST	Minimum Impact Suppression Tactics
MOA	Memorandum of Agreement
msl	mean sea level
Mv	meta-volcanics
Mvs	meta-sediments
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act of 1990
NCES	National Center for Education Statistics
NEPA	National Environmental Policy Act of 1969
NFP	National Fire Plan
NHPA	National Historic Preservation Act of 1966
NMFS	National Marine Fisheries Service
NO	Nitric oxide
NO_2	Nitrogen dioxide
NO_X	Nitrogen oxides
NPS	National Park Service
NRHP	National Register of Historic Places
O_3	Ozone
Omc	Older metamorphics
ORV	Off-road vehicle
Pb	Lead
PG&E	Pacific Gas and Electric
PILT	Payment in lieu of taxes
PL	Public Law
PM	Particulate matter
$PM_{2.5}$	Particulate matter less than 2.5 microns in equivalent aerodynamic diameter
PM_{10}	Particulate matter less than 10 microns in equivalent aerodynamic diameter
PMWMA	Peoria Mountain Wildlife Management Area

Acronym	Full Phrase
PU	Planning units
RCD TRMR	Records Management series Temporary Reclamation Manual Release
RIR	Resource inventory report
RMP	Resource management plan
ROW	Right-of-way
RTP	Regional transportation plan
RV	Recreational vehicle
SARA	Superfund Amendments and Reauthorization Act
SHPO	State Historic Preservation Office
SIP	State implementation plan
SMA	Special management area
SO_2	Sulfur dioxide
SR	State Route
SRMA	Special recreation management area
SWRCB	State Water Resources Control Board
T&E	Threatened and endangered
TCID	Tuolumne County Irrigation District
TMDL	Total maximum daily load
USBR	US Bureau of Reclamation
USC	US Code
USDA	US Department of Agriculture
USFS	US Forest Service
VMP	Vegetation Management Plan
VRM	Visual Resource Management
WRCC	Western Regional Climate Center
WROS	Water Recreation Opportunity Spectrum
WUI	Wildland-urban interface

1. Introduction

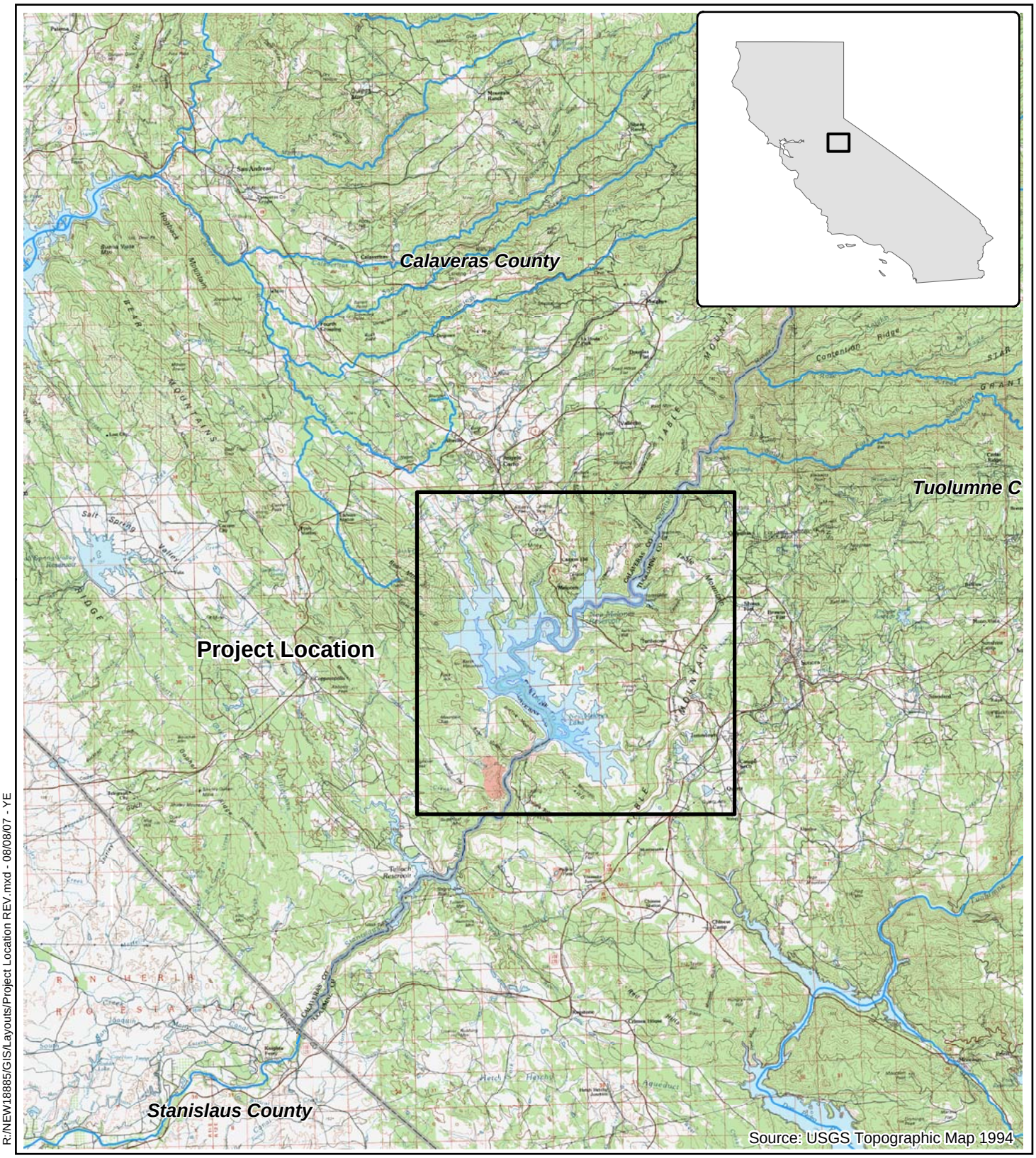
The U.S. Department of the Interior, Bureau of Reclamation, herein referred to as Reclamation, Central California Area Office, is preparing a resource management plan and environmental impact statement (RMP/EIS) for the New Melones Lake Area (Figure R-1). Decisions directing management of Reclamation-administered lands in the planning area currently are based on the New Melones Lake Area Master Plan (Master Plan) approved in 1976 (USACE and Reclamation 1976) and subsequent amendments to that plan. The Master Plan is a land use plan that provides a set of land use allocations, development recommendations and objectives, and constraints to guide the management of each resource. A new RMP/EIS, which will replace the Master Plan, will facilitate public understanding of and provide consistent and integrated land use plan decisions for Reclamation-administered lands in the planning area. The draft and proposed RMP/EIS will be supported by a National Environmental Policy Act (NEPA) analysis, which involves analysis of the environmental effects that could result from implementing different management alternatives. The completed document will support New Melones managers in fulfilling Reclamation's mission, which is "to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public."

1.1 Purpose of and Need for the Resource Management Plan/Environmental Impact Statement

Changes in resource management and recreation interest, changes in the types of use, and changes in the level of use, have occurred over the last several decades. The Reclamation Recreation Management Act of 1992 (Public Law [P.L.] 102-575, Title 28 [2805(c)(1)(A)] directs Reclamation to "provide for the development, use, conservation, enhancement, and management of resources on Reclamation lands." These changes and requirements under the 1992 act have created a need for Reclamation to evaluate the contemporary resource and recreation management for the New Melones Lake Area.

The purpose of the New Melones RMP/EIS is to:

- Provide a framework to ensure that Reclamation plans and activities are in compliance with all appropriate Federal, State, and local laws, rules, regulations, and policies;
- Provide for the protection and management of natural and cultural resources;
- Provide for the protection and management of public health and safety;



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New Melones Lake Area, California
Central California Area Office

Figure R-1

- Provide for recreation management and development and other uses consistent with contemporary and professional resource management and protection theories, concepts, and practices; and,

- Be consistent with Reclamation fiscal goals and objectives.

1.2 Purpose of the Resource Inventory Report

Reclamation manages lands and waters covering approximately 28,000 acres in two counties, Tuolumne and Calaveras. Due to its location in a transitional zone between the low-lying Central Valley and the high peaks of the Sierra Nevada, the planning area contains a unique diversity of resources that must be carefully inventoried, planned, and managed. This Resource Inventory Report (RIR), when combined with other reports describing current conditions, uses, or management, is designed to sufficiently describe the planning area's current conditions, resource trends, and current uses and activities. When combined with planning and impact criteria that will be developed in later stages of the project, the RIR will serve as a tool for evaluating the effects of the alternatives. The analysis describes the status or present characteristics and condition of Reclamation-administered lands and resources, including physical and biological processes, recreational, cultural, social, and economic conditions, and facilities.

1.3 Specific Mandates and Authority

Reclamation's authority to operate water project is vested in the broad authority of the Reclamation Act of 1902 (Chapter 1093, 32 stat. 388) and the Reclamation Project Act of 1939 (Chapter 418, 53 Stat. 1187). Construction of New Melones was authorized by the Flood Control Act of December 22, 1944. The original authorization was subsequently modified by the Flood Control Act of 1962 (Public Law 87-874). The authorized purposes of the project included flood control, irrigation, power generation, general recreation, water quality, and fish and wildlife enhancement.

The Flood Control Act of 1962 describes the responsibilities of the Secretary of the Army and the Secretary of the Interior at the New Melones project. In 1976, the Master Plan for the reservoir was developed by the US Army Corps of Engineers (USACE) with an associated EIS. This plan included thirteen separate recreation areas from a walk-in campground at Clarks Flat in the Camp Nine vicinity to large recreation areas at Tuttletown and Gloryhole. Some of the facilities were to be constructed immediately and the remainder at some future date. During construction in 1979, a Memo of Understanding (MOU) for transfer of the New Melones dam and reservoir to Reclamation from the Army Corps of Engineers was executed. Though USACE retained construction responsibility, the MOU granted Reclamation management responsibility for the New Melones project including operations of the reservoir as part of the Central Valley Project, management of recreation, and enhancement and protection of fish and wildlife resources.

The building and filling of New Melones Reservoir became controversial and ultimately litigious. During the period between when the Master Plan was complete in 1978 until the reservoir first filled in the winter of 1982-83, the construction of the recreation facilities was postponed due to the on-going litigation. At that time, a cost sharing requirement for recreation and fish and wildlife as outlined in Public Law 89-72 was applied by USACE. Efforts to find a cost share for recreational facilities ultimately were unsuccessful and only "minimal facilities" as defined by USACE were built. The USACE constructed facilities beyond the "minimum" facilities described in P.L. 89-72, but were not as extensive as originally described in the Master Plan.

For the intervening period from 1979 to the present, Reclamation has managed the recreation facility at New Melones Lake. Replacement and upkeep of the recreation facilities has been completed on an as-need basis to protect public health and safety and, at times, to realize savings in operations and maintenance through updating the 'minimal' structures. Additionally Reclamation has, through the efforts of county legislators and federal representatives, been successful in obtaining moneys to fund additional piecemeal facilities including a sewage treatment facility and an additional well (see Conference Report on H.R. 2311 Energy and Water Development Appropriations Act 2002).

Resource Management Plan

Reclamation's authority to prepare RMP's is derived from the broad authority of the Reclamation Act of 1902 (Chapter 1093, 32 stat. 388); the Reclamation Project Act of 1939 (Chapter 418, 53 Stat. 1187); the Federal Water Project Recreation Act (Public Law [P.L.] 89-72, 79 Stat. 213); and more specifically, in the Reclamation Recreation Management Act of 1992 (P.L. 102-575, Title 28 [2805©(1)(A)]). The Reclamation Recreation Management Act authorized the preparation of RMPs to "provide for the development, use, conservation, protection, enhancement, and management of resources of Reclamation lands in a manner that is compatible with the authorized purpose of the Reclamation Project associated with the Reclamation lands."

1.4 Format of the RIR

The RIR is broken down into the following seven resource areas:

- **Physical Resources**, which includes discussion of the non-organic physical resources of the site. Resource categories under this heading include climate, topography, air quality, noise, hydrology, geology, and aesthetic, scenic, and visual resources;
- **Natural Resources,** which includes discussion of fish and wildlife, vegetation, special status species, and weeds;
- **Cultural Resources,** which includes discussion of archeological and historical resources;
- **Indian Trust Assets,** which includes discussion of tribal lands;

- **Land Management, Planning, and Ownership Influences,** which includes discussion of commercial services, concessions, facilities, fire management, transportation and travel, trespass, utilities, and range management;
- **Visitor Use and Recreational Resources,** which includes discussion of visitor center and interpretive services, aquatic recreation, land recreation, and special uses; and
- **Socioeconomics and Environmental Justice,** which includes discussion of use fees, barriers to use, and economic contributions of New Melones Lake to the local economy.

Each of these broad resource categories is further broken down into subcategories that describe various resource types in greater detail. To the degree possible, resources are described in relation to their proximity to various planning units (Figure R-2). Resources are described at a level of detail appropriate to an RMP/EIS, which is a programmatic planning document that requires fairly broad descriptions of resources. In cases where special management actions may be required, such as the locations of known populations of listed species, the RIR may provide greater detail in terms of location or population estimate.

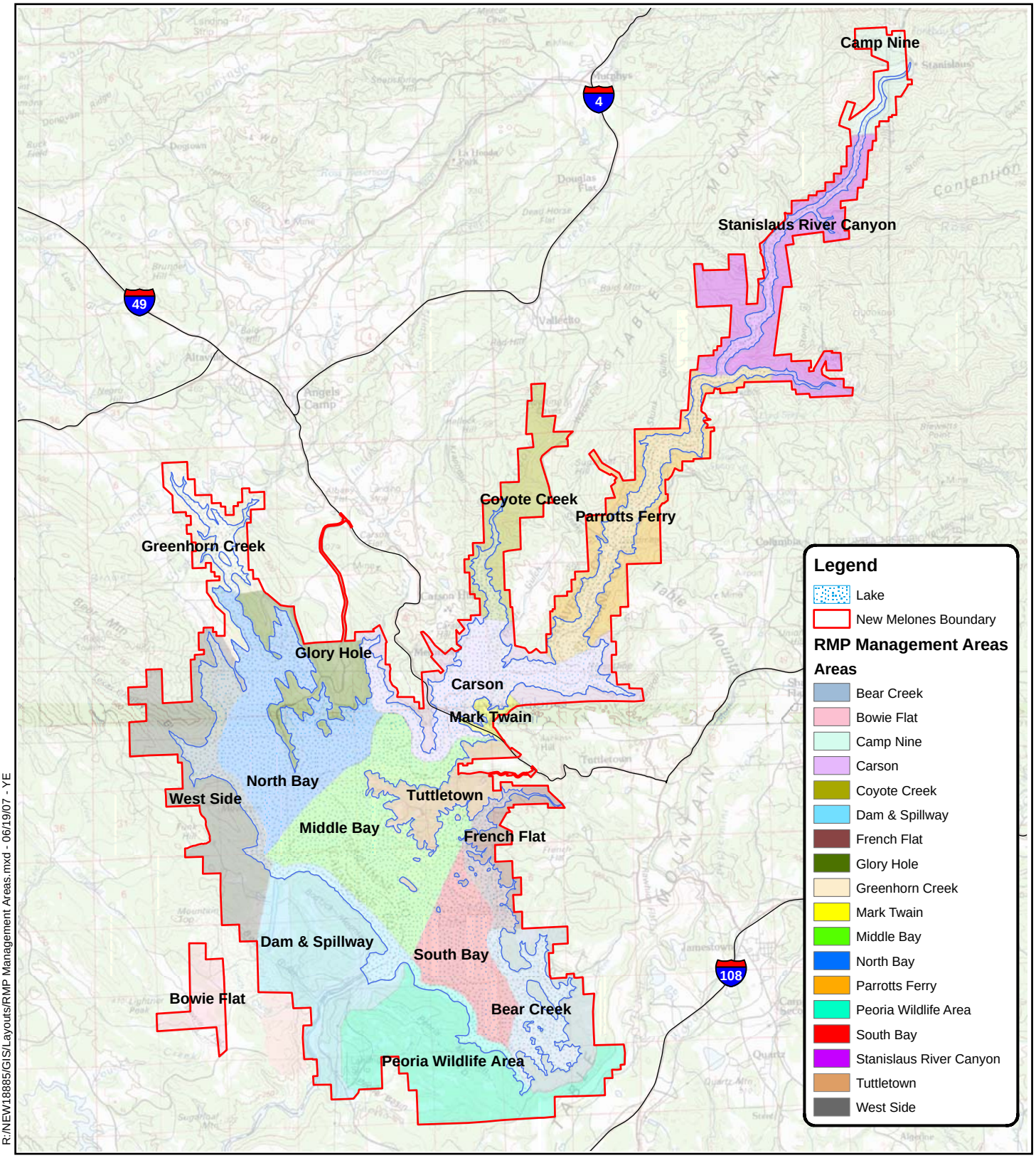
1.5 Existing Management Documents

Management guidance for the New Melones Lake Area comes primarily from the following sources:

- **Reclamation Manual.** The Reclamation Manual (RCD TRMR-15) consists of a series of Policies, Directives, and Standards and Delegations of Authority. Collectively, these assign program responsibility and authority and document Reclamation-wide methods of doing business. All requirements in the Reclamation Manual are mandatory and constitute official Reclamation policy. The Reclamation Manual also serves as a link to Reclamation's supplements to the U.S. Department of the Interior (DOI) and government-wide regulations, such as the Federal Acquisition Regulations; and

- **New Melones Lake Area Master Plan (1976) (USACE and Reclamation 1976).** This document contains decisions concerning land use allocations and basic resource management guidelines for public lands and resources at New Melones Lake. Although no life span was indicated for this document, much of the guidance is outdated and does not reflect current Federal policy. For many resource categories, this document does not provide specific management guidance. Instead, it provides a very broad framework from which Reclamation resource managers determine specific management guidance.

- **New Melones Lake EIS (1972) (USACE 1972).** This document analyzes environmental impacts resulting from the filling of New Melones Lake and associated facilities. The EIS also documents baseline conditions at the time of dam construction.



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New Melones Management Areas

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New Melones Lake Area, California
Central California Area Office

Figure R-2

Other documents that provide management guidance include the following:

- **Final Peoria Wildlife Management Area Environmental Assessment (EA) (2007) (Reclamation 2007).** The Peoria Wildlife Management Area lies at the southern end of New Melones Lake, and is managed by Reclamation as mitigation for habitat lost when New Melones Dam and Lake were built. The EA discloses environmental impacts from implementation of an interim resource management plan for this area as well as a road closure in this area; and

- **Draft New Melones Lake Fire Management Plan (2006) (Reclamation 2006).** This document identifies resource values and conditions pertaining to fire management at New Melones Lake.

- **New Melones Lake Draft Resource Management Plan (1995) (Reclamation 1995).** This document proposes sound management practices and principals at the New Melones Lake Area to provide a balanced stewardship of the natural, cultural, and recreational resources and the economic vitality of the surrounding communities.

- **Draft Vegetation Management Plan (1997) (Reclamation 1997).** This document expands on the Vegetation element within the draft Resource Management Plan (Reclamation 1995), in order to document the plant communities within the Plan Area. It also recommends specific management of vegetative communities to help Reclamation achieve its vegetation goals at the New Melones Lake Area.

- **Revised Cave Management Plan (1996) (Reclamation 1996).** This document identifies ways to manage and protect caves within New Melones Lake Area, and updates information presented in the draft Cave Management Plan of 1978 (BLM 1978).

2. Physical Resources

2.1 Overview

2.1.1 Introduction

Physical resources including climate, topography, air resources, noise, geologic resources (excluding caves), caves, and hydrologic resources form the basis for the combination of resources found in New Melones Lake Area. This section describes these resources and gives an overview of the issues associated with them that Reclamation may address in the RMP/EIS, as well as strategies that Reclamation currently uses to manage those resources.

This section is organized into the following subsections:

- **Climate:** Climatic variables include precipitation and temperature. Precipitation influences management actions by affecting lake levels, and in turn, access to certain resources. Temperature is one of the main influences on season of use.
- **Topography:** Topography includes all features that contribute to diverse surface assemblage. Topographic features including steepness and aspect affect access to resources and influence such factors as location of vegetative communities and fire management.
- **Air Resources:** The air resources section focuses primarily on factors that influence air quality. Although management of the New Melones Lake Area has little effect on air quality in the overall region, localized effects may occur at particular times of the year, or in particular locations at the lake.
- **Noise:** Noise includes all sources of sound generated at or near the lake area which affect humans or visitors. Noise may be from natural sources, such as wind, or it may be generated by human sources, such as boats or cars.
- **Geologic Resources (excluding caves):** Geologic resources include subsurface features, soils, and rock formations. The geologic resources section describes these features and relates them to current management.
- **Caves:** The New Melones Lake area contains an extensive cave network. Although the caves are themselves a significant resource, many of them also contain sensitive cultural and biological resources.
- **Hydrologic Resources:** Hydrologic resources include groundwater, water quality, all streams that feed the lake, and the lake itself. Hydrologic resources are the basis for the existence of the lake, and management of all other resources relates to this feature.
- **Visual Resources:** Visual resources give the area many of its aesthetic qualities, and include topographical, aquatic, and biological features.

2.1.2 Specific Mandates and Authority

Physical resources in the New Melones Lake Area are managed under several local, state, and Federal regulations, including the following:

Air Quality: The primary Federal law that regulates air quality is the Clean Air Act, which was last amended in 1990. The Clean Air Act requires the Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) (40 CFR part 50) for pollutants considered harmful to public health and the environment (EPA 2006). The six criteria pollutants established by this regulation are particulate matter (PM), carbon monoxide, nitrogen oxides, sulfur dioxide, ozone, and lead. Nitrogen oxides are composed primarily of nitric oxide and nitrogen dioxide. PM is regulated as PM10 and PM2.5.

Formal air quality management responsibilities rest primarily with the Calaveras County Air Pollution Control District (APCD), the Tuolumne County APCD, California Air Resources Board (CARB), and EPA. CARB and EPA have primary responsibility for setting emission standards for motor vehicles and off-highway equipment (such as construction equipment and watercraft). The county APCDs have primary responsibility for regulating non-transportation sources of air pollution.

Noise: 43 Code of Federal Regulations (CFR) 423.39 puts forth standards on vessels on Reclamation waters, including requirements for safety equipment, effective exhaust mufflers, and maintenance of vessels.

Geological Resources: The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. The act's main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults.

Caves: The Federal Cave Resources Protection Act of 1988 (16 US Code [USC] 4301 – 4309) requires inventory of significant caves on Federal lands, implementation of management measures, and provides certain protections of cave resources. It requires that significant caves are considered in the preparation of resource management plans and that the public be invited to participate in planning. It provides for the issuance of permits for collection or removal of cave resources and identifies criminal and civil penalties for prohibited acts.

The California Cave Protection Act (Section 594-625c of the California Penal Code) makes it a misdemeanor to perform certain acts that damage cave features or resources.

Water Resources:

Federal Laws and Statutes

- **The Clean Water Act of 1987, as amended (33 USC 1251)**, establishes objectives to restore and maintain the chemical, physical, and biological integrity of the nation's water;

- **The Federal Water Pollution Control Act (33 USC 1323)** requires the Federal land manager to comply with all Federal, state, and local requirements, administrative authority,

processes, and sanctions regarding the control and abatement of water pollution in the same manner and to the same extent as any nongovernmental entity;

- **The Safe Drinking Water Act (42 USC 201)** is designed to make the nation's waters drinkable and swimmable. Amendments in 1996 establish a direct connection between safe drinking water and watershed protection and management;

- **The Flood Control Act of 1944 (16 USC 460(d) et seq.; 33 USC 701 et seq.)** authorizes the US Army Corps of Engineers (USACE) to construct, maintain and operate public park and recreational facilities at water resources development projects. While planning such projects, the USACE is required by this act to consult with the Secretary of the Interior on certain projects, and reports for such projects were to contain the opinions of governors of affected states as well as the Secretary of the Interior.

- **The Appropriations Act of 1952, McCarran Amendment,** allows the US to be joined as a defendant in any suit for the general adjudication of water rights;

- **The Watershed Protection and Flood Control Act of 1954,** as amended, directs the Federal government to cooperate with states and their political subdivisions, soil or water conservation districts, flood prevention or control districts, and other local public agencies to prevent erosion or flood water and sediment damage;

- **The Water Resources Research Act of 1954**, as amended, permits the Secretary of the Interior to give grants to, and cooperate with, Federal, state, and local agencies to undertake research into any water problems related to the mission of the department;

- **The Water Resources Planning Act of 1965,** as amended, establishes the Water Resources Council, which is directed to maintain studies of water supplies and water programs. The chairman of any river basin commission can request from an agency, and that agency is authorized to furnish, such information as is necessary to carry out its functions;

- **The Water Resources Development Act of 1974** directs agencies to consider the full range of potentially useful measures in all projects involving reduction of flood losses;

- **Executive Order 11288** requires heads of agencies to provide leadership in the field of water quality management and requires Federal facilities to develop pollution abatement plans;

- **Executive Order 11507** directs the Federal government in the design, operation, and maintenance of its facilities to provide leadership in the nationwide effort to protect and enhance the quality of air and water resources. It provides for action necessary to correct air and water pollution at existing facilities to be completed or underway by December 31, 1972, and requires surveillance to ensure that water quality standards are met;

- **Executive Order 11514, as amended by Executive Order 11991,** directs Federal agencies to provide leadership in protecting and enhancing the quality of the nation's environment to

sustain and enrich human life. It provides for continued monitoring, evaluation, and control of the activities of each Federal agency, as well as development of programs and measures to protect and enhance environmental quality and to exchange data and research results and cooperate with other agencies to accomplish the goals of NEPA;

- **Executive Order 11738** directs each Federal agency to enforce the Clean Air Act and the Clean Water Act in the procurement of goods, materials, and services;

- **Executive Order 11752** mandates that Federal agencies provide national leadership to protect and enhance the quality of air, water, and land resources by complying with applicable Federal, state, interstate, and local pollution standards. This order mentions the Clean Air Act, Federal Water Pollution Control Act, Solid Waste Act, Noise Control Act, insecticide and pesticide acts, and NEPA;

- **President's Letter of May 26, 1974,** creates the Interagency Committee on Water Resources and establishes interagency participation in river basin planning. The Federal agencies concerned executed a memorandum of agreement that assigns interagency cooperation to coordinate water and related land resource activities;

- **Executive Order 11988, Floodplain Management, as amended by EO 12148,** directs each Federal agency to take action to avoid the long- and short-term adverse impacts associated with the occupancy and modification of floodplains. Agencies are further required to avoid direct or indirect support of floodplain development whenever there is a practicable alternative;

- **Executive Order 11990, Protection of Wetlands,** directs Federal agencies to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial value of wetlands in carrying out programs affecting land use;

- **Executive Order 12088, Federal Compliance with Pollution Control Standards,** requires all Federal agencies to comply with local standards and limitations relating to water quality. As a wastewater management agency, each Federal agency is bound to recognize and adopt the policies, goals, and standards of approved Section 208 area-wide water quality management plans in regard to those Federal lands under its jurisdiction. Each agency also must implement plan standards to the maximum extent feasible in its own planning process and management activities;

- **Executive Order 12322** requires that any report, proposal, or plan relating to a Federal or Federally assisted water and related land resources project or program must be submitted to the Director, Office of Management and Budget, before submission to Congress;

- **Reclamation Manual Policy CMP P01: Floodplain Management-** To (1) reduce the vulnerability of the nation to loss of life and property and the disruption of societal and economic pursuits caused by flooding or facility operations; and (2) sustain, restore, or enhance the natural resources, ecosystems, and other functions of the floodplain; and

- **Reclamation Manual Standard/Directive CMP 01-01:** Floodplain Management Directives- To (1) reduce the vulnerability of the nation to loss of life and property and the disruption of societal and economic pursuits caused by flooding or facility operations; and (2) sustain, restore, or enhance the natural resources, ecosystems, and other functions of the floodplain.

2.1.3 Other Plans That Will Be Considered

Calaveras County General Plan. The Calaveras County General Plan contains at least two elements that pertain to management of resources at New Melones. The Noise Element identifies the dominant noise sources in the county as highway traffic, flight operations at the county airport (Tuolumne County 2003a), and various industrial operations. The Open Space Element addresses areas of outstanding scenic value (Calaveras County 1996b). The Open Space Element states there are significant topographic variations and several resources which contribute to scenic quality. The primary attributes include the lakes, rivers and streams, rolling hills with oak habitat, ridgelines, and the forests.

Tuolumne County General Plan. At least two elements of the Tuolumne County General Plan pertain to management of resources at New Melones. The goal of the Tuolumne County General Plan Conservation and Open Space Element is to conserve the scenic environment and rural character of the county (Tuolumne County 1996b). The policies for preserving scenic resources address the history of agricultural and timberlands, the natural scenic quality and rural character along designated transportation routes, conserving the natural scenic quality of hillsides and hilltops, and voluntary efforts to protect clusters of native trees and conserve the county's scenic resources.

The noise element of the Tuolumne County general plan sets general outdoor noise level land use compatibility standards in terms of the 24-hour weighted community noise exposure level (CNEL) (Tuolumne County 1996d). The CNEL standard for noise-sensitive land uses (residential, transient lodging, and health care) is 60 dBA.

Tuolumne County Airport Land Use Compatibility Plan. The Tuolumne County Airport Land Use Compatibility Plan establishes land use restrictions in the immediate vicinity of the Columbia Airport and Pine Mountain Lake Airport. Most affected lands are outside the area of Reclamation jurisdiction, but flight paths from Columbia Airport pass directly over New Melones Lake. The FAA has contacted Reclamation with concerns such as low hanging utility lines and recreation activities such as paragliding impacting flight paths.

US Forest Service (USFS) Stanislaus National Forest Plan. Lands in the upper watershed are managed primarily by USFS as part of the Stanislaus National Forest. Several aspects of this plan pertain to management of physical resources at New Melones. Water quality management is described in the Stanislaus National Forest Plan Update (USFS 2005) and includes nearly 100 Best Management Practices (BMPs) designed to minimize water quality impacts throughout the portions of the watersheds that it manages. Although Reclamation has not formally adopted these BMPs, many are standard land use and land management practices that are used widely by Reclamation and other agencies.

The Forest Plan Direction for the Stanislaus National Forest identifies proposed Wild and Scenic Rivers (USFS 2005). Proposed Wild and Scenic Rivers, along with immediate environments, will be managed to preserve their free flowing condition and protect their outstandingly remarkable values. Opportunities for public recreation and other resource uses are based on the classification of each identified river segment. For the Stanislaus River, there is a 1.5 mile eligible segment from the North/Middle Fork confluence to Clark Flat. It also includes all lands within one quarter mile of the segment. The river is located near the western boundary of the forest. Wild classification is recommended for this proposed Wild and Scenic River.

Clark Flat is at the farthest northern boundary of the upper reach of the lake and straddles Reclamation and USFS jurisdictional boundaries (Reclamation 1995). If designated as part of a Wild and Scenic river area, Clark Flat would be afforded a high level of protection by law, thereby allowing for the retention of the area's present scenic qualities. The area's scenic values include a broad, deep and rugged, V-shaped, river-cut canyon through granitics with some meta-sedimentary rocks exposed, a variety of water forms including rapids, cascades and pools, and vegetation patterns that include scattered ponderosa pine and oak woodland.

The Land and Natural Resources Management Plan also calls for retention and partial retention of the scenic values on portions of the South Fork of the Stanislaus River that abut Reclamation's jurisdictional boundary (Reclamation 1995). The area south of the river channel is designated for retention and the area immediately to the north is classified for partial retention. This location has not been proposed for inclusion in the Wild and Scenic River system.

Bureau of Land Management

Lands in lower watersheds draining to New Melones Lake are managed primarily by the Bureau of Land Management (BLM) and Reclamation. As the BLM is currently revising the RMP for lands that they manage in proximity to New Melones, an opportunity exists to coordinate management of watersheds and other hydrological features. One such area is the Red Hills AOCC, which is an area with extensive serpentine outcroppings that have been severely affected by inappropriate use of off road vehicle (ORVs). Management of this area and adjacent areas offers an opportunity for collaborative management of ORVs and serpentine soils between Reclamation and BLM.

California Department of Transportation

A highway may be designated scenic depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent of development. The California Department of Transportation (Caltrans) has designated SR 49, which crosses New Melones Lake at the Stevenot Stanislaus River Bridge, as eligible for state scenic highway status (Caltrans 2006).

2.1.4 Trends

Climate

Global warming. New Melones Lake resource managers manage natural, cultural, and recreational resources in response to changes in water operations. Reclamation's water operation is determined by the complicated obligations of the Central Valley Project and the system-wide management of California's water infrastructure. Although there is little consensus on predicted effects of global warming on local climate, the trend will likely be for more precipitation to fall as rain and less as snow. Such an effect would require changes in water resource management on the part of Reclamation, as a greater percentage of water would enter New Melones Lake in the winter and early spring and less would enter the lake in the late spring and summer. Ultimately, this effect could significantly alter recreational opportunities at the lake if water levels during the summer were so low as to diminish the value of the lake as a recreational resource.

Topography

No trends have been identified for topography in the New Melones Lake Area.

Air Resources

Air pollutant emission sources associated with New Melones Lake Area include car and truck traffic, boat and personal watercraft engine emissions, and generators, camp stoves, and campfires at campground facilities. Localized air quality can be lowered at boat ramps where cars, boats, and personal watercraft may idle while launching. Wildfires and prescribed burns occurring on lands surrounding New Melones Lake Area, as well as seaplanes, are an additional but infrequent source of air pollutant emissions. Facility construction activities would be an additional temporary and localized source of fugitive dust and vehicle emissions.

Ozone monitoring data from Sonora and San Andreas (CARB 2007) show that the state and Federal ozone standards typically are exceeded several times each year, with considerable year-to-year variation. Ozone monitoring data from Sonora and San Andreas show no clear trend in either the frequency of violations or the maximum measured ozone levels. PM10 monitoring data from San Andreas in Calaveras County (CARB 2007) do not show any clear trends in annual average PM10 levels.

Noise

No information is available on trends in noise levels, but overall noise levels in the New Melones Lake Area are correlated with the intensity of visitor use.

Geologic Resources

Geologic Formations. The steep cliffs formed on the Table Mountain latite are increasingly a destination for visitors, including hikers and climbers.

Mineral Resources. There has been a decreasing trend in mineral development in the region, including decreased gold exploration and extraction, fewer limestone and marble quarries, and discontinuation of asbestos mining. Gold mining activity is sensitive to price and could increase in the future, but the costs of extraction, including environmental compliance, are high enough to

act as a strong impediment to new mineral extraction. Continuing and possibly increasing demand for building materials may lead to increased production from the remaining major active limestone quarry in the project area, but the current negligible level of other mineral extraction activity within the study area is not expected to change.

Soils. Since the 1976 Master Plan, overgrazing, overuse of underdesigned roads, and uncontrolled use of fragile lands in the Peoria Wildlife Management Area, including adjacent private lands, have resulted in loss of vegetation and in compaction and erosion of soils in that area (Reclamation 2007c). However, Shell-Peoria Road, which is within the Peoria Wildlife Management Area, has been closed for several years and there are currently no grazing leases at New Melones Lake, so this trend is decreasing. Similar, and potentially worse, impacts on soils are occurring at Bear Creek and French Flat, caused by illegal OHV use and grazing, as well as vandalism, shooting, and other unauthorized activities. Additional impacts may have occurred within the rest of the adjacent Peoria Wildlife Area, though the effects have been less concentrated.

Caves. In the study area, a significant number of caves have been lost in the Stanislaus River Canyon due to inundation by New Melones Lake. As evidenced by notations in caver's websites that emphasize caves as fragile resources to be protected and studied, interest in cave formation, protection, and ecology has grown (Columbia Grotto 2007).

Hydrology

Water Quality. A 1987 agreement between Reclamation and California Fish and Game requires water releases ranging between 98,300 and 302,100 acre-feet per year in order to maintain instream flows to benefit fish resources and habitat. The 98,300 acre-feet may be considered a firm supply (water that must be released each year), while the maximum amount of 302,100 acre-feet is only released during the wettest years. Ongoing efforts to restore historic fish populations to the Stanislaus and San Joaquin Rivers will likely require additional water releases for instream use in the coming years, although there is much scientific debate over how much water is actually necessary and the timing of when that water is needed to restore native fish populations and ensure their survival. Changing regulatory requirements and the development of TMDLs for the Stanislaus River will also likely impact how water is allocated from the lake.

Features managed by New Melones resources staff that may influence water quality include watershed health, soil disturbance and erosion, amount of impervious surface, condition of utilities such as wastewater and sewage management, concession and boat repair operations, weed management, fire management, management of recreation areas, and illegal dumping:

- **Watershed health**. Most watershed lands located on Reclamation lands are part of larger watersheds, meaning that Reclamation shares management of the watersheds with other agencies. Shared features of watershed management include amount of development, management of riparian zones, use of chemical herbicides, pesticides, or fire retardants, and erosion and runoff control.
- **Soil conditions and erosion.** Soils are disturbed in certain areas by illegal vehicle use, livestock trespass, and construction of facilities and may contribute to increased turbidity and

sedimentation. Shoreline erosion caused by wakes from boats is also a contributor to soil erosion. Reclamation manages soil disturbance on construction projects through proactive use of Best Management Practices and complies with local, state, and Federal requirements for soil management. Soil disturbances due to illegal vehicle use or trespassing livestock often require a reactive response such as road closures, restoration of disturbed areas, or fence repair.

- **Impervious surfaces.** Impervious surfaces are found on paved roads, around maintenance and administration facilities, and at boat ramps and camping areas. Impervious surfaces reduce percolation and may alter drainage patterns by concentrating runoff into drainages, increasing runoff velocity, and contributing to formation of erosion gullies.
- **Utilities.** Utilities include wastewater and sewage management facilities. Facilities must be maintained to contain all wastewater and sewage and must be periodically upgraded to comply with increased lake use and new regulatory requirements.
- **Concessions and boat repair.** Concessionaires are required to comply with water quality standards as part of the concessions agreement. This includes measures to minimize the risk of release of sewage, petroleum products, or hazardous materials through operations or maintenance of facilities. Boat repairs may only be performed by a concessionaire at Glory Hole Recreation Area; lake visitors are not allowed to work on their own boats at the lake. However, concessionaries may pay a contractor to conduct boat repairs.
- **2-Stroke Motors**. Some lakes have banned the use of watercraft powered by 2-stroke motors, due to high concentrations of burned and unburned gasoline products left in their wake. One such lake is Lake Tahoe, which banned 2-stroke motors in 1999 (www.newrules.com).
- **Weed management.** Weeds may be managed by mechanical or chemical means. Mechanical means may lead to soil disturbance that can affect water quality. Use of herbicides may lead to contaminated runoff. Increased regulation of use of herbicides in or near aquatic areas has led to the development of new herbicides that pose less risk of water contamination and bio-uptake amongst aquatic organisms.
- **Fire management.** Fire management practices such as suppressing wildfire by chemical means and constructing fire breaks may compromise water quality. Reclamation recognizes such issues in their fire management plan. Potential effects of these practices may be minimized by use of carefully planned prescribed burns.
- **Management of recreation areas.** Recreation areas must be managed for capacity limits to prevent overuse, pollution, and soil compaction leading to increased runoff.
- **Illegal and accidental dumping.** Illegal dumping of household wastes occurs frequently on or around Reclamation lands. Household wastes may contain toxic chemicals that can compromise water quality. Fuel or lubricants may be spilled accidentally by boaters or campers while refueling boats or camp stoves. Other potential sources of pollution include dumping of sewage, petroleum products, or other chemicals.
- **Global warming.** New Melones Lake resource managers manage natural, cultural, and recreational resources in response to changes in water operations. Reclamation's water

operation is determined by the complicated obligations of the Central Valley Project and the system-wide management of California's water infrastructure. Although there is little consensus on predicted local effects of global warming on water resources, the trend will likely be for more precipitation to fall as rain and less as snow. Such an effect would require changes in water resource management on the part of Reclamation, as a greater percentage of water would enter the lake in the winter and early spring and less would enter the lake in the late spring and summer. Ultimately, this effect could significantly alter recreational opportunities at the lake if water levels during the summer were so low as to diminish the value of the lake as a recreational resource.

Aesthetic, Visual, and Scenic Resources

New residences and roads on the east side of the lake on private land are being constructed, resulting in the loss of the natural landscape and a greater visibility of human-made structures from Reclamation land.

During peak use times such as summer weekends and holidays, the large numbers of vehicles, boats and people present in the Tuttletown and Glory Hole Recreation Areas, and the large numbers of boats on the lake, have a significant influence on the visual character of the New Melones Lake basin (Reclamation 1995). Because the demand for recreation opportunities at Tuttletown and Glory Hole Recreation Areas is expected to increase, the effects from recreation on visual resources is expected to increase. Furthermore, the smaller recreation areas are expected to experience greater use as demand for recreation opportunities at Tuttletown and Glory Hole Recreation Areas increases. Increased recreation can result in greater refuse and debris on land and in the lake, use of previously undisturbed areas, and greater opportunities for unauthorized activities that could harm the visual environment, such as illegal campfires.

2.2 Climate

2.2.1 Current Conditions

The foothills in which New Melones Lake is located are part of the Sierra bioregion, which includes the entire Sierra Nevada mountain range, extending approximately 380 miles along California's eastern side. Climate at the lake is Mediterranean, meaning that it has wet winters and dry summers. The location of the lake between the higher elevations of the Sierra and the low-lying floor of California's Central Valley means that temperatures are moderate and between those found at these two extremes. Because of this transitional location, climatic features such as temperature and precipitation fluctuate widely throughout the year. This fluctuation in turn leads to profound yet predictable seasonal variations in the conditions of various resources, including water temperatures and levels, vegetative vigor, and wildlife residency.

Localized fluctuations in temperature and precipitation within the project area result from aspect and elevation. These fluctuations are apparent as differences in vegetation patterns, soil formation and stability, and moisture retention. Although these localized variations in resource

conditions may affect planning on a project level, climatic resource conditions reported for the RMP/EIS are reported on a regional level.

Climate data shown in Table R-1 reflect average high and low temperatures and average precipitation from 1992 to 2006. During this time, the maximum recorded temperature at New Melones Dam was 110 degrees F, while the lowest temperature was 24 degrees F. Extended periods of temperatures at or below freezing are uncommon. Mean annual rainfall at the dam during this period was about 33 inches (Western Regional Climate Center [WRCC] 2006).

More annual precipitation is expected in some of the higher watersheds that ultimately contribute to New Melones Lake. Most precipitation in the immediate vicinity of the lake falls as rain, with a very small amount falling as snow, and occurs primarily between November and April (WRCC 2006). Although the dry season at New Melones is long, hot, and dry, lake levels are maintained during this time by melting snowpack. Other climatic variables such as global warming, drought, or long-term regional changes in precipitation may affect resources over the next 15 to 20 years.

Table R-1: New Melones Dam, California (046174), Period of Record Monthly Climate Summary

Period of Record: 3/1/1992 to 10/31/2006													
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual**
Average Max. Temperature (F)	56.2	59.3	64.8	69.2	79.3	88.1	96.5	95.8	90.1	79.2	64.6	56.6	75.0
Average Min. Temperature (F)	38.4	40.1	43.6	45.2	52.5	58.2	65.0	63.8	59.4	51.9	43.3	38.1	50.0
Average Total Precipitation (in.)	7.67	5.35	4.18	2.75	1.82	0.48	0.05	0.07	0.23	1.33	2.86	5.71	32.50

Source: WRCC 2006

2.2.2 Resource Management

Management of climatic variables is beyond the scope of an RMP/EIS and beyond Reclamation's mission. However, global climate change could affect management decisions. It has been predicted that climate change will lead to more precipitation falling as rain and smaller snowpack in the Sierra Nevada. This would lead to an altered hydrological regime, where the lake would receive a larger proportion of runoff in the winter and spring and less in the critical summer months. Global climate change could also lead to altered vegetation patterns and a longer fire season.

Although Reclamation does not manage climate, it does manage in response to seasonal climatic variables. Actions include adjusting releases from the dam in response to greater or less precipitation or in anticipation of spring and summer snowmelt. This response is carried out by the Reclamation operations manager, not by Reclamation resource managers, and will not be planned for in the RMP/EIS.

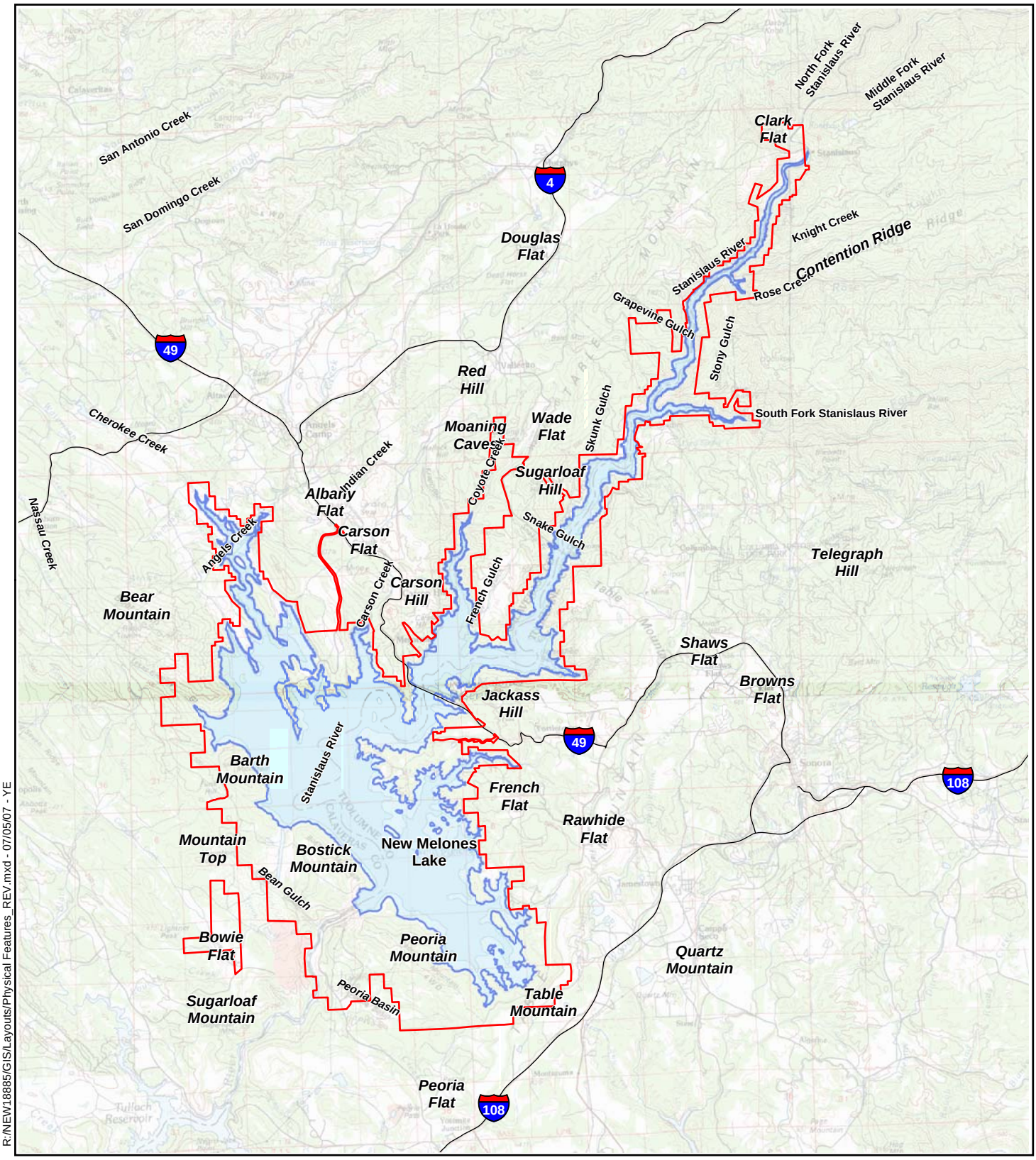
2.3 Topography

2.3.1 Current Conditions

Topographical features of the New Melones planning area include steep, rolling hills, incised river canyons, and distinct cliff and plateau features formed by unique geological processes. This variety of features contributes to a dramatic visual setting and provides for a wide variety of recreational opportunities and habitat types. The lake itself is situated primarily along the historic canyon of the Stanislaus River, which was first flooded upon completion and closure of Melones Dam and later by the much larger New Melones Dam. The orientation of the main stem of the Stanislaus River follows a general heading from northeast to southwest, with the canyons of several tributaries joining at different angles. The main body of the lake, stretching between Table Mountain in the south and Angels Arm in the north, follows a northwest-to-southeast bearing. The various ridges appear as islands as the lake is drawn down over the dry season or during a period of below-average precipitation.

Figure R-3 shows the physical details of the planning area as well as the major topographical features. The main stem of the Stanislaus River between the Clark Flat and Mark Twain planning units is dominated by very steep canyon walls that make much of the lakeshore inaccessible except by boat. The original streambed of the Stanislaus River is evident upstream of Clark Flat, which is above the flooded zone. The northeast side of the main body of the lake, which includes the Tuttletown, Carson, and Glory Hole planning units as well as lake headquarters, has more gently rolling and accessible terrain. The south end of the main body of the lake is dominated by Table Mountain, which is within the Table Mountain planning unit and exhibits dramatic topographical relief provided by fluted cliffs and a flat top. Sheer cliff faces of up to 300 vertical feet are found on the north side of Table Mountain, which is composed of more erosion-resistant bedrock than the surrounding area and thus was exposed as fluvial processes eroded softer materials around it. The mesa top slopes very gently downwards to the west and ranges between 1,500 and 1,800 feet. Both the cliffs and the flat top provide unique opportunities for recreation, as the cliffs offer climbing and bird-watching opportunities and the mesa top offers scenic views.

The topography of the top of Table Mountain, being very flat and exposed to few eroding features such as rockfalls or streams, creates conditions conducive to vernal pool formation. Such pools form where rainwater is trapped in impervious pools and dissipates solely as a result of evaporation, allowing for concentric rings of vegetation to establish. Plant and animal species that colonize vernal pools are often rare and endemic only to vernal pools.



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Physical Features

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New Melones Lake Area, California
Central California Area Office

Figure R-3

In the Peoria Wildlife Area planning unit, 1,832-foot Peoria Mountain dominates the southwest end of the main body of the lake, and compared to terrain in the north fork arm, is marked by rolling topography and gentler ridgelines. This terrain and a north-facing aspect have allowed moderately deep to deep soils to develop, which in turn supports a healthy and productive oak savannah habitat type. Peoria Mountain peaks on the south side of the dam and plunges steeply into Iron Canyon that contains New Melones Dam. On the north side of the dam, Bostick Mountain rises steeply to an elevation of 1,814 feet, then gradually slopes down to Bowman Gulch, which spills into Bean Gulch before it enters Lake Tulloch. North of the spillway, Barth Mountain rises to an elevation of 1,916 feet. Gently sloping terrain is found at the eastern foot of Bear and Barth Mountains in the Texas Charley planning unit and on the other side of the Angel Creek Arm in the vicinity of Glory Hole. Peoria, Bostick, Barth, and Bear Mountains form a major ridgeline on the west side of the main body of the lake. This ridgeline drops at a fairly steep angle into the lake, making development on this side of the lake difficult due to lack of access and staging areas.

2.3.2 Resource Management

Reclamation manages in response to topographic variables. This includes compliance with standards for siting facilities and sensitivity to the effects of recreational activities, trail construction, or road construction on features that may be prone to slides or slumping. There are no specific management actions codified for this resource.

2.4 Air Resources

2.4.1 Current Conditions

New Melones Lake Area's location in Calaveras and Tuolumne Counties places it in the Mountain Counties Air Basin in the central Sierra Nevada foothills. Air quality problems in the Mountain Counties Air Basin include periodic high levels of ozone and suspended particulate matter. Other air pollutants generally do not occur in concentrations high enough to constitute a problem.

Air quality management programs in California are the responsibility of local air pollution control districts (APCDs), the California Air Resources Board (CARB), and the US Environmental Protection Agency (EPA). The local air pollution control districts for the New Melones Lake area are the Calaveras County APCD and the Tuolumne County APCD.

Federal and state air quality management programs have evolved using a combination of two different approaches:

- The state implementation plan (SIP) process of setting ambient air quality standards for acceptable exposure to air pollutants, conducting monitoring programs to identify locations experiencing air quality problems, and then developing programs and regulations designed to reduce or eliminate those problems; and

- The hazardous air pollutant process of identifying specific chemical substances that are potentially hazardous to human health and then setting emission standards to regulate the amount of those substances that can be released by individual commercial or industrial facilities or by specific types of equipment.

Both the EPA and CARB have adopted ambient air quality standards for various pollutants. Federal ambient air quality standards have been adopted for ozone, suspended particulate matter, carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead. State ambient air quality standards have been adopted for these same pollutants plus sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. Federal and state ambient air quality standards for suspended particulate matter have been established for two different size ranges of suspended particles: inhalable particles (designated as particulate matter less than 10 microns in equivalent aerodynamic diameter [PM10]), and fine particles (designated as particulate matter less than 2.5 microns in equivalent aerodynamic diameter [PM2.5]).

Ambient air quality in Tuolumne County is monitored in Sonora, where ozone, PM10, PM2.5, and carbon monoxide are monitored. Ambient air quality in Calaveras County is monitored in San Andreas, where ozone and carbon monoxide are monitored. There is no monitoring of PM10 or PM2.5 in Tuolumne County. Ozone monitoring data from Sonora and San Andreas show that the state and Federal ozone standards typically are exceeded several times each year (CARB 2007).

High ozone levels in Calaveras and Tuolumne Counties are due almost entirely to pollutant transport from the Central Valley and the San Francisco Bay Area (California Air Resources Board 2001b). Air quality management programs for Calaveras and Tuolumne Counties rely primarily on emission control programs in upwind source areas to provide for eventual attainment of state and Federal ozone air quality standards.

Most hazardous air pollutant regulations relate to specific industrial sources and operations. However, California has identified naturally occurring asbestos as a toxic air contaminant. Naturally occurring asbestos is found in serpentine rock and in some types of ultramafic rocks (most often in zones associated with faults). CARB has adopted regulations for limiting the amount of naturally occurring asbestos in aggregate material that is used for surfacing applications, including but not limited to roads, road shoulders, parking areas, trails, or playgrounds (CARB 2000). CARB also has adopted separate regulations for construction, grading, quarrying, and surface mining operations that disturb areas of serpentine, ultramafic rock units, or other areas found to have naturally occurring asbestos (CARB 2001a). The local APCDs enforce these regulations.

Air pollutant emission sources associated with New Melones Lake Area include car and truck traffic, boat and personal watercraft engine emissions, and generators, camp stoves, and campfires at campground facilities. Localized air quality can be lowered at boat ramps where cars, boats, and personal watercraft may idle while launching. Wildfires and prescribed burns occurring on lands surrounding New Melones Lake Area, as well as seaplanes, are an additional but infrequent source of air pollutant emissions. Facility construction activities would be an additional temporary and localized source of fugitive dust and vehicle emissions.

Ozone monitoring data from Sonora and San Andreas (CARB 2007) show that the state and Federal ozone standards typically are exceeded several times each year, with considerable year-to-year variation. Ozone monitoring data from Sonora and San Andreas show no clear trend in either the frequency of violations or the maximum measured ozone levels. PM10 monitoring data from San Andreas in Calaveras County (CARB 2007) do not show any clear trends in annual average PM10 levels.

2.4.2 Resource Management

Reclamation manages air resources to stay within requirements set by local and state air quality management agencies. Current management actions to maintain air quality are listed in Table R-2 below:

Table R-2: Current Decisions and Internal Guidance for Air Quality

Internal Guidance	Guidance or Reference Source
Comply with applicable asbestos regulations regarding friable asbestos.	Calaveras and Tuolumne county ordinance, Clean Air Act, OSHA
Comply with smoke production limitations during period of poor air quality, i.e. restrict sanctioned visitor fires and Reclamation use of fire during designated 'Burn Days'.	Calaveras County APCD, Tuolumne County APCD, and California Air Quality Control Board

2.5 Noise

2.5.1 Current Conditions

In general, background noise levels vary with wind conditions and relative location (on the lake, along the shoreline, or in inland areas away from the lake shore). Typical background noise levels are expected to vary from 35 dBA to 50 dBA, depending on wind conditions. Aircraft overflights represent an intermittent contributor to overall background noise levels. Noise levels are often somewhat higher in proximity to identifiable noise sources such as highway traffic, occupied campgrounds, and areas of the lake with boat and personal watercraft use.

Intermittent but intense noise sources may occur as a result of floatplane landings and takeoffs, model aircraft flying, and construction or maintenance activities at various facilities (Reclamation 2006a) or detonations of explosives at the nearby Carson Hill Mine, as well as Blue Mountain Minerals Mine in River Canyon. Hunting represents a seasonal, localized, and intermittent source of noise in areas away from campgrounds and other heavily used visitor facilities. Unauthorized off-road vehicle use represents another intermittent noise source affecting some portions of the New Melones Lake Area.

The highest overall noise levels are expected to be in the vicinity of campgrounds, the marina, boat launching facilities, and occupied day use areas. In general, noise conditions in the New Melones Lake Area would not be expected to interfere with recreational activities and experiences. However, a visitor survey conducted in 1993 during the Independence Day holiday reported some visitor complaints about excessive nighttime noise in campgrounds and high noise levels from boats. Boats and jet skis with underwater engine exhaust generally produce noise levels of 75 – 85 dBA at a distance of 50 feet during full-throttle operation (Lanpheer 2000).

2.5.2 Resource Management

If needed, Reclamation can request enforcement of noise policies on their lands, however some noise sources, including those from intermittent detonations at a nearby mine, are beyond their reach. Rangers can request that campers and boaters minimize noise, but lack of enforcement authority for such requests. Current decisions for noise management are listed in Table R-3 below. Table R-4 provides a summary of State boating standards set by law.

Table R-3: Current Decisions and Internal Guidance for Noise

Decision	Source
Monitor and seek voluntary compliance with boat noise regulations.	43 CFR 423, CA boating law
Monitor and seek voluntary compliance with visitor noise regulations.	43 CFR 423

Table R-4: Summary of State Boating Law Noise Standards

Year or Engine Manufacture	Full Throttle Pass-by Test Procedure	Engine Idle Test Procedure	Shoreline Pass-by Test Procedure
1993 or later	82 dBA at 50 feet	88 dBA at 1 meter	75 dBA at shoreline
1978 – 1992	82 dBA at 50 feet	90 dBA at 1 meter	75 dBA at shoreline
1976 or 1977	84 dBA at 50 feet	90 dBA at 1 meter	75 dBA at shoreline
1974 or 1975	86 dBA at 50 feet	90 dBA at 1 meter	75 dBA at shoreline
Prior to 1975	Not subject to this test	90 dBA at 1 meter	75 dBA at shoreline

Notes: State law provides exemptions for various racing and speed trial events conducted under proper permits.
Source: California Harbors and Navigation Code, Sections 654.05 and 654.06.

2.6 Geologic Resources

2.6.1 Current Conditions

Overall Geology. The Geological Resources section has been organized into the following subsections:

- **Geologic Formations**: Discussion of geological formations focuses on subterranean features that shape the topography of the lake and its surroundings.
- **Seismicity:** The seismicity discussion focuses on faults found in the area.

- **Mineral Resources:** This section focuses primarily on minerals that have been mined commercially in the area or for which there may be specific management actions in the RMP/EIS.
- **Soils:** The soils section discusses soil types found in the area as well as the geologic features that produce them.
- **Caves:** This section discusses the numerous caves that are found in the limestone formations in the northern part of the lake.

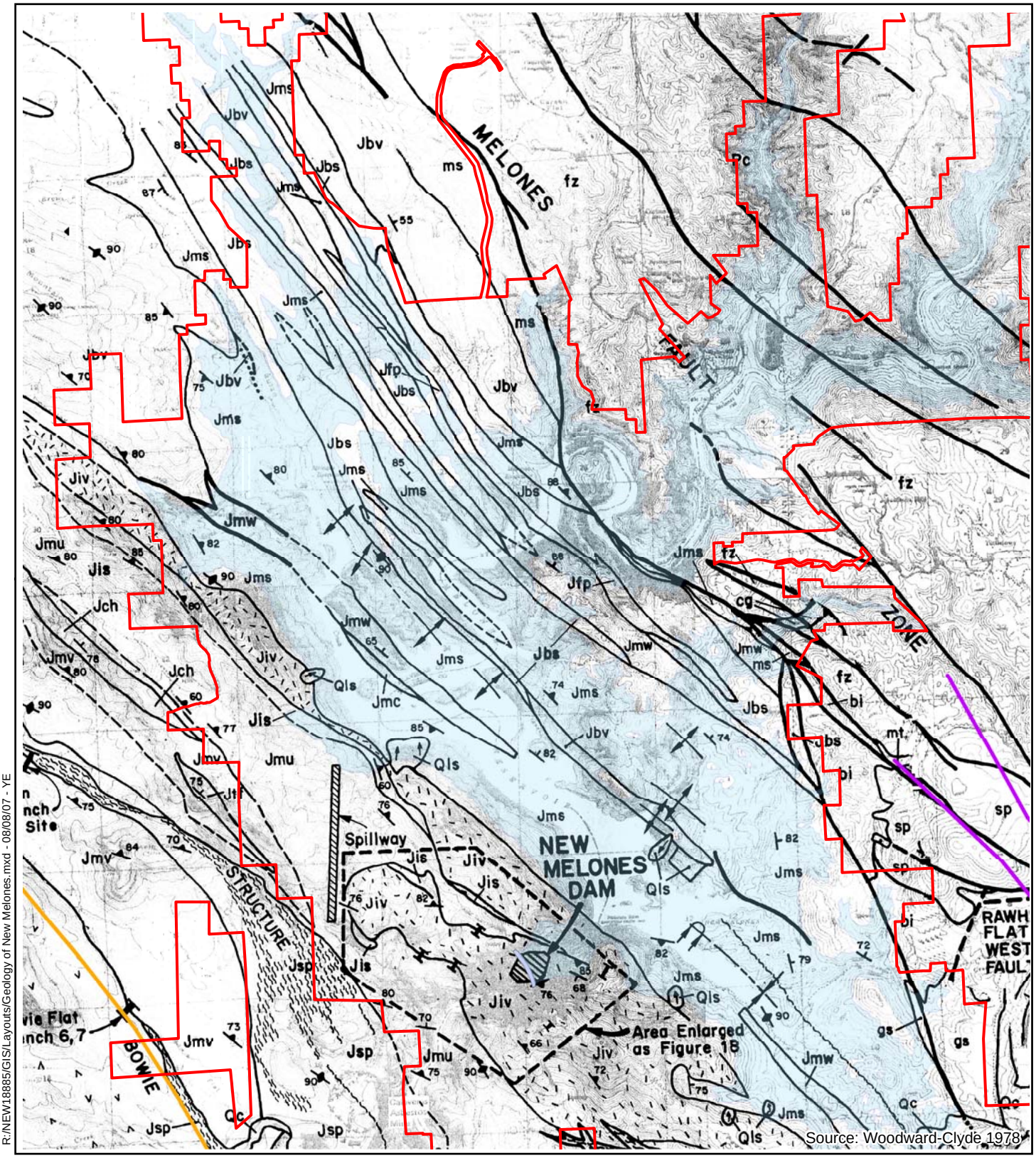
Geological Formations. The interpretation of the geology of the foothills of the Sierra Nevada is difficult, since understanding of the geology has undergone many changes and refinements. A narrative discussion of the major geologic features has been included in this section to highlight the formations and stratigraphic units particularly influential to the New Melones Lake Area.

One of the noteworthy features of the study area that is apparent in Figure R-4 is a general tendency of the mapped units and of lines representing structural features to have a northwest trend. In fact, it is clear that the main body of New Melones Lake is similarly oriented. This northwest-trend is produced by the Foothills Metamorphic Belt (FMB), which extends about 150 miles from the Modoc Plateau in the north to about the latitude of Merced in the south. In the study area, the FMB is bounded on the east by the Calaveras Formation (also referred to as the Calaveras Complex) and on the west by sedimentary rocks of the Great Valley sequence. The two most prominent structural features within the FMB are the Melones Fault Zone and the Bear Mountain Fault Zone.

The Sierra Nevada mountain range is the result of relatively recent uplift of the range by faulting. The block containing the Sierra Nevada Batholith was pushed up to the east and tilted down to the west. As this happened, the rocks into which the batholith had intruded eroded away, exposing the younger and more resistant granitic rocks of the batholith. However, small remnants of the original continental rocks were preserved, including bodies of limestone that belong to the Calaveras Formation.

The uplift of the Sierra Nevada was preceded and accompanied by volcanic activity that resulted in significant deposits of volcanic material, some of which have been given formation names. Among the most prominent of these within the study area is the Table Mountain Latite.

Table Mountain is the cast of an ancient river valley. During the early to middle Miocene, large volumes of andesitic lava erupted from volcanoes east of the study area in what is now the Carson Pass area. Large quantities of andesitic mud and debris washed down the existing stream channels. Subsequent eruptions of latite lava followed and filled these ancient stream channels, forcing the rivers to find other routes. The river channels buried under these volcanic deposits contained placer gold deposits. The lava buried and preserved both the placer gold deposits and the Mehrten Formation deposits. Eventually, the surrounding land surface eroded, leaving behind flat-topped ribbons of the resistant latite lava.



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Geology of New Melones

New Melones Lake Area, California
Central California Area Office

Legend

- Project Boundary
- New Melones Lake

Late Quaternary Fault Segments (Jennings 1994)

- Bear Mountain
- Melones

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Figure R-4

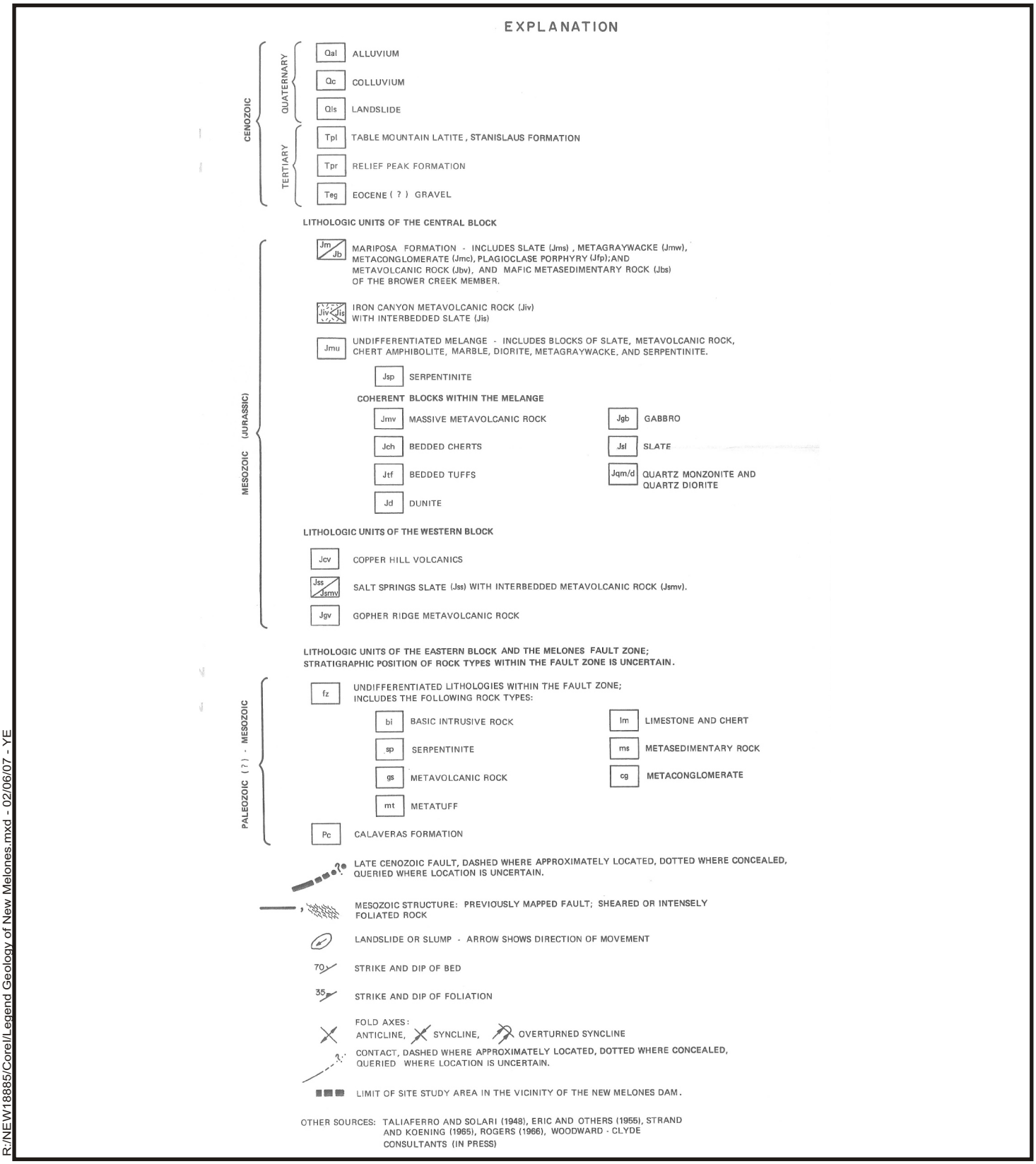

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Figure R-4 Legend

New Melones Lake Area, California
Central California Area Office

Seismicity. The two major faults within the dam foundation are the IF-83 Fault and the Powerhouse Fault. The Powerhouse Fault passes through the Powerhouse foundation, across the canyon floor downstream of the toe of the dam, and curves toward the east crossing the left abutment of the dam at an elevation of about 940 feet. The IF-83 Fault strikes N 75 degrees W and dips 65 degrees S. It passes through the foundation of the sloping intake structure, under the extreme upstream toe of the dam, and continues up the left abutment where it intersects the Powerhouse Fault. Two smaller faults occur within the foundation, one located high on the right abutment and the other on the lower left abutment (Reclamation 2006).

Faults found in the vicinity of the New Melones Lake Area are not considered active, and the lake area's situation atop shallow bedrock would minimize shaking in the result of an earthquake. Reclamation will construct any new facilities in compliance with the California Building Code, which requires measures to minimize building failure in the event of an earthquake. Reclamation must also comply with the Alquist-Priolo Earthquake Zone Act, although this act would not restrict building since there are no Alquist-Priolo faults in the project area.

Mineral Resources. The following mineral resources are found within the project area:

Gold. Gold occurs in lode deposits and placer deposits within the study area. The study area overlies the Carson Hill Gold District and the Jamestown Gold District. The Carson Hill District (also know as the Melones District) includes the portion of the Mother Lode Belt that extends from Carson Flat to the town of Melones on the Stanislaus River. (The town of Melones was abandoned when New Melones Lake was filled). The Jamestown District extends south to the town of Stent. Milling ore of the Carson Hill District was usually low in grade, but the ore bodies were extensive (Oakland Museum of California 1998).

The Carson Hill (Melones) Mine is the largest recently active lode mining operation adjacent to New Melones Lake Area. It is between SR 49 Stevenot Stanislaus River Bridge and Coyote Creek, just outside the study area boundary. The Jamestown Mine is on the southeast side of Table Mountain, outside the study area.

The town of Melones was historically the site of a placer gold dredging operation, and there are several former hydraulic mining locations within the study area. More important are the placer deposits contained in the ancient stream channels that were buried beneath Miocene Mehrten Formation and Table Mountain latite flows.

Chromite. Chromite deposits with moderate potential are present in the ultramafic rocks associated with the Bear Mountain Fault Zone. Little or no exploration has been conducted since the 1940s.

Limestone and Dolomite. High-calcium limestone suitable for cement production is present in the Paleozoic limestone deposits of the Calaveras Complex.

Talc. Talc is present in localized hydrothermally altered schist deposits within the Melones Fault Zone. There are currently no active talc mining operations in the vicinity of the study area.

Asbestos. Asbestos minerals, such as chrysotile, are present in the serpentine deposits associated with the New Melones and Bear Mountain Fault Zones. The Jefferson Lake Asbestos Company operated the largest open pit asbestos mine in the United States at a site just south of the New Melones Dam, along the upper inlet of Lake Tulloch. The mine was closed in 1987. Calaveras Asbestos, Ltd. has operated the former pit as a landfill for disposal of asbestos-containing material.

Axonite. Axonite is a rare mineral known to only a few locations worldwide. Although not particularly valuable in and of itself, it is sought after by rock collectors due to its scarcity. Axonite has been identified at a single location on Reclamation lands. Collection of this mineral is not permitted.

Soils. Soils result from weathering of rock material. They can be formed in place, or the parent material may be transported during a part of its history, as occurs with alluvial soils (deposited by flowing water). Soils reflect not only the geologic and mineral character of the parent rock material, but to an even greater extent, they reflect the climate conditions to which the material is exposed and the slopes on which they form. The study area is generally steep, with narrow V-shaped valleys and steep stream channels. There are few significant areas in which alluvium accumulates. The soils tend to be shallow and rocky. Soils on north-facing slopes are generally deeper than soils developed on south-facing slopes.

As part of an effort to classify the ecological regions of the United States into successively smaller units, the USFS has produced a map of the ecological subregions of California. Among other elements, the project identifies the broad categories of soils within the subregions (USFS 1997). The study area is in the Lower Sierra Nevada Foothills Metamorphic Belt Ecological Subregion. The soils are well drained. Bicarbonate weathering and leaching and accumulation of clay in subsoils are the main processes driving soil formation. Soil temperature regimes are mostly thermic. Soil moisture regimes are xeric.

Soils are most vulnerable where they have been denuded. This is most apparent in areas that have been burned by a very hot wildfire, at the site of landslides, or below the top of the “bathtub ring” that is found below the high water mark of the lake. Soils in the bathtub ring are vulnerable to runoff from precipitation, and also erode readily as a result of boat wakes or where vehicles have been driven across them. Soil management measures are most apparent in the Shell Road and Peoria Wildlife Management Areas. Reclamation attempts to control illegal grazing and inappropriate vehicle use by fencing sensitive areas, installing educational or warning signs, closing access roads, maintaining roads and trails, and creating stormwater pollution prevention plans for areas where construction or use may occur. Reclamation also limits the construction season to minimize soil disturbance, initiates ranger patrols, and creates no-wake zones to minimize shoreline erosion.

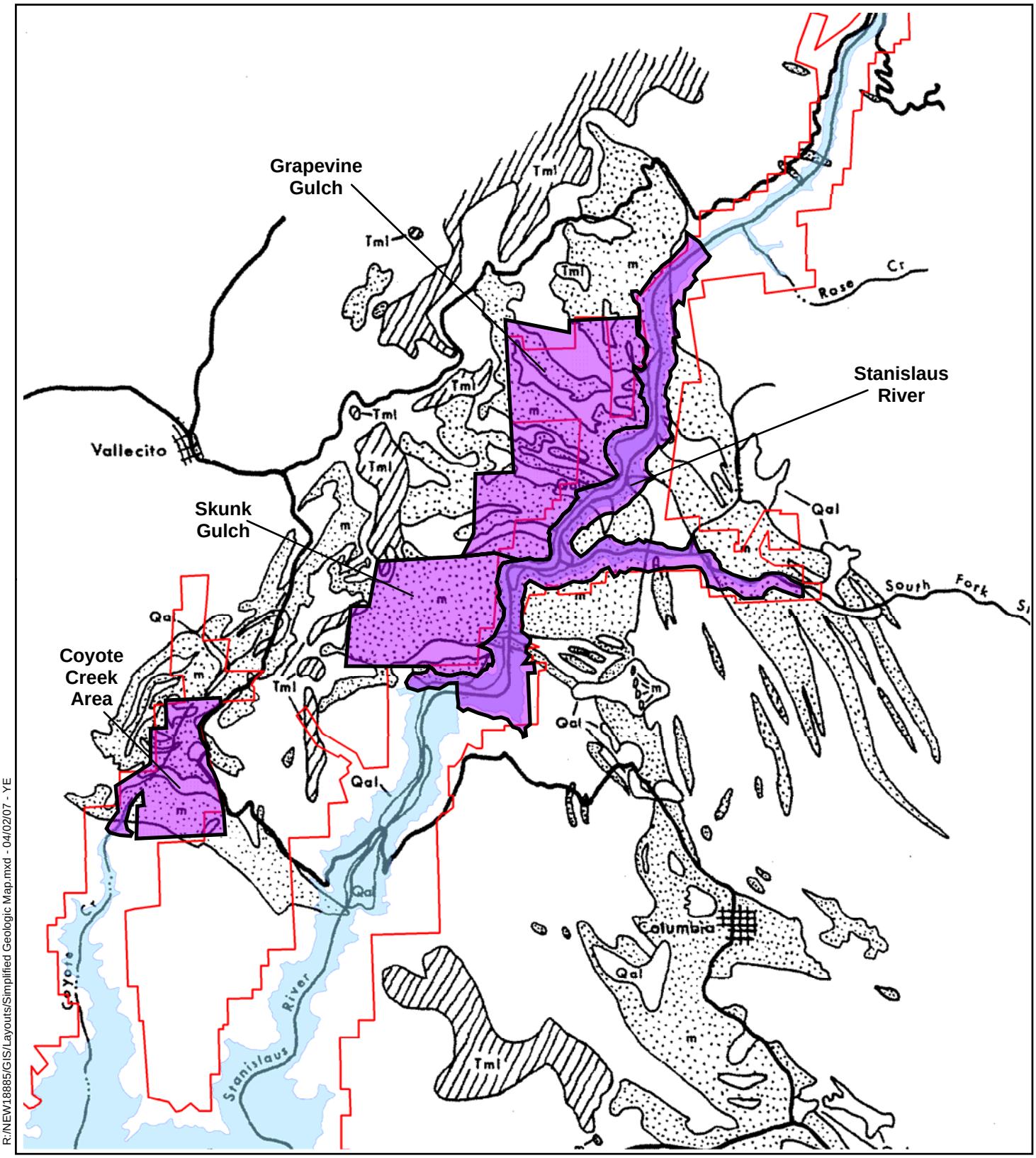
Caves. This section addresses cave conditions in the Calaveras Terrain bordering the Stanislaus River, the South Fork Stanislaus River, and the headwaters of Coyote Creek. The cave area is north of the Melones Fault Zone, and most of it is north of the former Parrots Ferry Bridge (Figure R-5). Limestone deposits within the Calaveras Formation consist of isolated blocks of recrystallized limestone and dolomite, which have been identified in some reports as marble.

About 44 sq km (11,000 acres), or roughly half of the known marble and limestone within the Calaveras Formation, is found in the vicinity of the New Melones Lake Area, although most of these deposits are outside the management area.

The limestone and dolomite within the Calaveras Formation, known as the Calaveras Karst, is one of the most important karst areas in the state. Over 100 caves have been identified in the limestone of the Calaveras Formation. A study of cave resources performed by the New Melones Reservoir Project (1978) prior to filling of New Melones Lake divided their study area into four subareas: the Stanislaus River Canyon, Coyote Creek, Skunk Gulch, and Grapevine Gulch. These areas overlap the New Melones Lake Area, as shown in Figure R-5.

The 1978 study identified 87 caves in the inventory area. Thirty of the forty-four caves identified in the Stanislaus River Canyon are below the current spillway elevation (1,088 ft msl) and therefore are now inundated or subject to inundation by the lake. Nineteen caves were identified in the Coyote Creek Canyon. All but one of these (Lower Natural Bridges Cave) are above the current spillway elevation. Upper and Lower Natural Bridges caves are popular destinations for day hikers and have been since the Gold Rush. Coyote Creek flows through both caves. An early description of the Natural Bridges is included in a traveler's guide written by James Hutchings (1862). Moaning Caves, a large commercial cave, is located in the Coyote Creek watershed upstream of the study area. Fifteen caves were identified in the Skunk Gulch Recreation Area (now part of the Parrotts Ferry Management Area), none of which are below the spillway elevation. Northeast of Skunk Gulch, the Grapevine Gulch Recreation Area (now part of the Stanislaus River Canyon Management Area) contains nine known caves, all above spillway elevation.

Table R-5 gives a summary of the study areas and the numbers of caves in each. Appendix A lists the caves identified in the 1978 study and summarizes pertinent information regarding each cave. The specific locations of the caves are not provided in the report in order to protect fragile resources. The study ranked each cave based on priority for implementation of mitigation recommendations for various resource values. The ranking criteria included geological, paleontological, taphonomic, archaeological, biological, aesthetic, and recreational significance. Caves 9, 16, 25, 43, 51, and 54 received the highest geological resource rankings. Of these, caves 25 and 54 are below the 1,088 ft elevation.



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Simplified Geologic Map of Columbia Area

Legend

Qal Quaternary Alluvium
Tml Table Mountain Latite
M Limestone/Dolomite/Marble
Project Boundary
Cave Inventory Areas (Mc Eachern & Grady 1978)

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New Melones Lake Area, California
Central California Area Office

Figure R-5

Table R-5: Summary of Pertinent Cave Study Area Information

Study Area	Elevational Range of Caves in Study Area (feet above sea level)	Number of Caves	Caves above High Water (1,088')	Significant Caves*
Stanislaus River Canyon	910-1,550	44	13	3
Coyote Creek	1,060-1,980	20	19	2
Skunk Gulch	1,525-1,800	14	14	0
Grapevine Gulch	1,200-1,980	8	8	0

*Significant caves are those which have been nominated as "significant" and therefore eligible for protection under the Federal Cave Resources Protection Act of 1988.
Source: 1978 New Melones Reservoir Project Cave Study

In December 1994, the Mother Lode Grotto of the National Speleological Society nominated five caves in the vicinity of New Melones Lake as significant caves eligible for protection under the Federal Cave Resources Protection Act of 1988. These included Caves 25, 54, 77, Upper and Lower Natural Bridges (caves 52 and 85, respectively), and Dragon's Breath caves. Lower Natural Bridges cave may be inundated at high lake elevations.

2.6.2 Resource Management

Management actions for geological resources are listed in Table R-6 below.

Table R-6: Summary of Current Decisions and Internal Guidance for Geological Resources

Decision	Source
Confine all public vehicles to existing roadways and continue to enforce ban on OHV operation.	43 CFR 423

Internal Guidance	Source
Prohibit mining and material excavation activities and allow dredging within the study area and coordinate with adjacent landowners/managers to prevent degradation of Reclamation lands.	DRMP 1995
Continue closure of old mine workings after conducting appropriate studies.	DRMP 1995
Review and comment on all proposed mining plans and Reclamation plans that may affect the New Melones watershed.	DRMP 1995
Protect significant caves in a manner consistent with the 1988 Federal Cave Resources Protection Act.	DRMP 1995
A cave inventory will be conducted to identify and classify caves.	New Melones Lake Revised Cave Management Plan. 1996
A protection plan for caves with significant resource value or potential hazards will be implemented.	New Melones Lake Revised Cave Management Plan. 1996
Minimize development and disturbance on serpentine outcrops to control erosion of asbestos fibers into waterbodies.	DRMP 1995

Internal Guidance	Source
Minimize erosion impacts within the project area.	DRMP 1995
Locate and design roads, trails, and access easements to follow the natural topography, minimizing steep slopes and the number of stream crossings.	DRMP 1995
Avoid soil disturbance, to the extent possible, of areas that are particularly vulnerable to erosion and sediment loss.	DRMP 1995
Confine all public vehicles to existing roadways and continue to enforce ban on OHV operation.	DRMP 1995
Measures to control access to caves will be implemented.	New Melones Lake Revised Cave Management Plan. 1996
Stabilize and construct waterbars on all roads and trails to control erosion.	DRMP 1995

2.7 Hydrology

This section discusses water resources and water quality in the New Melones Lake Area. The water resources section includes discussion of water sources, storage, streams, and the watershed that surrounds and feeds the lake. The water quality section describes the physical, biological, and chemical properties of waters in and around the lake and discusses factors that influence water quality in the lake. A management summary at the end of the section lists measures that Reclamation currently takes to manage water resources and maintain water quality.

2.7.1 Current Conditions

Overall Hydrology. The Hydrology section has been organized into the following subsections:

- **Water Resources:** This section focuses on water resources in the New Melones Lake Area and gives a brief introduction to dam operations, including storage and release requirements.

- **Water Quality:** This discussion focuses on water quality issues and current conditions in New Melones Lake.

Water Resources. Although dam operations are not managed by New Melones resource staff and will not be addressed in the RMP/EIS, this introduction is given to provide an overview of issues that relate to water levels, which in turn influence management of resources that will be addressed in the RMP/EIS.

One of the primary purposes of New Melones Lake is water storage for flood control. The primary operational criteria for New Melones Lake are provided in the California State Water Resources Control Board (SWRCB) Water Right Decision 1422, which was issued in 1973. This

decision allowed Reclamation to appropriate water from the Stanislaus River into New Melones Lake for irrigation, municipal, and industrial uses but required that lake operations include releases of water for existing water rights, fish and wildlife enhancement, and the maintenance of water quality conditions (primarily temperature and dissolved oxygen) on the Stanislaus and Lower San Joaquin Rivers (Reclamation Plan of Action, New Melones Revised Plan of Operations).

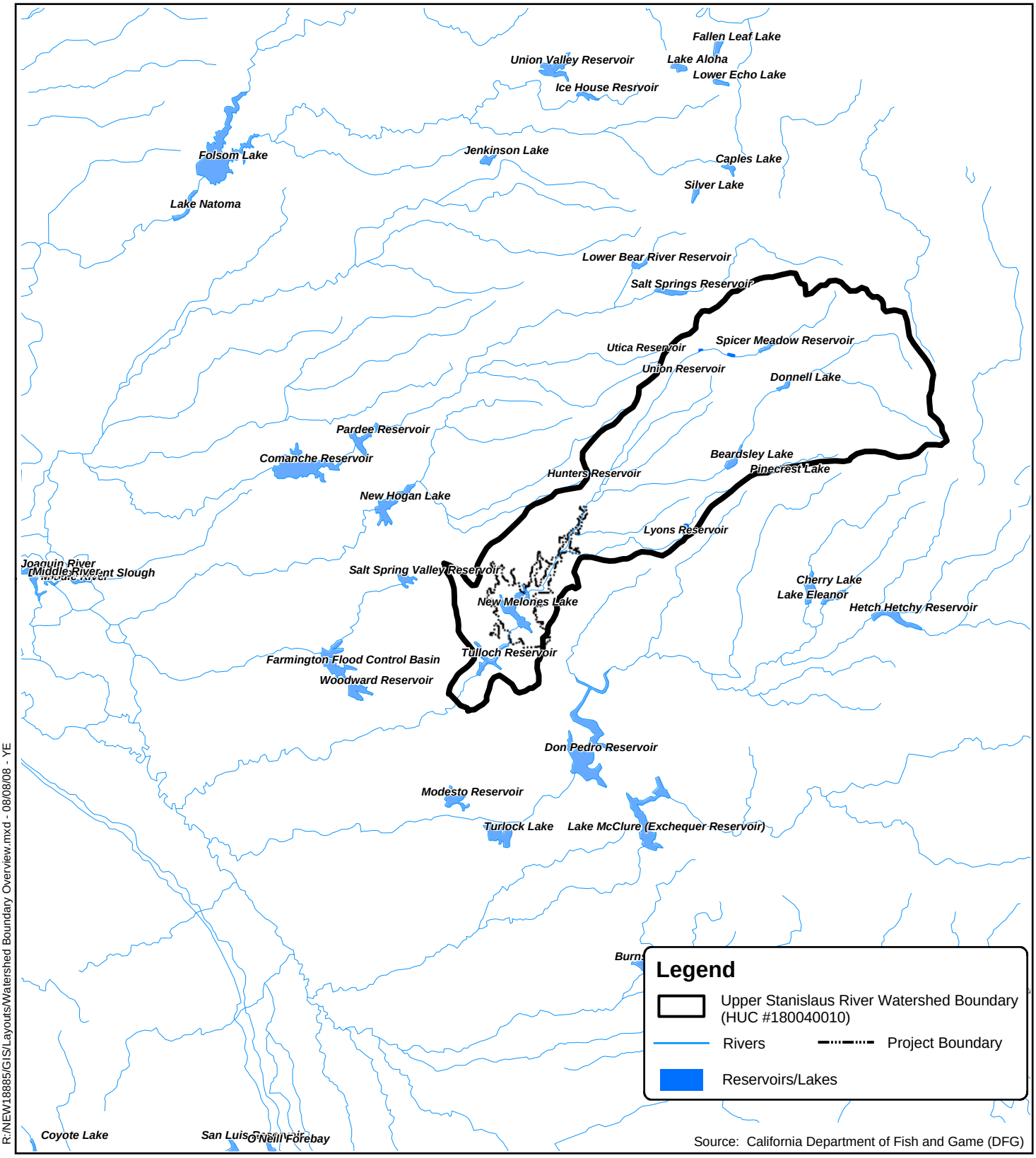
The maximum storage volume of the lake is 2,420,000 acre-feet, and the maximum surface area is 12,500 acres. The lake has a shoreline of approximately 100 miles when filled to capacity. Between the years of 2000 and 2006, storage in New Melones Lake ranged from approximately 1.1 to 2.1 million acre-feet, with the highest levels typically in the early summer months and the lowest levels at the beginning of the water year in October. According to Reclamation's rating curve for the lake, this translates into water level elevations ranging between 956 feet and 1,061 feet above mean sea level. These levels vary as a result of climatic variables such as drought, seasonal variables such as varying amounts of precipitation, and discharge requirements for flood control, power generation, irrigation, municipal requirements, and maintenance of aquatic habitat. Surface levels may also vary as a result of managed releases from storage facilities on streams above New Melones. At least 10 reservoirs with storage capacities ranging from 250 acre-feet to 189,000 acre-feet store water above New Melones. Those facilities and their storage capacities are shown in Table R-7. The New Melones Lake Area's position in the regional watershed is shown on Figure R-6 and the watershed draining directly to the New Melones Lake Area is shown on Figure R-7.

Daily outflows from the lake vary widely and are generally lowest during the rainy season (approximately October through April). Between 2000 and 2006, outflows ranged from 0 to 3,000 cubic feet per second, with the highest outflows typically in the summer months (US Geological Survey [USGS] 2007).

Table R-7: Existing Storage Above New Melones Lake

Fork of the Stanislaus River	Reservoir	Storage Capacity (acre-feet)
North		
	Lake Alpine	4,120
	Union Reservoir	3,130
	Utica Reservoir	2,330
	Spicer Meadows Reservoir	189,000
	Hunters Reservoir	250
Middle		
	Relief Reservoir	15,500
	Donnel Lake	64,300
	Beardsley Lake	97,800
South		
	Pinecrest Reservoir	18,310
	Lyons Reservoir	6,220

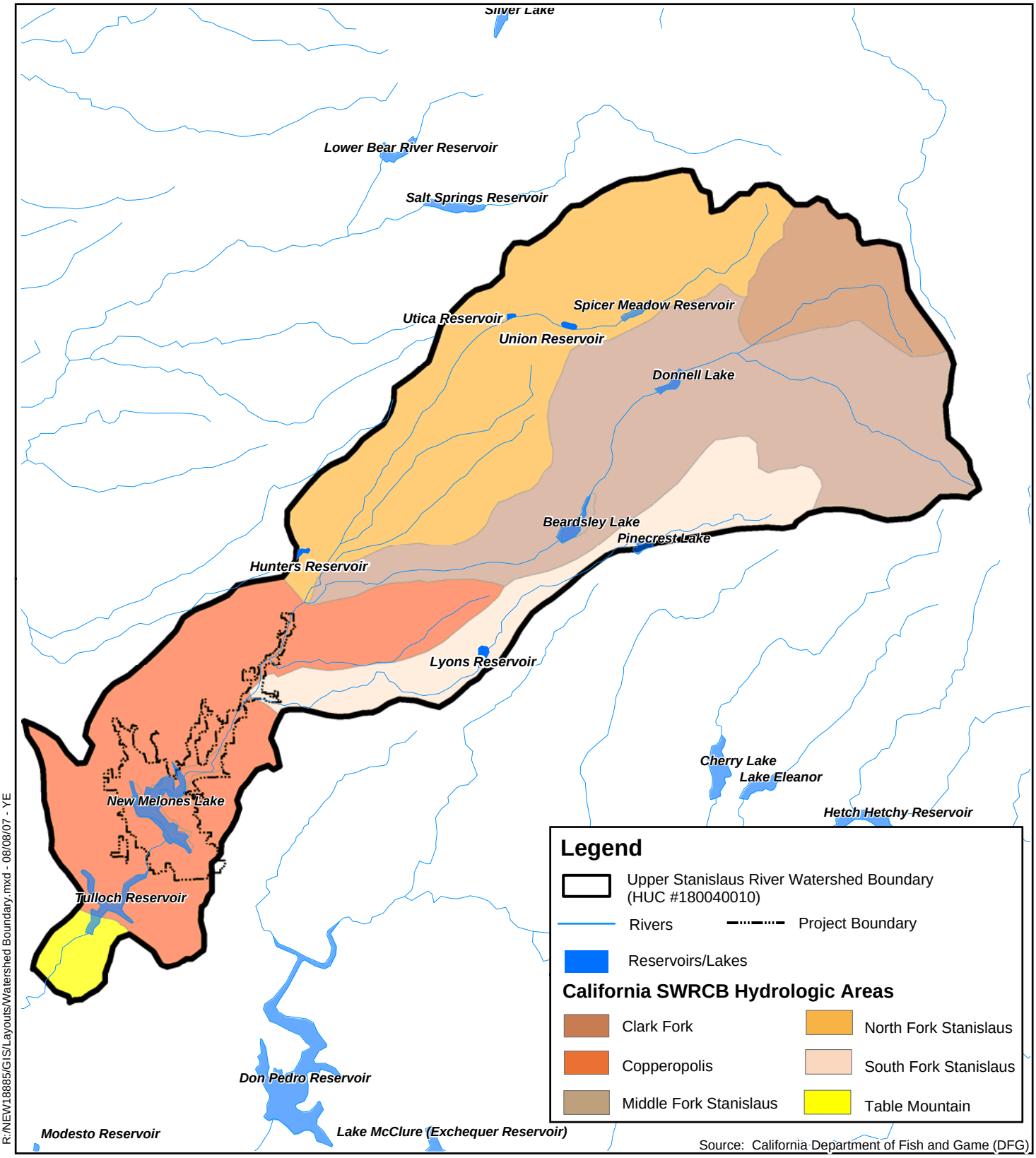
Source: Moore, T. PG&E, May 1994



Watershed Boundary Overview

New Melones Lake Area, California
Central California Area Office

Figure R-6



Watershed Boundary

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New Melones Lake Area, California
Central California Area Office

Figure R-7

Streams. All three forks of the Stanislaus River originate in the Sierra Nevada range. There are also a number of small creeks, both ephemeral (flowing only a portion of the year) and perennial (flowing year round), that discharge into New Melones Lake, including Coyote Creek, Carson Creek, and Angels Creek; however, the Stanislaus River is the main source of water for New Melones Lake. The main factor that determines whether streams within the planning area maintain perennial or ephemeral characteristics is their place of origin. In general, streams originating higher in the Sierra Nevada range and fed by melting snowpack are more likely to flow year round than streams fed primarily by rainfall. The exception to this is Coyote Creek, which is spring fed and maintains year-round flows of cold, clear water.

With the exception of the Stanislaus River, which contains weirs and other diversion structures, streams on Reclamation lands and their associated riparian areas are largely unaltered from their original conditions, except in cases where historic placer or dredge mining altered geomorphologic features. Some modification of stream substrate from recreational gold dredge operations may continue today, but these operations are small and focus on sandy or gravelly substrate that regains its natural form quickly.

Watersheds and Drainage. New Melones Dam is on the Stanislaus River below the confluence of its three forks (North, Middle, and South Fork), forming New Melones Lake. The majority of the water comes from the North and Middle Forks, with a lesser amount coming from the South Fork drainage. New Melones Lake is in the Upper Stanislaus River watershed, US Geological Survey (USGS) hydrologic unit code 18040010. This watershed is called the Stanislaus River Hydrologic Unit in the SWRCB hydrologic code system. Figure R-6 shows the location of New Melones Lake within the Upper Stanislaus River watershed and several subbasins that have been delineated by the SWRCB.

The Upper Stanislaus River watershed has a drainage area of approximately 980 square miles. Over 90 percent of this area (approximately 904 square miles) drains into New Melones Lake. Those areas draining directly to the lake include the following:

- Subbasins draining directly to the Stanislaus River and New Melones Lake, below the confluence of the North and Middle Forks of the Stanislaus River;
- The portion of the South Fork of the Stanislaus River drainage basin below the confluence of Wet Gulch;
- The lower watersheds of eastern tributaries to the main stem of the Stanislaus River, including the Rose Creek, Knight Creek, and Stony Gulch drainage basins;
- Watersheds of several small eastern tributaries to the main stem, including Experimental Gulch, Sandy Wash, Wolf Gulch, Deadman Gulch, Chile Gulch, Quail Gulch, Grizzly Gulch, Devils Canyon, and Norwegian Gulch;
- Coyote Creek drainage basin below Wades Flat Gulch;
- Small western tributaries to the main stem, including Squirrel Gulch, Snake Gulch, Skunk Gulch, Deep Gulch, Mariana Gulch, Grapevine Gulch, Wool Hollow, Cataract Gulch, and Yea Hoo Gulch;

- Slopes along the eastern portion of the lake, including portions of Mormon Creek, Bear Creek, Jackass Hill, and French Flat; and
- Slopes along the northwestern portion of the lake, including portions of Carson Creek, Greenhorn Creek, Indian Gulch, Indian Creek, Six Mile Creek, Angels Creek, Vonich Gulch, and Texas Charlie Gulch.

Upstream of New Melones Lake and within the lake's watershed, the Middle Fork of the Stanislaus is dammed at Beardsley Lake and Donnell Lake. Water from New Melones Lake feeds into Tulloch Lake, located directly downstream.

Water Quality. Water quality refers to physical, biological, and chemical properties of a water body. These properties include temperature, organic content, carbon and dissolved oxygen, turbidity, and pathogen content. Water quality is influenced by vegetation, soil and mineral substrate, livestock and human activities, and the source of the water. Surface water has less mineral content than groundwater and is indicative of the majority of water entering New Melones Lake.

Water quality issues at New Melones Lake are typical of those found in most reservoirs. Compared to natural lakes or streams, reservoirs may have elevated surface water temperatures in shallow areas or areas with poor circulation, high incidence of suspended sediments from shoreline erosion, high nutrient levels, and diminished dissolved oxygen. Localized water quality problems may occur as a result of recreational boaters, particularly in refueling areas or in areas where boaters congregate.

In some reservoirs, pollution from historic mining sites has been cited as a major water quality issue. Although this has not been reported as a problem at New Melones, its location in the heart of the Mother Lode gold mining region and its proximity to both active and abandoned mines greatly increases the chances that mine-based pollution will find its way into the lake. One of the most likely sources of mine-based pollution is acid mine drainage, which is metal-rich water formed from chemical reaction between water and rocks containing sulfur-bearing minerals. The runoff formed is usually acidic and frequently comes from areas where ore- or coal mining activities have exposed rocks containing pyrite, which is a sulfur bearing mineral. Problems that can be associated with mine drainage include contaminated drinking water, disrupted growth and reproduction of aquatic plants and animals and the corroding effects of the acid on parts of infrastructures such as bridges (USGS 2004).

Under Section 303(d) of the 1972 Clean Water Act, states, territories, and authorized tribes are required to develop a list of water quality-limited segments. The waters on the list do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology (SWRCB 2007).

The most recent 303(d) list for California is the 2002 list, which was approved by the EPA in July 2003. The 2002 list indicates that the Lower Stanislaus River is the only waterbody in the Upper Stanislaus River watershed which is impaired, suggesting that water quality in New Melones Lake is generally very good. This segment of the Stanislaus River is at the bottom of the watershed, below both New Melones Lake and Tulloch Reservoir. Water quality

impairments for this section of the Stanislaus River include diazinon, group A pesticides, and mercury. Total maximum daily loads (TMDLs) have not been established for these chemicals for this watershed.

2.7.2 Resource Management

Decision and guidance documents for water resource management in the New Melones Lake planning area include the 1976 Master Plan, the New Melones Dam Memorandum of Agreement (MOA) (MOA 1980), the Internal Draft Resource Management Plan (Reclamation 1995), the Draft Peoria Wildlife Management Area Environmental Assessment (Reclamation 2006a), and the Draft Fire Management Plan (Reclamation 2006b). Management direction relevant to water resources is provided in Table R-8 below.

Table R-8: Summary of Current Decisions and Internal Guidance for Water Resources

Decision	Source
Confine all public vehicles to existing roadways and continue to enforce ban on OHV operation.	43 CFR 423
Prohibit active discharge of sediment to any waterbody.	Clean Water Act, 43 CFR 423
Comply with Clean Water Act	Clean Water Act
Waste treatment systems will continue to comply with applicable waste discharge requirements.	Master Plan 1976, Clean Water Act
Manage marina concession to prevent active discharge of sewage and hazardous materials.	Reclamation Manual, Concession Management Policy
Internal Guidance	**Source**
The use of pesticides and fertilizers on Reclamation lands shall be in accordance with the Integrated Pest Management Plan for the New Melones Management Area.	DRMP 1995
Work with property owners and agencies to ensure that land use changes and activities within the watershed, beyond Reclamation's lands, do not contribute to the degradation of water quality, particularly non-point sources, which are more difficult to manage than point sources.	DRMP 1995
Review environmental documents for projects within the watershed and provide comments to the lead agency regarding limiting increases in impervious surfaces, minimizing soil disturbances, and other water quality impacts.	DRMP 1995
Provide and maintain appropriate restroom facilities at existing high-use areas and as a part of all new development. Provide floating restroom facilities for use by boaters. Locate the toilets in high-visibility areas to minimize vandalism. Locate permanent facilities above gross pool. Use concrete vault toilets or portables where facilities are	DRMP 1995

Internal Guidance	Source
needed below gross pool.	
Promote sound fish waste management through a combination of fish-cleaning facilities and public education.	DRMP 1995
Comply with applicable Hazard Waste/Materials regulations such as storage, transfer, containment, and disposal of oil, solvents, antifreeze, and paints at Reclamation and lessee concession facilities and encourage recycling of these materials.	DRMP 1995
Respond to any hazardous waste problems discovered on Reclamation lands immediately to minimize any water quality degradation.	DRMP 1995
Continue to require emergency spill plans for the marina and all other facilities that store fuels. Continue to require that these facilities have spill containment equipment.	DRMP 1995
Continue to require marina to use automatic shut-off nozzles and promote the use of fuel/air separators on air vents or tank stems of inboard fuel tanks to reduce the amount of fuel spilled into surface waters during fueling of boats.	DRMP 1995
Restrict vehicle and vessel maintenance, repairs, and construction on Reclamation lands except in designated areas.	DRMP 1995
Prohibit dumping of any kind on Reclamation lands and water.	DRMP 1995
Review environmental documents for projects within the watershed and provide comments to the lead agency regarding limiting increases in impervious surfaces, minimizing soil disturbances, and other water quality impacts.	DRMP 1995
Minimize erosion impacts within the project area.	DRMP 1995
Locate and design roads, trails, and access easements to follow the natural topography, minimizing steep slopes and the number of stream crossings.	DRMP 1995
Avoid soil disturbance, to the extent possible, of areas that are particularly vulnerable to erosion and sediment loss.	DRMP 1995
Confine all public vehicles to existing roadways and continue to enforce ban on OHV operation.	DRMP 1995
Stabilize and construct waterbars on all roads and trails to control erosion.	DRMP 1995
Minimize development and disturbance on serpentine outcrops to control erosion of asbestos fibers into waterbodies.	DRMP 1995
Identify areas where storm water runoff from paved surfaces is concentrated and drains directly to waterbodies; develop retention basins and/or other water quality control features for these areas.	DRMP 1995

Internal Guidance	Source
The use of prescribed burning on Reclamation lands shall be in accordance with the Fire Management Plan for the New Melones Management Area.	DRMP 1995

2.8 Aesthetic, Visual, and Scenic Resources

2.8.1 Current Conditions

The New Melones Lake Area is in Calaveras and Tuolumne Counties among the foothills of the west slope of the Sierra Nevada. The primary dominant visual elements are the hills, ridges, small valleys, the patterns created by the vegetation on the hills, and the surface of the lake (Reclamation 1995; Reclamation 2006b).

The landscape within this region is characterized by relatively steep sided and rolling hills that range from a few hundred to a thousand feet in height (Photographs 1 and 2 in Appendix B) (Reclamation 1995; Reclamation 2006b). Occasional rock outcrops are also visible (Photograph 3 in Appendix B). Visual contrast is provided by Table Mountain, which forms the watershed boundary to the south and is a long, flat-topped ridge of volcanic origin (Photograph 4 in Appendix B).

The dominant natural vegetation is annual grassland and native oak woodlands occurring in varying densities (Photographs 5 - 8 in Appendix B) (Reclamation 2006b). The tree canopy cover and species diversity increases in small draws and valley bottoms where the moisture is more readily available. Gray pine and lower shrub masses are found in drier locations, mixed with oaks in some areas (Reclamation 1995). In summer, the grasses become dry and turn from bright, rich green to soft golden yellow.

New Melones Lake Area occupies two fairly distinct areas contained within the Stanislaus River Canyon: a long, narrow upper reach and the wider main body of the lake (Reclamation 1995). The upper reach of the lake extends north-northeast from the SR 49 Stevenot Stanislaus River Bridge across the middle fork of the Stanislaus River (Photograph 9 in Appendix B) (Reclamation 1995). This part of the lake becomes increasingly narrow from the bridge northward and is characterized by steep-sided slopes which give way to near vertical limestone cliffs in the canyon's far upper reaches. The Camp Nine, Stanislaus River Canyon, Parrotts Ferry, Carson, and Coyote Creek planning units are in this area. Also, the Mark Twain and Carson planning units straddle the SR 49 Stevenot Stanislaus River Bridge. In contrast to the main body of the lake, the majority of the upper reach resembles an enlarged river rising up the sides of the steep canyon walls (Photograph 10 in Appendix B).

The main body of the lake is located south of the SR 49 Stevenot Stanislaus River Bridge. This area of the lake is relatively open, providing expansive views of the lake’s primary body of water and the surrounding hillsides (Photograph 11 in Appendix B). Because of the many convolutions

in the hills and their steep sides, the shoreline along this part of the lake is quite irregular. It features many fingers that project inward, and branches that extend back for varying distances from the main body of water (Photograph 12 in Appendix B). This configuration prohibits views of the entire main body of the lake surface at one time from any single location. Many areas of the lake are somewhat hidden from view until approached directly by boat. In a few areas, small hills that stood near the original river channel have been surrounded by water with the construction of the lake, forming islands. These visual features are found in the vicinity of Tuttletown French Flat, Bear Creek, Peoria Wildlife Area, Dam and Spillway, West Side, Greenhorn Creek, and Glory Hole planning units.

In general, the qualities of the scenic landscape increase with distance from the lake. The long, narrow upper reaches, have dramatic aesthetic qualities. Further down the river and around the main body of the lake, the aesthetic qualities of the landscape are compromised by greater development, including administration and recreational facilities, homes in the upper watershed, and a large mine that is visible from the visitor center and other areas (Photographs 13 and 14 in Appendix B).

Due to the orientation of the lake in the river canyon, views of the water and surrounding shoreline are only possible from locations within the basin itself, and usually only from points relatively close to the lake (Reclamation 1995). Views of the upper reach of the lake are generally limited to a vehicular turnout and scenic overlook located on the east side of Highway 49 near the west end of the bridge, from recreation areas, from Parrotts Ferry Road, and from Camp Nine Road. In general, views of the main body of the lake are limited to the developed recreation facilities associated with the lake (Tuttletown and Glory Hole Recreation Areas), from the lake surface itself, and to a lesser extent from the SR 49 Stevenot Stanislaus River Bridge.

From some of the higher elevation points near the main body of the lake, such as at the admission/ranger booth along the entrance road to the Glory Hole Recreation Area, more distant, open, and panoramic views of the basin and portions of the lake are available (Reclamation 1995). Distant features are often the focus of attention even though details are not readily perceptible (Photograph 15 in Appendix B). From points that are mid-range in terms of elevation with respect to the lake surface and the surrounding ridges, such as some of the day use areas and parking lots above the boat ramps, views become somewhat confined by the surrounding topography and are more focused on the lake and the hillsides that rise from the edge of the water (Photograph 16 in Appendix B). From the shore of the lake and the water's surface, views become oriented out across the water, which is by far the most dominant element of the scene, and up the hillsides to the ridge tops that form the skyline. At these locations, views are relatively confined and tend to be focused on foreground details.

Fluctuation Zone. One of the most striking visual characteristics of the lake basin is the band-like scar created by the high water mark of the lake and zone of former inundation (the area between the present water level and the high watermark), referred to as the fluctuation zone (Photograph 17 in Appendix B) (Reclamation 1995). The fluctuation zone forms a wide, horizontal band that completely encircles the lake and stands out in sharp contrast with the hillsides immediately above it. The contrast is created by an abrupt and complete absence of shrubs and trees on the hills below the high water mark resulting in significant differences in

texture and color above and below the high water mark. Above the high water mark, the hillsides appear to be in a relatively natural state with respect to vegetation and land surface. Some portions of the fluctuation zone contain stands of dead trees and shrubs which were originally inundated but have since been exposed as the water has receded.

Within the upper reach of the lake, riparian vegetation becomes established as the lake recedes (Reclamation 1995). This area begins to resemble its former river corridor as the water course narrows and the shoreline vegetation thickens. However, as water levels rise it forces the inundation zone further up into this section of the lake, thereby inundating the reestablished vegetation.

Below the high water mark, and within the main body of the lake, few live trees or shrubs occur (Reclamation 1995). Live vegetation in this zone is limited to grasses and some riparian vegetation, which have become established as the water has receded to its present levels and the area has remained dry. In some locations, minor rock outcrops are visible within this barren zone and in a few areas evidence of erosion can be seen.

Development. The overall visual character of the lake basin is distinctly rural and undeveloped, although there are numerous indicators that the landscape has been strongly affected in several ways by human influence (Reclamation 1995). In general, the most noticeable developed features are the various recreation facilities at the Tuttletown and Glory Hole Recreation Areas (Photograph 18 in Appendix B). However, these features appear relatively minor in scale within the overall visual context of the basin, particularly when viewed from a distance. Widely scattered private residential development within the basin, for the most part, is quite unobtrusive. Communications facilities that exist within the basin, such as hillside microwave towers and antennae, are minor features that do not attract the viewer’s attention. Overhead utility lines, while present and noticeable in a few locations, seem to attract little attention.

Prominent human-made features within the basin, aside from the lake, are the spillway situated along the ridge on the west side of the main body of the lake (Photograph 19 in Appendix B) and the Marble Quarry. Also noticeable are the mined hillsides at Carson Hill (Photograph 20 in Appendix B) (Reclamation 1995). The abrupt, strong contrast in color and landform created by the stepped benches, together with their very large scale, are readily evident from many locations and are capable of attracting and holding the viewer's attention. In this way, the features compete for visual dominance with the surrounding hillsides and with the lake itself.

The Tuttletown and Glory Hole Recreation Areas are the two primary locations within the basin where land-based recreation occurs (Reclamation 1995). Both feature a network of roadways providing public access to a host of facilities that serve the needs of visitors. Together, they include campgrounds and boat launch areas consisting of concrete ramps and extensive parking for cars and trailers.

At both Tuttletown and Glory Hole, boat ramps were designed to provide service under differing lake surface elevations (Reclamation 1995). In these cases, the ramps appear on the hillsides as large, abandoned slabs of concrete. The New Melones Marina complex is situated in an inlet within the Glory Hole Recreation Area. The marina complex is contained far enough back in the

inlet that it can only be seen from a few relatively nearby locations or from Tuttletown (across the lake).

Many of the recreation facilities (i.e. most campsites and the day use areas) are located among groves of trees taking advantage of topography to screen views of these uses from other areas (Reclamation 1995). Some facilities, particularly the boat launch ramps and adjacent parking areas, are fully exposed to view.

Some of the smaller recreation areas appear as little more than roadways that disappear beneath the surface of the lake (Reclamation 1995). Camp Nine Recreation Area, located at the north end of the lake's upper reach, is rustic and the water body takes on the appearance of a flowing river corridor rather than a lake, particularly during times of low lake levels.

2.8.2 Resource Management

There are no direct provisions for visual resource management in management or guidance documents for the New Melones Lake Area. Reclamation briefly addresses visual resources in its WROS Users Guidebook (Reclamation 2004), which establishes standards for modifying the physical setting. Also, the visual quality object for primitive areas requires the preservation of the physical setting. Management of other elements, such as biological resources, vehicle use, and fire, indirectly affects visual resource management.

3. Cultural Resources

3.1 Overview

This section describes the cultural resources found in the New Melones Lake Area. This section has been organized into the following subsections:

- **Prehistoric Resources.** Any material remains, structures, and items used or modified by people before Europeans established a presence in the region.
- **Historic Resources.** Any material remains and the landscape alterations that have occurred since the arrival of Europeans in the region.
- **Traditional Cultural Properties/Sacred Sites.** Traditional cultural properties and sacred sites are places associated with the cultural practices or beliefs of a living community.

3.1.1 Introduction

Cultural resources are locations of human activity, occupation, or use. They include expressions of human culture and history in the physical environment, such as prehistoric or historic archaeological sites, buildings, structures, objects, districts, or other places. Cultural resources can also include natural features that are considered to be important to a culture, subculture, or community or that allow the group to continue traditional lifeways and spiritual practices. Extensive archaeological resource studies were conducted prior to constructing New Melones Dam and filling the lake.

Although cultural resources have been organized into prehistoric resources, historic resources, and traditional cultural properties, these types are not exclusive, and a single cultural resource may have multiple components. Native American use of the lands and resources in the New Melones Lake planning area continued into the historic period. Traditional cultural properties are places associated with the cultural practices or beliefs of a living community. These sites are rooted in the community's history and are important in maintaining cultural identity. Examples of traditional cultural properties for Native Americans can include natural landscape features, places used for ceremonies and worship, places where plants are gathered to be used in traditional medicines and ceremonies, and places where artisan materials are found.

The New Melones Lake Area contains at least 627 historic and prehistoric archaeological sites referred to collectively as the New Melones Archaeological District. An archaeological district is a grouping of sites that are linked by common components or location and are collectively eligible for listing on the National Register of Historic Places (NRHP). Reclamation, in consultation with the California Office of Historic Preservation, applies the National Register criteria to assess the eligibility of identified properties. A district can include sites that would meet the NRHP eligibility criteria as individual properties as well components that are not

individually significant. As a type of historic property, an archaeological district is subject to the Section 106 process that requires Federal agencies to take into account the effects of their actions or actions that they permit, license, or approve on any district, site, object, building, or structure included in, or eligible for inclusion in, the NRHP (36 CFR 800). This process does not require that all historic properties be preserved, but does ensure that Federal agency decisions concerning the treatment of these resources result from meaningful consideration of cultural and historic values, and identification of options available to protect the resources.

Although none of these sites have been designated as traditional cultural properties, some of these sites hold cultural significance to local tribes and there are likely other locations that are not identified in the archaeological records that may be important to Native American communities. Documented site types include prehistoric habitation sites, bedrock mortars, petroglyphs, lithic quarries, and caves, and historic mines, rail and wagon roads, homesteads, mills, and townsites. These properties and other types of cultural resources range from ancient hunting camps to nineteenth-century gold mining boomtowns together representing approximately 10,000 years of human activity (Moratto et al. 1988). The planning area also includes an onsite artifact curation facility that holds material from studies conducted at New Melones and other Reclamation projects.

The cultural resource studies that led to identifying, recording, and limited excavating of archaeological sites were completed as part of NHPA compliance in anticipation of the filling of New Melones Lake. This included excavation and further study that was part of mitigation for adverse effects to historic properties associated with the project. Thus the most important factor affecting the current condition, preservation, access, and availability of these resources for study and interpretation is lake levels. Table R-9 outlines the distribution of recorded sites with reference to lake levels [Note: this is information from the 1988 NRHP nomination form and may not be the most current data]. Sites that have been totally inundated in the permanent pool are generally considered unavailable for further interpretation or study due to their lack of accessibility. Reclamation and the Corps of Engineers have effectively mitigated for the potential loss of integrity and setting for these sites as part of the New Melones cultural resource studies. Sites entirely or partially within the fluctuating pool have been subject to wave action, erosion from cyclical inundation, and exposure. Sites in this zone are also most susceptible to damage from lakeside recreational use and vandalism. Sites above the flood zone, including caves, are generally more accessible due to boat access than they were prior to filling the lake but have not been subject to the level of impacts of those in the other zones. Impacts have been caused by erosion, construction, recreational use and vandalism.

Preliminary inventories in compliance with the Native American Graves Protection and Repatriation Act (NAGPRA) of collections curated at New Melones were conducted, although more detailed inventories are needed and the facility itself would require upgrades to meet Federal curation standards as set forth in 36 CFR Part 79, Curation of Federally-Owned and Administered Archeological Collections.

Table R-9: Distribution of Archaeological Sites by Lake Elevation Zones

Number of Recorded Sites	Lake Level Zone	Elevation Range (feet)
122	Sites located in the permanent pool only	Less than 808 amsl[1]
33	Sites located partly in the permanent pool and partly within the fluctuating pool	Less than 808 amsl to 1,088 amsl
232	Sites located within the fluctuating pool only	From 808 amsl to 1,088 amsl
24	Sites located partly in the fluctuating pool and partly above the flood pool	From 808 amsl to Greater than 1,088 amsl
203	Sites located above the flood pool only	Greater than 1,088 amsl
5	Sites that include portions in all zones	From less than 808 amsl to greater than 1,088 amsl
8	Elevation uncertain	

[1]Above Mean Sea Level.
Source: Moratto et al. 1988

(Note: The number of cultural resource sites recorded for New Melones Lake varies depending on the reference consulted (bibliography reference). The number of sites described here are the best available statistics at this time. Source documents will be reviewed as part of the ongoing RMP/EIS analysis to resolve these discrepancies.)

3.1.2 Current Management of Cultural Resources

Cultural resources are managed in accordance with the regulations and agreements described below in Section 3.1.3. To accomplish this, Reclamation has implemented management strategies derived from decision documents including the 1976 Master Plan and various Reclamation internal directives, and from non-decision internal guidance sources such as the 1995 Draft RMP and the 2006 Fire Management Plan. Those management strategies are described in tables for each subsection, below.

Current management strategies for all cultural resources are listed in Table R-10 below. Management strategies for specific cultural resource categories appear in the respective sections.

Table R-10: Summary of Current Decisions and Guidance for Cultural Resources

Decision	Source
Reclamation will manage cultural resources in the New Melones Project Area as called for in the Memorandum of Agreement (MOA) for the New Melones Project, Reclamation Policy and Directives and Standards for Cultural Resources Management and the Inadvertent Discovery of Human Remains on Reclamation Lands, Department of the Interior Departmental Manual 411, the National Historic Preservation Act, the Archaeological Resources Protection Act, the Native American Graves Protection and Repatriation Act, 36 CFR Part 800, 36 CFR Part 60, 36 CFR Part 79, and 43 CFR Part 10.	Reclamation Manual LND P01 Reclamation Manual LND 02-01 Reclamation Manual 07-01 DOI 411 DM 1-3 National Historic Preservation Act Archaeological Resources Protection Act Native American Graves Protection and Repatriation Act
Whenever possible, protect historic properties by avoidance through Reclamation's planning process.	Reclamation Manual LND P01
For site-specific projects, consider the effects to cultural resources through implementation of the Section 106 process of the National Historic Preservation Act (NHPA), Archeological Resources Protection Act (ARPA), and the Native American Graves Protection and Repatriation Act (NAGPRA).	National Historic Preservation Act 36 CFR Part 800 Archaeological Resources Protection Act Native American Graves Protection and Repatriation Act
Internal Guidance	**Source**
Complete electronic data base and GIS mapping of known cultural resources.	DRMP 1995
Promote protection of cultural resources through visitor education and public outreach.	DRMP 1995
Provide protective signs, educational printed handouts, interpretative programs, and ranger interface with the public to explain the values of cultural resources.	DRMP 1995
Protect historic properties through the use of protective fencing, coverings, and exclusion, as applicable.	DRMP 1995
Protect historic properties through ranger patrol.	DRMP 1995
Permitting for cultural resources survey and excavation will be processed by Reclamation's Regional Office.	DRMP 1995
Interpret selected sites for the education and enjoyment of the general public; give priority to sites within public use areas in proximity to special geologic, cultural, or natural features; and give special attention to public use areas being degraded through natural or human impacts.	DRMP 1995
Produce scientifically accurate and culturally sensitive cultural resources displays and brochures.	DRMP 1995

Internal Guidance	Source
Continue to operate the visitor center and maintain cultural resources interpretive displays.	DRMP 1995
Minimize publicity and access to sensitive cave locations; avoid constructing trails to caves and install gates where necessary for conservation purposes.	New Melones Lake Revised Cave Management Plan. 1996
Require permits and review for all research projects within and around cave resources.	New Melones Lake Revised Cave Management Plan. 1996
Avoid all known historic properties. Avoidance means that no activities associated with the Proposed Action that may adversely affect historic properties will occur within site boundaries. Portions of the Proposed Action may need to be modified, redesigned, or eliminated to properly avoid historic properties. When changes in proposed activities (e.g., project modifications) are necessary to avoid historic properties, these changes would be completed before initiating any activities.	Draft Peoria EA 2006
For all actions proposed under the draft Peoria Wildlife Management Area Plan alternatives: If buried cultural resources, such as chipped or ground stone, historic debris, building foundations, or bone, are discovered during ground-disturbing activities, all work in that area and within 100 feet of the find would be stopped immediately until a Reclamation archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment and avoidance measures in consultation with SHPO. Complete Section 106 prior to initiating any ground-disturbing actions under the Peoria Wildlife Management Area Plan. No construction related to the Peoria Wildlife Management Area Plan can be implemented until a Section 106 consultation is completed.	Draft Peoria EA 2006
Protect sensitive cultural resources by using Minimum Impact Suppression Tactics (MIST) and by coordinating with a Cultural Resource Advisor during fire suppression activities. Such activities must be coordinated with Reclamation cultural resources staff.	DFMP 2006
In emergency circumstances, where heavy equipment was employed without prior on-site coordination, Reclamation will conduct post-fire archaeological evaluations to assess and document equipment damage to cultural resources. Damage assessments and possible mitigation work may be required.	DFMP 2006
Reduce hazardous fuel loadings in order to reduce fire intensity levels, which will minimize negative fire effects on natural and cultural resources in the unit and will mitigate the potential for catastrophic fires. Fuel reduction projects will be subject to Section 106 compliance prior to implementation.	DFMP 2006

3.1.3 Management Authority and Relevant Regulations

General Regulations

- **An Act for the Preservation of American Antiquities [Antiquities Act of 1906] (PL 59-209; 34 Stat. 225; 16 USC 432, 433)** made it unlawful for any person to appropriate, excavate, injure, or destroy any historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the Government of the United States.
- **Historic Sites Act of 1935 (PL 74-292; 49 Stat. 666; 16 USC 461).** This act declares a national policy to identify and preserve nationally significant "historic sites, buildings, objects and antiquities." It authorizes the National Historic Landmarks program and provides the foundation for the National Register of Historic Places authorized in the National Historic Preservation Act of 1966. Regulations implementing the National Historic Landmarks Program are at 36 CFR Part 65.
- **National Historic Preservation Act of 1966 and amendments (PL 89-665; 80 Stat. 915; 16 USC 470).** The NHPA creates the National Register of Historic Places and extends protection to historic places of state and local as well as national significance. It establishes the Advisory Council on Historic Preservation, State Historic Preservation Officers, Tribal Preservation Officers, and a preservation grants-in-aid program. Section 106 directs Federal agencies to take into account effects of their actions ("undertakings") on properties in or eligible for the National Register.
- **National Environmental Policy Act of 1969 (PL 91-190; 83 Stat. 852; 42 USC 4321).** NEPA states that it is the Federal government's continuing responsibility to use all practicable means to preserve important historic, cultural, and natural aspects of our national heritage. It instructs Federal agencies to prepare environmental impact statements for each major Federal action having an effect on the environment.
- **American Indian Religious Freedom Act of 1978 (PL 95-341; 92 Stat. 469; 42 USC 1996).** AIRFA states that "it shall be the policy of the United States to protect and preserve for American Indians their inherent right of freedom to believe, express, and exercise the traditional religions of the American Indian, Eskimo, Aleut, and Native Hawaiians, including but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites".
- **Archaeological Resources Protection Act (ARPA) of 1979 (PL 96-95; 93 Stat. 721; 16 USC 470aa-470mm), as amended (PL 100-555; PL 100-588)**. ARPA expands the protections provided by the Antiquities Act of 1906 in protecting archaeological resources and sites located on public and Indian lands. ARPA has felony-level penalties for excavating, removing, damaging, altering, or defacing any archaeological resource more than 100 years of age, on public or Indian lands, unless authorized by a permit.
- **Native American Graves Protection and Repatriation Act of 1990 (PL 101-601; 25 USC 3000-3013; 104 Stat. 3048-3058).** NAGPRA provides for disposition of cultural items from Federal or tribal lands. The ownership or control of Native American cultural items that are excavated or discovered on Federal or tribal lands after 1990 is determined by a custody hierarchy set out in the statute.

- **Reservoir Salvage Act of 1960, as amended (16 USC 469-469c)** extended the Historic Sites Act of 1935. It gave the Department of the Interior, through the National Park Service, major responsibility for preserving archaeological data that might be lost specifically through dam construction.
- **Curation of Federally-Owned and Administered Archeological Collections (36 CFR Part 79).** The regulations in this part establish definitions, standards, procedures, and guidelines to be followed by Federal agencies to preserve collections of prehistoric and historic material remains and associated records.
- **Determinations of Eligibility for Inclusion in the National Register (36 CFR Part 63).** These regulations were developed to assist Federal agencies in identifying and evaluating the eligibility of properties for inclusion in the National Register.
- **National Register of Historic Places (36 CFR Part 60).** These regulations describe the criteria for eligibility for inclusion of properties in the NRHP.
- **Protection of Historic Properties (36 CFR Part 800).** These regulations describe the Section 106 Process.
- **Public Conduct on Bureau of Reclamation Facilities, Lands, and Waterbodies (43 CFR Part 423).** These regulations intend to maintain law and order and protect persons and property within Reclamation projects and on Reclamation facilities, lands, and waterbodies by specifying areas open and closed to public use.

Executive Orders

- **Executive Order 13751, Consultation and Coordination with Indian Tribal Governments, 63 FR 96.** Executive Order 13175 was issued to establish regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications. When implementing such policies, agencies shall consult with tribal officials as to the need for Federal standards and any alternatives that limit their scope or otherwise preserve the prerogatives and authority of Indian tribes.
- **Government-to-Government Relations with Native American Tribal Governments (Memorandum signed by President Clinton; April 29, 1994) (Federal Register, Vol. 59, No. 85).** The memorandum directs Federal agencies to consult, to the greatest extent practicable and to the extent permitted by law, with tribal governments prior to taking actions that affect Federally recognized tribal governments. Federal agencies must assess the impact of Federal government plans, projects, programs, and activities on tribal trust resources and assure that tribal government rights and concerns are considered during such development.
- **Executive Order 11593, Protection and Enhancement of the Cultural Environment, 36 FR 8921,** directs Federal agencies to inventory cultural properties under their jurisdiction, to nominate to the National Register all Federally owned properties that meet the criteria, to use due caution until the inventory and nomination processes are completed, and to assure that Federal plans and programs contribute to preservation and enhancement of non-Federal properties.

- **Executive Order 13007, Indian Sacred Sites, 61 FR 104, directs Federal agencies in managing Federal lands to** 1) accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners; and 2) avoid adversely affecting the physical integrity of such sacred sites.
- **Executive Order 13287, Preserve America 2003,** directs Federal agencies to improve their management of historic properties and to foster heritage tourism in partnership with local communities.

Department of Interior Directives

- **Departmental Manual 411, "Managing Museum Property,"** sets the policy for the collection, management, and care of museum property for all DOI bureaus. Museum property is a subset of the larger personal property category within DOI, thus property law and regulations apply.

Reclamation

- **Cultural Resources Management Policy LND-P01.** Cultural resources are recognized as fragile, irreplaceable resources with potential public and scientific uses, and represent an important and integral part of our Nation's heritage. It is Reclamation's practice to:

    1. Manage cultural resources under Reclamation jurisdiction or control according to their relative importance, to protect against impairment, destruction, and inadvertent loss, and to encourage and accommodate the uses determined appropriate through planning and public participation.

    2. Manage cultural resources under cultural resource statutes and the planning and decision making processes as are followed in managing other public land resources.

    3. Ensure that tribal issues and concerns are given consideration during planning and decision making, including fire management planning and decision making for specific fire management projects.

  This policy is not limited to Reclamation's activities that affect Federal lands. It is the responsibility of Reclamation to assure that its actions and authorizations are considered in terms of effects on cultural resources located on non-Federal lands. Fire management planning and activities on site-specific projects that involve non-Federal land shall consider this responsibility.

Directives and Standards

- **Cultural Resources Management LND 02-01** ensures that Reclamation manages its cultural resources according to Federal legislative mandates and in a spirit of stewardship; clarifies Reclamation's roles and responsibilities related to cultural resources; and provides direction for consistent implementation of Reclamation's cultural resources management responsibilities.

- **Inadvertent Discovery of Human Remains on Reclamation Lands LND 07-01** establishes procedures for compliance with Federal statutes when inadvertent (i.e., unplanned) discoveries of human remains occur on Reclamation lands.
- **Inadvertent Discovery of Native American Graves Protection and Repatriation Act (NAGPRA) Cultural Items on Tribal Lands LND 10-01** establishes procedures for addressing inadvertent (i.e., unplanned) discoveries of NAGPRA cultural items on tribal lands due to Reclamation projects and activities.

3.1.4 Other Plans That May Be Considered

Cultural resources, particularly those that are found in the New Melones Archaeological District, may overlap planning jurisdictions. For this reason, Reclamation will coordinate cultural resource management with agencies that manage lands adjacent to New Melones. At a minimum, these include:

Bureau of Land Management. BLM is in the process of revising their Sierra Nevada RMP. Reclamation will coordinate with BLM for management strategies and to ensure adequate management of jointly managed resources.

USFS Stanislaus National Forest. The Stanislaus National Forest Plan contains measures for management of cultural resources. To any reasonable degree, Reclamation will coordinate with USFS for management of cultural resources.

3.1.5 Trends

Over time, the identified cultural resources have continued to be subject to some loss of integrity, impacting the values that make the sites or features important for scientific, interpretive, or cultural use. Monitoring has been limited, and the extent of these impacts is unknown.

Ongoing trends include the loss or modification of features, the loss or modification of site components and physical relationships within sites and intrusions into the setting of resources. Many of these trends are the result of natural processes such as weathering and erosion that can be exacerbated by increased recreational use. Vandalism and inadvertent damage by visitors is likely to increase as recreational use increases in the planning area, which is likely to necessitate additional management, education, and enforcement actions. There is also a continuing interest among Native American communities in traditional and religious uses of the environment and participation in public land management practices. Developing new facilities and new access locations may lead to impacts to prehistoric resources. The removal of historic structures such as the Camp Nine Bridge will be necessary for safety reasons in the near future.

There is revival of interest among native groups in continuing cultural traditions and asserting the right to use public lands for cultural purposes. Future trends include more tribal interest in the protection of locations, plants, and landscape features and participation in land use decisions in order to sustain identity and exercise traditional cultural practices. Tribal groups in the Sierra Nevada Region are particularly concerned with herbicide use on materials used in basketry,

medicines, and ceremonies. Public lands are increasingly being used for larger traditional gatherings and ceremonies.

Data being compiled by Reclamation will assist in the preparation of a cultural resources research design. The research design will assist Reclamation in managing the cultural resources of New Melones. The New Melones Archaeological District currently includes all of the archaeological sites and features within the lands managed by Reclamation, without any distinction between the relative importance of individual components. The research design will pull together existing regional information in order to identify historic themes and research issues that are important, develop research questions relating to these themes and issues, and outline the kinds of data needed to answer these questions. In this way Reclamation will be able to define criteria for determining what types of sites and features and are important to the district. Further, Reclamation will also be able to determine those sites and features whose research or other values are limited. The research design is expected to be a valuable tool for land use planning, for streamlining cultural resource compliance activities and in guiding future cultural resource studies.

3.2 Prehistoric Resources

3.2.1 Current Conditions

A cultural sequence spanning 10,000 years has been proposed for the New Melones Recreation Area. The oldest documented occupation is the Clarks Flat Phase (ca. 8000-6000 B.C.), known from a few locations and most clearly defined at Clarks Flat. This period is defined primarily based on spear points used by early hunters who occupied temporary camps. This sequence is shown in Table R-11.

Table R-11: Chronological Framework for Cultural Resources

Time Period	Dates	Defining Characteristics
Clarks Flat	8000-6000 B.C.	Spear points left by hunters
Stanislaus	6000-3500 B.C.	Use of grinding tools, wider variety of resource use
Texas Charley	3500-1000 B.C.	Percussion-flaked stone industry but little evidence of habitation
Calaveras	3500-1000 B.C.	Distinct type of spear points and milling tools
Sierra	1000 B.C.- 500 A.D.	Extensive occupation of lands now part of New Melones lake Area, indicated by midden deposits
Redbud	500-1300 A.D.	Distinctive cultural style not continuous with previous or later phases
Horseshoe Bend	1300-1848 A.D.	Bedrock mortars, midden deposits, architectural remains, cemeteries, and or other evidence of large, permanent populations.
Peoria Basin	1848-present	Abandonment of traditional lifestyle, transition to modern cultural style

Occupation of the three or four sites during the subsequent period (6000-3500 B.C.) is represented by greater artifact diversity, including extensive use of grinding tools that may reflect visits by more than one group. The range of resources exploited expanded to seeds and,

possibly, other plant sources. This unit has been defined as the Stanislaus Phase based on research at Clark Flat.

Two or more cultural phases are encompassed by the 3500-1000 B.C. timeframe. The Texas Charley Phase (ca. 3500 B.C.) is represented by a distinctive, percussion-flaked stone industry but little evidence of habitation. The Calaveras Phase includes locations marked by specific types of spear points and milling tools for the processing of plant foods. As with the preceding period, the 3500-1000 B.C. interval evidently was a time of fairly widespread but ephemeral site use. The two phases ascribed to this period seem unrelated based on material culture, and perhaps were separate in time also.

The Sierra Phase (ca. 1000 B.C.-A.D. 500) represents both extensive and intensive occupation of the New Melones Recreation Area. Twelve of the twenty-four identified Sierra Phase sites feature midden deposits and other indicators of long-term occupation. The following A.D. 500-1300 period, however, seems to have been a time of only limited activity by small groups. Although 24 sites have yielded artifacts ascribed to this period, only three (Redbud Phase) have midden soils. The Redbud Phase does not appear to reflect cultural continuity with previous or latter phases in the area. Late prehistory (ca. A.D. 1300-1848) is identified in 54 sites of the Horseshoe Bend Phase, of which 42 have bedrock mortars, midden deposits, architectural remains, cemeteries, and or other evidence of large, permanent populations. Identified with the ancestral Miwok, the Horseshoe Bend Phase represents the most intensive use of the New Melones planning area at any time in prehistory. The sequence ends with the Peoria Basin Phase, which includes the transition into historic use and the ultimate breakdown of traditional lifeways in the area (DRMP 1995).

The summary information included in the New Melones Archaeological District NRHP nomination form does not distinguish between prehistoric and historic Native American sites. Historic-era Native American sites in the New Melones Lake planning area are similar to prehistoric sites and features but include artifacts indicating contact with Euro-Americans.

The nomination form identifies 215 Native American sites that were classified according to features visible during surface inspection. Sixteen of these were included in more than one category. Characteristic features that occur either singly or in combination with other features include middens, bedrock mortars, house pits, petroglyphs, and quarry debris. Sites also include lithic debris, stone tools, fire-affected rock, and unmodified bone and shell. Sites that include bedrock mortars without other cultural evidence are the most common. Bedrock mortars are also common at sites containing midden deposits and are present at almost all of the house pit sites. The number of bedrock mortars on individual sites range from 1 to 341, indicating the importance of this activity in the New Melones Lake planning area. Petroglyphs were found at five locations. Four open quarries and four cave quarries were recorded. In all, 23 caves show evidence of human use, but 12 of these only include evidence of fires and cannot be tied through other evidence to prehistoric times.

Sixty-six sites have been totally inundated in the permanent pool and are unavailable for further interpretation or study due to their inaccessibility. Ninety-six sites are entirely or partially within the fluctuating pool and have been subject to wave action, erosion from cyclical inundation, and

exposure. Sites in this zone are also most susceptible to damage from lakeside recreational use and vandalism. Permanent features such as bedrock mortars would be less likely to be damaged, but their information potential is limited in absence of other archaeological deposits that are easily damaged. There are 69 sites above the flood zone. These are generally more accessible than they were prior to filling the lake but have not been subject to the level of impacts of those in the other zones. However, there has not been a monitoring program and it is likely that there have been past and ongoing impacts due to erosion, construction, recreational use, and vandalism (Moratto et al. 1988).

3.2.2 Resource Management

Guidance for protection of prehistoric resources comes from the 2006 Draft Fire Management Plan and the 1996 Cave Management Plan. Please see section 3.1.3 for a discussion of current management of all cultural resources. Management actions or guidance for prehistoric resources is given in Table R-12 below.

Table R-12: Management Actions for Prehistoric Resources

Decision	Source
Reclamation will manage cultural resources in the New Melones Project Area as called for in the Memorandum of Agreement (MOA) for the New Melones Project, Reclamation Policy and Directives and Standards for Cultural Resources Management and the Inadvertent Discovery of Human Remains on Reclamation Lands, Department of the Interior Departmental Manual 411, the National Historic Preservation Act, the Archaeological Resources Protection Act, the Native American Graves Protection and Repatriation Act, 36 CFR Part 800, 36 CFR Part 60, 36 CFR Part 79, and 43 CFR Part 10.,	Reclamation Manual LND P01 Reclamation Manual LND 02-01 Reclamation Manual 07-01 DOI 411 DM 1-3 National Historic Preservation Act Archaeological Resources Protection Act Native American Graves Protection and Repatriation Act
Whenever possible, protect historic properties by avoidance through Reclamation's planning process.	Reclamation Manual LND P01
For site-specific projects, consider the effects to cultural resources through implementation of the Section 106 process of the National Historic Preservation Act (NHPA), Archeological Resources Protection Act (ARPA), and the Native American Graves Protection and Repatriation Act (NAGPRA).	National Historic Preservation Act 36 CFR Part 800 Archaeological Resources Protection Act Native American Graves Protection and Repatriation Act
For site-specific projects, consider the effects to cultural resources through implementation of the Section 106 process of the National Historic Preservation Act (NHPA), Archeological Resources Protection Act (ARPA), and the Native American Graves Protection and Repatriation Act (NAGPRA).	Archaeological Resources Protection Act Native American Graves Protection and Repatriation Act

Internal Guidance	Source
In emergency circumstances, where heavy equipment was employed without prior on-site coordination, Reclamation will conduct post-fire archaeological evaluations to assess and document equipment damage to cultural resources. Damage assessments and possible mitigation work may be required.	DFMP 2006
Reduce hazardous fuel loadings in order to reduce fire intensity levels, which will minimize negative fire effects on natural and cultural resources in the unit and will mitigate the potential for catastrophic fires. Fuel reduction projects will be subject to Section 106 compliance prior to implementation.	DFMP 2006
Minimize publicity and access to sensitive cave locations; avoid constructing trails to caves and install gates where necessary for conservation purposes.	New Melones Lake Revised Cave Management Plan. 1996
Require permits and review for all research projects within and around cave resources.	New Melones Lake Revised Cave Management Plan. 1996

3.3 Historic Resources

3.3.1 Current Conditions

Historic Setting

The most significant event in the historical period for the New Melones planning area was the Gold Rush. By the end of 1849, some 10,000 people had arrived in the Stanislaus River area. Hostilities between miners and the native groups, coupled with the effects of introduced diseases, resulted in substantial population losses. The Miwok tribe retreated to remote areas. Among the miners were large numbers of Hispanics, Chinese, and other ethnic groups. Competition resulted in open conflict, violence, and prejudicial laws.

A transportation network of roads and waterways was established very quickly for the conveyance of people and freight. The transportation system included pack trains, freight wagons, stagecoaches, and ferries.

In time, easily worked placer deposits were exhausted. Gold extraction shifted to large-scale hardrock and hydraulic mining, requiring large investments of money, labor, and equipment. Water had to be diverted and transported to placer deposits lacking it, and hydraulic power was also needed to operate ore-crushing machinery. Extensive ditch and flume systems were built at considerable expense. Concurrently, small-scale agriculture became more important, and many former miners turned to a form of subsistence agriculture, supplementing it with limited mining.

At the turn of the century, renewed interest in hardrock gold mining was stimulated by new extractive technologies that made it possible to process low-grade ore. Heavy capital investment was needed to acquire rights to existing claims and to purchase equipment for the increasingly mechanized milling procedures. The work force was paid poorly and consisted largely of

Mexican, Italian, and Slavic immigrants. Operating these new mining enterprises at a profit required efficient transportation and low-cost electricity. Work on the Sierra Railway began in 1897, spurred not only by the mineral wealth of the region, but also by its timber resources and agricultural potential. The completed railway stimulated market-oriented agriculture and timber harvesting, in addition to the renewed mining operations.

The development of hydraulic power also bolstered the economy of the region sporadically during construction episodes and provided a more efficient form of power for mining and timber milling operations. Hydroelectric power developed as an outgrowth of mining operations that were responsible for the construction of water impoundment, diversion, and conveyance systems. Electricity was generated downstream at Knights Ferry by 1896, and by 1897 a much larger generating facility had been built near Electra in Calaveras County. In the planning area, the Stanislaus Power House was constructed between 1906 and 1910, followed by the old Melones Dam and Power House in the mid 1920s.

The economic boom of the first decade of the twentieth century did not last. The economy of the middle Stanislaus River area was subject to fluctuation in demand for its raw materials resources. Thus, a pattern of development punctuated with periods of economic recession characterized the history of the area through the first half of the 20th century (DRMP 1995).

The NRHP nomination form identifies 402 historic-era sites dating from the 1840s until modern times. It does not include those Native American sites that may have an historic component. The sites represent a variety of activities and include archaeological evidence of the various ethnic groups that used and occupied the area. Historic sites were classified according to their predominant function, theme, or inferred activity. Multiple classifications were applied to some of the sites.

The functional site groupings reflect a variety of cultural remains and include data from both surface and subsurface artifact deposits. More than a third of the sites are classified as mining only. These include both large-scale industrial mines and evidence of more limited mining operations. Mining deposits include tailings, water channels, prospect pits, shafts, and mining equipment. Sites classified as residential typically include stone walls, foundations, wooden structures, fireplaces, ranch and farming structures, farm equipment, water features, and domestic trash deposits. The mining/residential group contains evidence of mining activities in combination with residential deposits. More complex are residential/mining/agriculture sites representing towns such as Bostwick Bar and Robinsons Ferry/Melones and Pine Log. The water transport and storage group consists of dams, flumes, ditches, culverts, pipes, water troughs, stock dams, and other features associated with water use and control. Transportation and communication sites include ferry crossings, bridges, roads, and railroads. Miscellaneous sites include rock walls and structures of unknown function, cemeteries, caves with historic artifacts, and sites with domed stone ovens that may be indicative of ethnic customs.

Seventy-five sites or features have been totally inundated in the permanent pool and are unavailable for further interpretation or study due to loss of physical integrity and setting. There are 226 sites that are entirely or partially within the fluctuating pool and have been subject to wave action, erosion from cyclical inundation, and exposure. Sites in this zone are also most

susceptible to damage from lakeside recreational use and vandalism. There are 147 sites above the flood zone. These are generally more accessible than they were prior to filling the lake but have not been subject to the level of impacts of those in the other zones. Historic-era resources are often more visible on the landscape than prehistoric resources and are subject to more visitation. There has not been a monitoring program, and it is likely that there have been past and ongoing impacts due to erosion, construction, recreational use, and vandalism (Moratto et al. 1988).

3.3.2 Resource Management

Management actions specific to historic resources come from Reclamation-wide management documents, while internal guidance is given in the 1995 Draft RMP and the Draft Peoria Wildlife Management Area EA. Please see section 3.1.3 for a discussion of current management for all cultural resources. Management actions or guidance for historic resources is given in Table R-13 below.

Table R-13: Management of Historic Resources

Decision	Source
Reclamation will manage cultural resources in the New Melones Project Area as called for in the Memorandum of Agreement (MOA) for the New Melones Project, Reclamation Policy and Directives and Standards for Cultural Resources Management and the Inadvertent Discovery of Human Remains on Reclamation Lands, Department of the Interior Departmental Manual 411, the National Historic Preservation Act, the Archaeological Resources Protection Act, the Native American Graves Protection and Repatriation Act, 36 CFR Part 800, 36 CFR Part 60, 36 CFR Part 79, and 43 CFR Part 10.,	Reclamation Manual LND P01 Reclamation Manual LND 02-01 Reclamation Manual 07-01 DOI 411 DM 1-3 National Historic Preservation Act Archaeological Resources Protection Act Native American Graves Protection and Repatriation Act
Whenever possible, protect historic properties by avoidance through Reclamation's planning process.	Reclamation Manual LND P01
For site-specific projects, consider the effects to cultural resources through implementation of the Section 106 process of the National Historic Preservation Act (NHPA), Archeological Resources Protection Act (ARPA), and the Native American Graves Protection and Repatriation Act (NAGPRA).	National Historic Preservation Act 36 CFR Part 800 Archaeological Resources Protection Act Native American Graves Protection and Repatriation Act
For site-specific projects, consider the effects to cultural resources through implementation of the Section 106 process of the National Historic Preservation Act (NHPA), Archeological Resources Protection Act (ARPA), and the Native American Graves Protection and Repatriation Act (NAGPRA).	Archaeological Resources Protection Act Native American Graves Protection and Repatriation Act
Whenever possible, protect historic properties by avoidance through Reclamation's planning process.	Reclamation Manual LND P01

Internal Guidance	Source
Protect historic properties through the use of protective fencing, coverings, and exclusion, as applicable.	DRMP 1995
Protect historic properties through ranger patrol.	DRMP 1995
Avoid all known historic properties. Avoidance means that no activities associated with the Proposed Action that may adversely affect historic properties will occur within site boundaries. Portions of the Proposed Action may need to be modified, redesigned, or eliminated to properly avoid historic properties. When changes in proposed activities (e.g., project modifications) are necessary to avoid historic properties, these changes would be completed before initiating any activities.	Draft Peoria EA 2006

3.4 Traditional Cultural Properties/Sacred Sites

3.4.1 Current Conditions

The New Melones Lake Area encompasses lands traditionally used by the Central Sierra Miwok, who still maintain a strong local presence in the surrounding communities. There are three Federally recognized bands of Miwok who have reservation lands in Calaveras and Tuolumne Counties. Contact with Gold Rush-era settlers was devastating to the Miwok and other native populations. In addition to exposure to introduced diseases, they were the victims of much violence and discrimination. Even as they lost most of their land base, however, they continued the traditions of cultural and sacred use of lands and natural resources.

The extent of current Native American use of the New Melones planning area for traditional cultural purposes is unknown, and no traditional cultural properties have been identified in public documents. It is assumed that cultural use does occur and that there are areas where there are resources that would be of concern to Native American groups. During archaeological studies conducted prior to construction of the dam and filling of the lake, ceremonial structures, a mourning site, petroglyphs, cemeteries, isolated burials and mortuary caves were recorded. In conjunction with archaeological mitigations, the Miwok entered into a burial agreement with the National Park Service prior to the passage of NAGPRA. Federally recognized groups are consulted on Reclamation actions. It is unknown if other Native American or ethnic groups use the New Melones Lake Area for cultural purposes.

3.4.2 Resource Management

Table R-14 lists management actions that pertain to traditional cultural sites and sacred sites. Please see section 3.1.3 for a discussion of current management of all cultural resources.

Table R-14: Management of Traditional Cultural Sites and Sacred Sites

Decision	Source
For site-specific projects, consider the effects to cultural resources through implementation of the Section 106 process of the National Historic Preservation Act (NHPA), Archeological Resources Protection Act (ARPA), and the Native American Graves Protection and Repatriation Act (NAGPRA).	National Historic Preservation Act 36 CFR Part 800 Archaeological Resources Protection Act Native American Graves Protection and Repatriation Act
Internal Guidance	**Source**
Protect sensitive cultural resources by using Minimum Impact Suppression Tactics (MIST) and by coordinating with a Cultural Resource Advisor during fire suppression activities. Such activities must be coordinated with Reclamation cultural resources staff.	DFMP 2006

4. Natural Resources

4.1 Overview

4.1.1 Introduction

Four broad categories of vegetation are found within the New Melones Lake Area: woodlands, grasslands, wetlands, and serpentine. Management actions include conserving and enhancing oak woodlands, perennial grasslands, chaparral, riparian areas, vernal pool, and serpentine-based communities. These vegetation communities, in combination with the lake itself, shape the wildlife communities. Caves and the cliffs associated with Table Mountain provide important bat habitat, the lake hosts a number of water birds, and ponded swale habitat on Table Mountain provides breeding grounds for amphibians. These limited habitats, in combination with several other habitat types involving grasslands, woodlands, and wetlands, combine to create a diverse wildlife community in the planning area. Wildlife management has been relatively limited to date.

No listed plant species have been documented in the planning area. One delisted[1] animal species, the bald eagle (*Haliaeetus leucocephalus*), occurs primarily in winter, and has been observed nesting at New Melones Lake for at least two years, in 2005 and 2006. Three nests were documented in 2006. Several other special status species have been observed in the RMP area.

The fishery in the lake is managed primarily for sport fishing. Most of the confirmed species have been introduced to the lake, including all but one of the game fish. Both warm and cold water sport fish species are present, and the lake is well regarded for excellent fishing opportunities. Kokanee salmon (*Oncorhynchus nerka*) were introduced to the lake in 1997. Salmon and steelhead that historically ran up the Stanislaus River are now blocked by dams.

Section 4.2 contains a description of fish and wildlife in the New Melones Lake Area, and is organized into the following subsections:

- **General Fish and Wildlife Species and Communities**: This subsection describes fish and wildlife found in the New Melones Lake Area that are not considered sensitive, which are not listed under the Federal Endangered Species Act, and which are not covered under any specific regulations.
- **Endangered, Threatened, Proposed, or Candidate Fauna**: This subsection describes species that appear on the Federal Endangered Species List and their likelihood of being found in the project area.

[1] As of August 9, 2007, the bald eagle is no longer protected under the Endangered Species Act.

- **Critical Habitat for Fish and Wildlife**: This subsection describes proposed or designated critical habitat for listed fish or wildlife species found in the project area.
- **All Other Special Status Fauna**: This subsection describes fish and wildlife species that are considered sensitive or which receive some level of protection under regulations other than the Federal ESA.

Section 4.3 describes vegetation in the New Melones Planning Area, and is organized into the following subsections:

- **General Plant Species and Communities**: This subsection describes plant species and communities found in the area that are not protected under any specific regulations.
- **Endangered, Threatened, Proposed, or Candidate Flora**: This subsection describes plant species that appear on the Federal Endangered Species List and their likelihood of being found in the project area.
- **Critical Habitat for Plants**: This subsection describes any proposed or designated critical habitat for listed plant species found in the project area.
- **All Other Special Status Flora**: This subsection describes plant species that are considered sensitive or which receive some level of protection under regulations other than the Federal ESA.
- **Sensitive Habitat Types**: This subsection describes habitat types that are rare, contain endemic species, are protected under specific regulations, or of which only small areas remain intact.

4.1.2 Management Authority and Relevant Regulations

Natural resources in the New Melones Lake Area are managed under a number of laws, agreements, Executive Orders, and Reclamation-specific guidance, as described below:

Fish and Wildlife

- **Fish and Wildlife Coordination Act of 1934:** This Act requires consultation with USFWS and state agencies whenever the waters or channels of a body of water are modified by a department or agency of the U.S, with a view to the conservation of wildlife resources. It provides that land, water and interests may be acquired by Federal construction agencies for wildlife conservation and development.
- **Sikes Act of 1974:** This Act directs the Secretaries of Interior and Agriculture to, in cooperation with the State agencies, develop, maintain, and coordinate programs for the conservation and rehabilitation of wildlife, fish, and game. Such conservation and rehabilitation programs shall include, but are not limited to, specific habitat improvement projects and related activities and adequate protection for species considered threatened or endangered.
- **North American Waterfowl Management Plan of 1986:** This plan was signed between Canada and USA and aims to conserve migratory birds throughout the continent. Further, it

sets population goals for waterfowl and provides guidance as to how these goals can be achieved.

- **Reclamation Manual Directive/ Standard LND 01-01: Implementation of the Cost-Sharing Authorities for Recreation and Fish and Wildlife Enhancement.**

Protected Species

- **Federal Endangered Species Act of 1973:** This Act provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they are found. It is designed to protect critically imperiled species from extinction due to "the consequences of economic growth and development untempered by adequate concern and conservation".
- **US Migratory Bird Treaty Act of 1918:** This Act establishes a Federal prohibition, unless permitted by regulations, to "pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, ... any migratory bird . . . or any part, nest, or egg of any such bird."
- **Bald Eagle Protection Act of 1940:** This law provides for the protection of the bald eagle and the golden eagle by prohibiting, except under certain specified conditions, the taking, possession and commerce of such birds.
- **Reclamation Manual Policy ENV P04: Reclamation Consultation under the Endangered Species Act of 1973, as amended**.

Vegetation and Sensitive Habitats

- **Reclamation Manual Policy LND P03:** Wetlands Mitigation and Enhancement- Establishes policy for Reclamation to use in determining appropriate mitigation for all actions affecting wetlands. Encourage activities protecting, preserving, and enhancing wetlands.
- **Federal Noxious Weed Act of 1974:** This Act provides for the control and management of nonindigenous weeds that injure or have the potential to injure the interests of agriculture and commerce, wildlife resources, or the public health. Under this Act, the Secretary of Agriculture was given the authority to designate plants as noxious weeds, and inspect, seize and destroy products, and to quarantine areas, if necessary to prevent the spread of such weeds.
- **Executive Order 13112 "Invasive Species":** This EO, signed in 1999, directs Federal agencies to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause. To do this, the EO established the National Invasive Species Council; currently there are 13 Departments and Agencies on the Council.
- **Reclamation Manual Policy LND P03: Wetlands Mitigation and Enhancement**.

4.1.3 Other Plans That Will Be Considered

Reclamation will coordinate natural resource management with regulatory agencies and neighboring land managers to the degree possible. To facilitate this process, Reclamation has invited representatives of these agencies to participate in the RMP/EIS preparation process. In

addition to coordinating directly with agencies, Reclamation will consider management actions from other plans when preparing their own management actions. Other plans to be reviewed may include:

- **Sierra Draft RMP/EIS (BLM 2006).** BLM manages approximately 34,000 acres in Calaveras County and 46,000 acres in Tuolumne County. The Sierra Draft RMP/EIS addresses Federally listed and BLM-listed species and proposes to implement conservation strategies to protect individual special status species. Reclamation coordinates informally with the BLM for a number of joint management issues, including managing special status plants. Although there is no formal management agreement in place between Reclamation and the BLM for issues that require coordination, the two agencies have agreed to better coordinate management on these issues.
- **USFWS Recovery Plans.** A recovery plan for vernal pool ecosystems outlines recovery strategies and criteria for 33 species of plants and animals that occur primarily in vernal pool ecosystems, such as succulent owl's clover (USFWS 2005). A recovery plan for gabbro soil plants of the Central Sierra Nevada foothills, which includes Layne's ragwort, was developed in 2002 (USFWS 2002a). In addition, a recovery plan for Ione plants, including Ione manzanita, is under development (USFWS 2007d). Also under development is a recovery plan for Southern Sierran Foothills plants, which will address Chinese Camp brodiaea, Hartweg's golden sunburst, and California vervain recovery (USFWS 2007c, 2007e, 2007f). Reclamation will incorporate measures from recovery plans for any other listed species that occur in the New Melones Lake Area into the RMP/EIS.

  Any management of critical habitat at New Melones Lake will be coordinated with the USFWS.
- **Stanislaus National Forest Plan Direction (USFS 2005).** This document outlines listed species management measures and an integrated weed management program for the Stanislaus National Forest. Although Reclamation does not regularly coordinate weed management with USFS, shared weed issues may be better managed in a cooperative manner.
- **California Department of Fish and Game (CDFG).** Although CDFG does not have specific management plans that Reclamation must comply with, Reclamation will coordinate with CDFG for management of fisheries, wetlands and streambed issues, and for regulation of recreational gold mining.

4.1.4 Trends

Fish and Wildlife. Kokanee salmon were introduced to the lake in 1997 and have increased substantially in numbers. Other sport fish species were introduced by CDFG in 1995, and continue to be introduced, with funding from sportfishing sponsors. Because the lake is relatively new and is managed as a sport fishery including nonnative species, the composition of the fish community and other aquatic organisms is likely to continue to evolve substantially in the next 15 to 20 years. In addition, introduced wildlife species, such as feral pigs and wild turkeys, have increased in abundance at New Melones Lake.

Future increases in recreational use could increase disturbance of wildlife and their habitats in the planning area, necessitating additional management and enforcement actions. Very limited wildlife survey data in the planning area prevent much trend analysis in wildlife populations.

Listed Fish and Wildlife. Bald eagles were delisted on August 9, 2007, but are still protected by the Bald Eagle Protection Act and the Migratory Bird Treaty Act. Numbers of bald eagles have increased substantially across the continental United States since the dam was constructed and the lake filled in the 1970s. Increased recreational use of the lake could increase conflicts between protecting the species and recreational use necessitating an increase in management and enforcement.

The number of species that occur in Calaveras and Tuolumne Counties protected under the Endangered Species Act has increased since the lake was constructed and will likely increase slightly over the next 15-20 years.

Critical Habitat. In recent years, the USFWS has been hesitant to designate additional critical habitat for any species. The exception to this is when it is pressured to do so by the public or required to by a legal challenge. Unless new populations of the species mentioned above are found within the planning area, it is doubtful that new critical habitat will be designated to include Reclamation lands.

Listed Plant Species. None of the listed species have been recorded within the planning area and, due to their distance and distance from the habitat at the lake, are not likely to spread to the project area in the near future. All of the listed species are threatened by habitat loss and invasive species.

Weeds. Many sensitive habitats are currently threatened by noxious weed invasion and unregulated human use (Reclamation 2006b). A trend toward greater regional cooperation among agencies to control weeds has been occurring on public lands in the West and may benefit sensitive habitats in the planning area.

Unregulated human use in the planning area, particularly along the PWMA access road, has facilitated the spread of invasive and noxious weeds (Reclamation 2006b). In addition, weed species such as annual grasses, yellow star thistle, barbed goat grass and medusa head may invade the habitat of serpentine endemic species (BLM 2004, Safford and Harrison 2004, Kruckeberg 1984 in Ayres 2005). The likely source for weed species to spread into the habitat of these special status species would be via the upland annual grassland (Ayres 2005).

4.2 Fish and Wildlife

4.2.1 General Fish and Wildlife Species and Communities

Current Conditions

Fish. The Stanislaus River and New Melones Lake are part of the Sacramento-San Joaquin drainage system, a large interior system draining the west slope of the Sierra Nevada Mountains, the east slope of the Coast Ranges, and the southern Cascade Mountains, Warner Mountains, and Goose Lake to the north (Reclamation 1995). The native fish of the Stanislaus River likely included spring-run chinook salmon (*Oncorhynchus tschawytscha*), rainbow/steelhead trout (*Oncorhynchus mykiss)*, Sacramento sucker (*Catostomus occidentalis)*, large minnows, such as hardhead (*Mylopharodon conocephalus)*, Sacramento squawfish (*Ptychocheilus grandis)*, hitch (*Lavinia exilicauda)*, and one or two species of sculpin (*Cottus spp.*). Some of the numerous fish species introduced by humans to the Sacramento-San Joaquin system likely also colonized the Stanislaus River prior to dam construction, and others, such as bass (*Micropterus spp.*) and catfish (*Ictalurus catus*, *I. nebulosus*, *I. punctatus*), have been introduced to New Melones Lake as sport fish. Ongoing efforts to stock various species of bass are carried out by local bass clubs and CDFG, and often occur without prior consent from Reclamation.

The Stanislaus River in the region of New Melones Lake would fit two categories in the freshwater classification scheme for California developed by Moyle and Ellison (1991): spring chinook stream and hardhead-squawfish stream. A spring chinook stream is defined as a third to fifth order stream at elevations of 1,500 to 4,500 feet, with deep canyons containing deep cold pools that can sustain spring chinook salmon through summer. A hardhead-squawfish stream is defined as a low- to mid-elevation stream with deep bedrock pools, clear, cool water (below 25 degrees Celsius), and characteristically containing hardhead, Sacramento squawfish, Sacramento sucker, and two to three other species. New Melones Lake would be classified under artificial habitats, as a cool water stratified reservoir.

The fish species known to occur or most likely to occur in the reservoir or its tributaries are listed in Table R-15.

Table R-15: Fish Species of New Melones Lake

Common Name	Scientific Name	Origin	Comments
Minnows and Carps	Cypriniformes		
Sacramento sucker	*Catostomus occidentalis*	N	C
Common carp	*Cyprinus carpio*	I	C
Hitch	*Lavinia exilicauda*	N	P
Hardhead	*Mylopharodon conocephalus*	N	P
Golden shiner	*Notemigonus crysoleucas*	I	C
Sacramento blackfish	*Orthodon microlepidotus*	N	C
Sacramento squawfish	*Ptychocheilus grandis*	N	C
Catfish	Siluriformes		
White catfish	*Ictalurus catus*	I	C
Brown bullhead	*I. nebulosus*	I	C

Common Name	Scientific Name	Origin	Comments
Channel catfish	*I. punctatus*	I	C
Trout and Salmon	Salmoniformes		
Rainbow trout	*Oncorhynchus mykiss*	N	C
Kokanee salmon	*O. nerka*	I	C
Brown trout	*Salmo truna*	I	C
Livebearers	Cyprinodontiformes		
Western mosquitofish	*Gambusia affinis*	I	P
Scorpion Fish	Scorpaeniformes		
Prickly sculpin	*Cottus asper*	N	P
Riffle sculpin	*C. gulosus*	N	P
Perch, Freshwater Sunfish	Perciformes		
Green sunfish	*Lepomis cyanellus*	I	C
Bluegill	*L. macrochirus*	I	C
Red-eye bass	*Micropterus coosae*	I	C
Spotted bass	*M. punctularus*	I	U
Largemouth bass	*M. salmoides*	I	C
White crappie	*Pomoxis annularis*	I	C
Black crappie	*P. nigromaculatus*	I	C

Notes: N = native species, I = introduced species, C = confirmed, P = probable, U = unlikely
Source: USGS 2007

Chinook salmon are restricted to the river downstream from New Melones Lake, although chinooks were successfully planted in the reservoir in 1985 by the California Department of Fish and Game (CDFG) to enhance the sport fishery. Those salmon are no longer present, and a Chinook salmon fishery in the reservoir could be maintained only by regular stocking. The present sport fishery in the lake is focused on rainbow and brown trout (*Salmo truna*), largemouth bass (*Micropterus salmoides*), other sunfishes, such as black crappie (*Pomoxis nigromaculatus*) and bluegill, and three species of catfish. Kokanee salmon, which are land-locked sockeye salmon, were introduced to the lake in 1997.

The large native minnows and suckers, and introduced carp, although edible and catchable, are generally ignored by sport fisherman. The bass, crappie, bluegill, and smaller species of catfish (white catfish and brown bullhead) are regarded as shallow-water, warm-water species, and are sought by fisherman, and caught in the warm upper layer of water on the reservoir, mainly around the shoreline. The catfish live on the soft lake bottom, whereas the sunfishes (e.g., bass and crappie) typically occupy territories offering some kind of cover (e.g., snags, logs, rocks, and emergent plants). Thus, prime areas for fisherman seeking sunfishes are shorelines with a lot of relief, such as cliffs or rock outcrops, and especially those narrow arms and coves with many drowned trees, logs, and marsh areas. Shorelines from which trees and brush have been cleared for aesthetic or other purposes are much less important to these species.

Rainbow trout, brown trout, and the large channel catfish are generally restricted to colder, deeper water during the summer when the reservoir has two distinct thermal layers of water, although large brown trout and channel catfish are often caught in shallow water near steep

banks at night, when they ascend in search of food. Rainbow trout generally feed only in the daytime and remain in the deep water. In fall, when the lake "turns over," thermal stratification disappears and both species of trout may be caught in shallower water through winter and spring. Trout are also vulnerable to shallow-water fishing in tributary arms in late summer, when they enter tributaries to spawn.

The lake's perennial tributary streams and their associated lake arms are critically important aquatic habitat. The cool, clean water, and gravel beds of these tributaries are likely to be trout spawning and rearing areas. Artificial habitat was created at the time of construction and still exists near the spillway.

Wildlife. The planning area contains a diverse range of wildlife habitats typical of the lower Sierra Nevada foothills, including open water, riparian, and oak woodland communities in the lower lake area to montane hardwood and montane hardwood-conifer woodlands in the upstream canyon area. Consequently, a diverse range of bird, mammal, reptile, amphibian, and invertebrate species are also present. Numbers and species of birds vary by season, habitat, weather, and migration patterns. Section 4.2 (vegetation) contains additional information on vegetation communities that make up wildlife habitats. The following sections describe wildlife resources by habitat type.

> *Open Water and Riparian Areas.* The open water of New Melones Lake, along with associated shoreline vegetation, provides foraging and resting habitat for a variety of waterfowl and shorebirds, such as ruddy (*Oxyura jamaicensis*), ring-necked (*Aythya collaris*), and mallard ducks (*Anas platyrhynchos*), grebes, and coots. Several fish-eating bird species, such as grebes, forage in the open water. Other bird species, such as ducks, herons, and egrets, dabble along the shoreline foraging on seeds and small fish in shallow areas. Fowl hunting is permitted in the New Melones Lake Area, and is regulated by CDFG. Please see Section 7.2 for further discussion of hunting opportunities.
>
> Trees along the shoreline provide nesting substrate for some of these species, such as osprey, adjacent to preferred foraging habitat. Riparian areas along larger tributaries to New Melones Lake provide important habitat for a diverse species assemblage. These shaded, moist, and typically densely vegetated corridors provide food, cover, water, and nesting habitat, and they serve as travel corridors for species such as black-tailed deer (*Odocoileus hemionus columbianus*). Perennial streams provide a year-long source of water for mammals, reptiles, and amphibians and a large assortment of species, including several bird species, require riparian zones for breeding and foraging needs. Deer hunting is permitted in New Melones Lake Area, and is regulated by CDFG. Most deer hunting occurs in Peoria Wildlife Management Area. Other species hunted here include California quail (*Callipepla californica*), wild turkey (*Meleagris gallopavo*), and mourning dove (*Zenaida macroura*). Please see Section 7.2 for further discussion of hunting opportunities.

Oak Woodlands. Oak woodlands are interwoven with grasslands at lower elevations and more conifer-dominated woodlands at higher elevations. In association with a grassy understory, oak woodlands cover virtually all of the gently rolling hills which surround New Melones Lake. Wildlife species within these woodlands vary depending on microhabitat features. Where oak woodland occurs adjacent to open grasslands, many species move between and use resources provided by both communities. Oak woodlands provide important food resources, such as acorns, fungi, lichens, galls, and mistletoe. They also provide shelter, shade, and nesting sites for numerous species, including mule deer (*Odocoileus hemionus californicus*) (wintering in the Railroad Flat area), black-tailed deer (wintering in the Stanislaus River Canyon and Parrotts Ferry areas), western grey squirrel (*Sciurus griseus*), gray fox (*Urocyon cinereoargenteus*), raccoon (*Procyon lotor*), feral pig (*Sus scrofa*), striped skunk (*Mephitis mephitis*), mountain lion (*Felis concolor*), bobcat (*Felis rufus*), California quail, wild turkeys, woodpeckers, and mourning doves. Tree cavities provide nesting opportunities for several species. The Peoria Wildlife Management Area contains large areas of representative high quality oak woodlands.

Grasslands. While grasslands offer relatively few roosting or nesting sites for birds, these areas provide a large number of seeds for seed-eating species, such as mice, voles, quail, meadowlarks (*Sturnella neglecta*), horned larks (*Eremophila alpestris*), and sparrows. These species, in turn, provide food for predatory species, such as black-shouldered kite (*Elanus caeruleus*), northern harrier (*Circus cyaneus*), great horned owl (*Bubo virginianus*), red-tailed hawk (*Buteo jamaicensis*), and Swainson's hawk (*Buteo swainsoni*), which nest and roost in adjacent oak woodlands, wetlands, and riparian areas.

Chaparral. Often merging with oak woodlands and grasslands, chaparral provides large amounts of dead material and leaf litter, as well as almost impenetrable cover, for reptiles, birds, and smaller mammals. Although not restricted to this habitat type, fence lizards (*Sceloporus occidentalis*), quail, wrentits (*Chamaea fasciata*), deer mice (*Peromyscus maniculatus*), feral pigs, California thrashers (*Toxostoma redivivum*), and bobcats often use chaparral communities for cover and forage.

Table Mountain. The Table Mountain area, located primarily to the west and south of the reservoir, includes unique habitat conditions and opportunities not found elsewhere in the vicinity. The relatively steep cliffs and ledges (including caves and crevices) associated with Table Mountain provide nesting and roosting substrate required by several bird and bat species, several of which are special status species described in Sections 4.1.2. On the top of Table Mountain, vernal swales are interspersed with grassland and rock. Due to their short-lived nature, vernal swales provide habitat for short-lived invertebrates and breeding habitat for amphibians, such as Pacific tree frog (*Hyla regilla*). Species that inhabit surrounding grasslands may also use the pools as a temporary water source. An extremely seasonal water regime in this habitat type provides foraging habitat for

waterfowl and other birds in the spring, as well as habitat for endemic species specifically adapted to vernal swale conditions.

Montane Hardwood. Once established, the montane hardwood community is relatively stable with a dense canopy, supporting wildlife species that rely on acorns as a primary food source or browse on hardwood foliage. The forest floor, as opposed to lower elevation oak woodlands, is covered by a persistent leaf litter that provides habitat for many species of amphibians and reptiles. Representative wildlife species found in this community include gray fox, coyote (*Canis latrans*), striped skunk, opossum (*Didelphis virginiana*), quail, wild turkey, band-tailed pigeon (*Patagioenas fasciata*), Nuttall's (*Picoides nuttallii*) and acorn woodpecker (*Melanerpes formicivorus*), scrub (*Aphelocoma californica*) and Steller's jay (*Cyanocitta stelleri*), titmouse, western gray squirrel, dusky-footed woodrat (*Neotoma fuscipes*), black-tailed deer, black bear (*Ursus americanus*) (in the Camp Nine region), mountain lion, bobcat, California mountain kingsnake (*Lampropeltis zonata*), and western rattlesnake (*Crotalus viridis*). Special status species that use this habitat type are described in Section 4.1.2.

Montane Hardwood-Conifer. Transitional between dense coniferous forests and montane hardwood, mixed chaparral, or open oak woodlands and savannahs, this typically climax community supports a variety of wildlife species. Mature trees provide nest cavities and acorns for some birds and mammals. Variability in canopy cover and understory vegetation provides structural diversity within this community. Representative wildlife species include mule deer, mountain lion, bobcat, pine siskin evening grosbeak (*Pinicola enucleator*), Steller's jay, western bluebird (*Sialia mexicana*), western tanager (*Piranga ludoviciana*), acorn woodpecker, wild turkey, western rattlesnake, and gopher snake (*Pituophis catenifer*). Special status species associated with this community are described in Section 4.1.2.

Limestone Caves/Outcrops. Some limestone caves and outcrops provide temperature, light, and moisture conditions suitable for endemic invertebrate species. Cave and cavity-dwelling mammals, such as bats, may also find suitable habitat in these features. Two genus of bats, *Myotis and Corynorhinus* (*Plecotus*), are known to use the caves for roosting and breeding. The interior of some caves provides unique habitats where over 50 species of invertebrates have developed adaptations specific to the cave conditions. Several species of special status bats and invertebrates have been found in this type of habitat in the region and are described in Section 4.1.2.

When New Melones Dam was constructed, many limestone caves were inundated, and species' habitats were lost. To mitigate these effects on the New Melones harvestman (*Banksula melones*), a type of rare arachnid, the USACE transplanted individuals of this species to other caves that would not be affected by inundation. Monitoring of these transplants has found that they have

successfully established in the caves into which they were transplanted (CDFG 2007).

Resource Management

Decision and Guidance Documents. The main decision document that provides guidance for fish and wildlife resources in the New Melones Lake planning area is the Lake Area Master Plan of 1976 (USACE 1976). Internal, non-decision guidance is provided by the 1995 Draft RMP, the Vegetation Management Plan (Reclamation 1997), the Draft Peoria Wildlife Management Area Environmental Assessment (Reclamation 2006b), and the Draft Fire Management Plan (Reclamation 2006c). Management direction relevant to fish and wildlife resources is provided in Table R-16.

Table R-16: Summary of Current Decisions and Guidance for Fish and Wildlife

Decision	Source
A wildlife management plan has been developed to enhance and protect wildlife resources and mitigate for habitat losses caused by development of the lake. This management plan includes the Peoria Wildlife Management Area which was specifically acquired for mitigation purposes.	Master Plan 1976 Final Report New Melones Lake Fish and Wildlife Resources 1991 Enhancement Plan USACE 1975
The vegetation will be retained in selected areas to provide habitat for the life cycle of warm water game fish species. The vegetation will also maintain the lake's biological productivity.	Master Plan 1976
Fish attractors, consisting of piles of logs and brush anchored to the ground provide cover for fish. Attractors were constructed in the Glory Hole Recreation Area.	Master Plan 1976
The warm-water fisheries management by agreement is determined by the Department of Fish and Game in conjunction with Reclamation.	Master Plan 1976, MOU
Continue to implement wildlife management objectives for Baseline Conservation Camp Lease by the following actions: • Devote 250 person days per year for wildlife enhancement project for Peoria Wildlife Area • Implementing an Annual Operating Plan which include erosion control projects, tree plants, gathering acorns and growing seedlings, constructing fireline to protect wildlife area, and maintaining and constructing water impoundments. • Restricting access of inmates and Forestry/Corrections staff beyond the camp-leased area • Providing at least 40 hours of dozer and operator time to assist development	Baseline Lease Agreements 1991 Final Report New Melones Fish and Wildlife Resources 1991

Decision	Source
of water impoundments. A new lease agreement is currently under development and will update and refine these current measures.	
If non-game fish become a problem after the lake is operational, consideration should be given at that time to control methods.	Master Plan 1976
Restrict all public vehicles to designated roads.	43 CFR 423, DRMP 1995
Leash or cage all domestic pets when on Reclamation lands.	43 CFR 423, DRMP 1995
Prohibit collection of wildlife except by valid permit.	43 CFR 423, DRMP 1995
Internal Guidance	**Source**
Support fish habitat restoration volunteer efforts by private groups and associations to rehabilitate and improve fisheries, fish habitat, and resources.	DRMP 1995
Prevent entrapment and death of fish within water impoundment facilities.	DRMP 1995
Prevent disruption and loss of riparian habitat, aquatic habitat, and wetlands.	DRMP 1995
• Protect and enhance wildlife movement corridors and refuge areas such as patches of dense riparian cover.	DRMP 1995
Develop and fund programs which improve habitat for wildlife within New Melones area. Such programs include, but not be limited to: 1. Development of wetlands. 2. Oak silviculture for hardwood-dependent species, 3. Maintain snags and install nest boxes for cavity nesting birds, including wood duck. 4. Artificial nest structures for osprey (*Pandion haliaetus*) to supplement nests subject to inundation. Wildlife water developments, such as quail guzzlers, similar to those constructed in the Peoria Mountain Wildlife Area.	DRMP 1995
When possible, Reclamation will follow directives to provide water releases from New Melones Reservoir to maintain downstream water quality and fisheries. A revised plan of operations is currently under development and will supersede any interim measures. Reservoir operations are beyond the scope of the management of the New Melones Field Office, CCAO or this resource management plan.	RPO
Prohibit release of any introduced species without permit from the CDFG or release of domestic animals into Reclamation lands.	DRMP 1995

Internal Guidance	Source
Throughout the New Melones Lake Management Area, allow hunting in accordance with applicable regulations except where prohibited.	Draft Peoria EA 2006
In the Peoria Wildlife Management Area continue to implement interim management plan by the following actions: • Continue to restrict public vehicle use for resource protection, • Build designated trails per trail plan. • Close and restore unauthorized trails. • Implement vegetative management plan • Environmental interpretation. • Limit camping to group permitted camping by reservation only. • Reseed/restore unauthorized roads and impacted areas. • Continue to ban shooting and target practice. Allow hunting in accordance with applicable regulations except where prohibited.	Draft Peoria EA 2006
In the Fire Management Plan continue to implement management objectives by the following actions: • Manage vegetation in areas outside of fuel treatment project perimeters to retain sufficient wildlife cover • Conserve sensitive wildlife habitats by minimizing disruption and loss. • Enhance wildlife habitat values, features, and diversity. • Restore wildlife habitat values of damaged areas through re-vegetation and restoration • Fuel breaks and firebreaks will be designed in a manner that minimizes impacts to aesthetic, scenic, and ecological resources, and consider resource objectives for vegetation management, wildlife habitat management, soil stabilization	DFMP 2006

4.2.2 Federally Endangered, Threatened, Proposed, or Candidate Species of Fauna

Current Conditions

There are eleven species or subspecies Federally listed as threatened or endangered under the US Endangered Species Act that could occur and/or be affected by projects in Calaveras or Tuolumne Counties (Table R-17) (USFWS 2006a). In addition four species are candidates for listing. No species that occur in the counties are currently proposed for listing.

Table R-17: Federal Threatened, Endangered, Proposed, and Candidate Species that Occur in or That May Be Affected by Projects in Calaveras and Tuolumne Counties

Scientific Name	Common Name	Habitat	Status E=Endangered T = Threatened C = Candidate DL = Delisted CH = Critical Habitat	Potential Occurrence in the Planning Area C = Confirmed P = Possible U = Unlikely
Invertebrates				
Branchinecta lynchi	vernal pool fairy shrimp	Vernal pools	T	U
Desmocerus californicus dimorphus	Valley elderberry longhorn beetle	Riparian habitats and associated upland habitats where elderberry grows	T	P
Lepidurus packardi	vernal pool tadpole shrimp	Vernal pools	E	U
Fish				
Oncorhynchus (=Salmo) clarki seleniris	Paiute cutthroat trout	Watershed of Silver King Creek and its isolated tributaries in Alpine County	T	U
O. mykiss	Central Valley Steelhead	Sacramento and San Joaquin Rivers and their tributaries (excluding steelhead from San Francisco and San Pablo Bays and their tributaries)	T CH	U
O. tshawytscha	winter-run chinook salmon, Sacramento River	Sacramento River and its tributaries in California	E	U
O. tshawytscha	Central Valley fall/late fall-run chinook salmon	Sacramento River and its tributaries in California	C	U
Amphibians				
Ambystoma californiense	California tiger salamander, central population	Vernal pools and permanent waters in grasslands; burrows in adjacent upland sites	T CH	U
Bufo canorus	Yosemite toad	Lakes or ponds with grassy margins, wet meadows, and quiet areas of streams above	C	U

Scientific Name	Common Name	Habitat	Status E=Endangered T = Threatened C = Candidate DL = Delisted CH = Critical Habitat	Potential Occurrence in the Planning Area C = Confirmed P = Possible U = Unlikely
		4,800 feet elevation		
Rana aurora draytonii	California red-legged frog	Aquatic habitat (for breeding); use a variety of habitat types, including riparian and upland areas	T	P
R. muscosa	mountain yellow-legged frog	Rocky and shaded streams with cool waters above 4,500 feet elevation	C	U
Reptiles				
Thamnophis gigas	giant garter snake	Inhabits natural and artificial wetlands, irrigation supply and drainage canals, freshwater marshes, sloughs, ponds, and other aquatic habitats	T	U
Birds				
Haliaeetus leucocephalus	bald eagle	Large bodies of open water, such as lakes, marshes, coasts, and rivers with accessible fish; also need tall trees for nesting and roosting	T, DL	C
Mammals				
Martes pennanti	fisher	Mature coniferous forest and dense riparian habitats at high elevations	C	U
Vulpes macrotis mutica	San Joaquin kit fox	Annual grasslands with scattered shrubs and loose soils for burrowing	E	U

Source: USFWS 2006a

The only listed or candidate species that has been confirmed in the planning area is bald eagle. Small numbers of bald eagles commonly use the lake and tributaries for foraging and roosting in the winter. Bald eagle nests exist in the region, and three nests were recorded in 2006 at New Melones Lake. Future eagle nesting at the lake is a possibility.

The valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) occurs in association with elderberry (*Sambucus spp.*) shrubs in riparian areas and oak savanna habitats. Because these habitat types and elderberry occur in the New Melones Lake area, and the species has been documented nearby, it is possible that the species occurs in the planning area.

The California red-legged frog (*Rana aurora draytonii*) inhabits a variety of aquatic habitats, usually with submerged and emergent vegetation. California red-legged frogs typically inhabit the margins of still or very slow water where bordering and aquatic vegetative cover is very dense and large populations of forage species including aquatic macroinvertebrates, rodents, and Pacific tree frogs (*Hyla (=Pseudacris)* regilla) occur (Storer 1925, Hayes and Tennant 1986, Hayes 1989, Jennings and Hayes 1994 in Barry et al 2007). Most of the low gradient riparian stream zones that may have offered this type of habitat in the New Melones Lake Area were inundated when the lake was filled, and any such habitat in the planning area is remnant and fragmented at best. A 2006-2007 survey of Sierra Nevada foothill streams in the counties north of the project area found that the nearest extant population of CRLFs was west of New Hogan Lake, approximately 25 miles northwest of the project area (Barry et. Al 2007). A valid historical record of a CRLF sighting occurred near Columbia, approximately five miles from the lake, but this record was not confirmed during the recent survey. The overall results of this survey indicated that although CRLFs can and do occupy streams at similar elevations as those in the New Melones Lake Area, populations are relatively rare and dependent on high-quality habitat.

No records exist of CRLFs in streams in the planning area, and there is a low probability that the species occurs in the planning area.

The rest of the listed species that could occur in the counties are unlikely to occur in the New Melones Lake Area due to lack of appropriate habitat or documented range, including elevation.

Resource Management

Decision and Guidance Documents. Reclamation complies with requirements of the ESA to consult with USFWS on projects that may affect listed species. The following management actions listed in Table R-18 come from guidance provided by several draft resource documents prepared by Reclamation. Other decisions for fish and wildlife could have more indirect connection to Federal threatened and endangered species.

Table R-18: Management of Listed Species

Decision	Source
Protect wildlife species and habitats legally listed or proposed for listing under the Federal and state Endangered Species Acts.	ESA
Internal Guidance	**Source**
Allow designation of climbing routes, areas, and route development only if further study shows climbing is not impacting sensitive species.	Draft Peoria EA 2006
During the habitation period, conduct monthly inventories of sensitive bat species such as the mastiff bat on the northwest slope of Table Mountain. Climbing routes in the area are monitored for effects to sensitive species.	DRMP 1995
Conduct semi-annual inventories of eagles, osprey, and other raptors.	DRMP 1995
Maintain, construct, or modify osprey platforms and other nesting structures as needed.	DRMP 1995
Conserve sensitive wildlife habitats, such as cave and riparian habitats, by minimizing disruption and loss.	DRMP 1995, Cave Plan, Final Report New Melones Fish and Wildlife Resources

4.2.3 Federally Proposed or Designated Critical Habitat for Fish and Wildlife

Current Conditions

Two threatened species have critical habitat designated within Calaveras or Tuolumne Counties, Central Valley steelhead (*Onchorhynchus mykiss*) and California tiger salamander (*Ambystoma californiense*), central population (USFWS 2006a). The planning area is not within either of these designated areas (NMFS 1999; USFWS 2006b), but there is critical habitat for both species on the Stanislaus River downstream of Tulloch Lake.

Resource Management

Decision and Guidance Documents. The only decision documents that provide guidance for fish and wildlife resources in the New Melones Lake planning area is the Lake Area Master Plan of 1976 (USACE 1976). Internal guidance for managing these resources or their habitat is found in the Vegetation Management Plan (Reclamation 1997), the Draft Peoria Wildlife Management Area Environmental Assessment (Reclamation 2006b), and the Draft Fire Management Plan (Reclamation 2006c). No management direction directly relevant to critical habitat is contained in any of these documents.

4.2.4 All Other Special Status Fauna

Current Conditions

Twenty special status species (state endangered, state threatened, California special concern, state fully protected, Federal birds of conservation concern) have been documented in the planning area. These species include foothill yellow-legged frog (*Rana boylii*), sharp-shinned hawk (*Accipiter striatus*), tri-colored blackbird (*Agelaius tricolor*), golden eagle (*Aquila chrysaetos*), Barrow's goldeneye (*Bucephala islandica*), western burrowing owl (*Athene cunicularia hypugea*), ferruginous hawk (*Buteo regalis*), northern harrier (*Circus cyaneus*), Swainson's hawk (*B. swainsoni*), yellow warbler (*Dendroica petechia brewsteri*), California horned lark (*Eremophila alpestris actia*), merlin (*Falco columbarius*), prairie falcon (*F. mexicanus*), bald eagle, northern loggerhead shrike (*Lanius ludovocianus*), osprey, double-crested cormorant (*Phalacrocorax auritus*), bank swallow (*Riparia riparia*), pallid bat (*Antrozous pallidus pacificus*), and western mastiff bat (*Eumops perotis californicus*) (Table R-19). Other species listed in Table R-19 include those that fall into a state or Federal status category that is included in the CNDDB (2006) for Calaveras or Tuolumne Counties.

Table R-19: Special Status Species* That Occur in or May Be Affected by Projects in Calaveras and Tuolumne Counties

Scientific Name	Common Name	Preferred Habitat	Status SE= CA State Endangered ST = CA State Threatened DL = Federally delisted FP = Fully protect in CA BCC=Birds of Conservation Concern CSC = CA Species of Special Concern NL = Not listed	Potential Occurrence in the Planning Area C = Confirmed P = Possible U = Unlikely
Invertebrates				
Ammonitella yatesi	Yates' snail	Inhabits limestone caves and outcroppings; favors north-facing slopes.	NL	U
Aphrastochthonius grubbsi	Grubbs' Cave pseudoscorpion	Caves	NL	P
Banksula martinorum	Martins' cave harvestman	Caves	NL	U
B. melones	New Melones harvestman	Limestone caves with temperatures between 14-16 degrees C & humidity between 82-97%. Found under rocks or wandering on floor or walls.	NL	P
B. tuolumne	Tuolumne cave harvestman	Caves	NL	P
B. tutankhamen	King Tut Cave harvestman	Caves	NL	P

Scientific Name	Common Name	Preferred Habitat	Status SE= CA State Endangered ST = CA State Threatened DL = Federally delisted FP = Fully protect in CA BCC=Birds of Conservation Concern CSC = CA Species of Special Concern NL = Not listed	Potential Occurrence in the Planning Area C = Confirmed P = Possible U = Unlikely
Larca laceyi	Lacey's Cave pseudoscorpion	Caves	NL	P
Pseudogarypus orpheus	Music Hall Cave pseudoscorpion	Caves	NL	P
Stygobromus gradyi	Grady's Cave amphipod	Mostly found in caves, but one collection from a spring.	NL	P
S. harai	Hara's Cave amphipod	Mostly found in caves and mine tunnels, though also found near a spring.	NL	U
Fish				
Lavinia symmetricus ssp. 1	San Joaquin roach	Generally found in small, warm, intermittent streams. Most abundant in midelevation streams in the Sierra foothills and in the lower reaches of some coastal streams.	CSC	U
Lavinia symmetricus ssp. 3	Red Hills roach	Small streams in areas with serpentine soil.	CSC	P
Oncorhynchus mykiss	Central Valley steelhead	Sacramento and San Joaquin Rivers and their tributaries (excluding steelhead from San Francisco and San Pablo Bays and their tributaries).	CSC	U
O. tshawytscha	Central Valley fall/late fall-run chinook salmon	Sacramento and San Joaquin River basins and their tributaries, east of Carquinez Strait.	CSC	U
Amphibians				
Bufo canorus	Yosemite toad	Ponds used as breeding areas and nearby meadows that provide food.	CSC	U
Ambystoma californiense	California tiger salamander, central population	Vernal pools and permanent waters in grasslands; burrows in adjacent upland sites.	CSC	U

Scientific Name	Common Name	Preferred Habitat	Status SE= CA State Endangered ST = CA State Threatened DL = Federally delisted FP = Fully protect in CA BCC=Birds of Conservation Concern CSC = CA Species of Special Concern NL = Not listed	Potential Occurrence in the Planning Area C = Confirmed P = Possible U = Unlikely
Rana aurora draytonii	California red-legged frog	Aquatic habitat (for breeding); use a variety of habitat types, including riparian and upland areas.	CSC	P
R. muscosa	Mountain yellow-legged frog	Rocky and shaded streams with cool waters.	CSC	P
Hydromantes platycephalus	Mount Lyell salamander	Caves, granite exposures, rock fissures, and seepages from springs and melting snow.	CSC	U
Rana boylii	Foothill yellow-legged frog	Permanent water.	CSC	C
Scaphiopus hammondii *(=Spea hammondii)*	Western spadefoot	Grasslands; nests in temporary wetlands.	CSC	U
Reptiles				
Emys (=Clemmys) marmorata pallida	Southwestern pond turtle	Permanent or near permanent water bodies with logs, vegetation, or mudflats for basking.	CSC	P
Emys (=Clemmys) marmorata marmorata	Northwestern pond turtle	Permanent or near permanent water bodies with logs, vegetation, or mudflats for basking.	CSC	P
Birds				
Accipiter cooperi	Cooper's hawk	Patchy dense tree stands/riparian areas.	CSC	P
A. gentilis	Northern goshawk	Woodlands with suitable prey source.	CSC	U
A. striatus	Sharp-shinned hawk	Woodlands with suitable prey source.	CSC	C
Agelaius tricolor	Tri-colored blackbird	Marsh vegetation or vegetation near small water bodies.	CSC	C
Aquila chrysaetos	Golden eagle	Cliffs or isolated trees.	CSC	C
Asio otus	Long-eared owl	Riparian areas.	CSC	U
Athene cunicularia hypugea	Western burrowing owl	Flat open grasslands.	CSC	C

Scientific Name	Common Name	Preferred Habitat	Status SE= CA State Endangered ST = CA State Threatened DL = Federally delisted FP = Fully protect in CA BCC=Birds of Conservation Concern CSC = CA Species of Special Concern NL = Not listed	Potential Occurrence in the Planning Area C = Confirmed P = Possible U = Unlikely
Bucephala islandica	Barrow's goldeneye	Open water bodies.	CSC	C
Buteo regalis	Ferruginous hawk	Open grasslands.	CSC	C
B. swainsoni	Swainson's hawk	Oak savannah; isolated trees or riparian areas.	ST	C
Circus cyaneus	Northern harrier	Marshlands.	CSC	C
Cypseloides niger	Black swift	Cliffs near waterfalls.	CSC	U
Empidonax traillii	Willow Flycatcher	Riparian areas; dense willows.	SE	U
Dendroica petechia brewsteri	Yellow warbler	Riparian areas; chaparral.	CSC	C
Eremophila alpestris actia	California horned lark	Open grasslands or treeless areas.	CSC	C
Falco columbarius	Merlin	Open areas by woods.	CSC	C
F. mexicanus	Prairie falcon	Mountainous grasslands, open hills, plains, cliffs adjacent to open areas; prairies.	CSC, BCC	C
F. peregrinus anatum	American peregrine falcon	Forages over a variety of habitats where aerial prey are present; nests on cliffs or ledges.	SE, FP, DL, BCC	P
Haliaeetus leucocephalus	Bald eagle	Large bodies of open water, such as lakes, marshes, coasts, and rivers. Also need tall trees for nesting and roosting.	SE	C
Icteria virens	Yellow-breasted chat	Riparian areas; willow thickets.	CSC	U
Lanius ludovocianus	Northern Loggerhead shrike	Open habitat w/scattered perches.	CSC	C
Nycticorax nycticorax	Black-crowned night heron	Dense trees and vegetated wetlands.	CSC	U
Pandion haliaeetus	Osprey	Large water bodies.	CSC	C
Phalacrocorax auritus	Double-crested cormorant	Large water bodies.	CSC	C
Progne subis	Purple martin	Wooded habitats; riparian areas.	CSC	U
Riparia riparia	Bank Swallow	Riparian areas; stream banks.	ST	C

Scientific Name	Common Name	Preferred Habitat	Status SE= CA State Endangered ST = CA State Threatened DL = Federally delisted FP = Fully protect in CA BCC=Birds of Conservation Concern CSC = CA Species of Special Concern NL = Not listed	Potential Occurrence in the Planning Area C = Confirmed P = Possible U = Unlikely
Strix nebulosa	Great gray owl	Old growth coniferous forests.	SE	U
Tyto alba	Barn owl	Open habitats, including grassland, chaparral, riparian, and wetlands.	NL	C
Mammals				
Antrozous pallidus pacificus	Pallid bat	Grasslands, shrublands, woodlands; roosts in locations protected from general disturbance.	CSC	C
Aplodontia rufa californica	Sierra Nevada mountain beaver	Dense riparian areas.	CSC	U
Corynorhinus (=Plecotus) townsendii townsendii	Townsend's western big-eared bat	Rocky areas with caves.	CSC	C
Euderma maculatum	Spotted bat	Roosts in caves, crevices and cracks, and canyons.	CSC	U
Eumops perotis californicus	Western mastiff bat	Primarily roosts in high buildings and cliff faces, also trees.	CSC	C
Gulo gulo	California wolverine	High-elevation habitats; open terrain above timberline.	ST	U
Lepus americanus tahoensis	Sierra Nevada snowshoe hare	Boreal zones, riparian communities with thickets of deciduous trees and shrubs.	CSC	U
Martes pennanti (pacifica) DPS	Pacific fisher	Mature and old growth forests; use large areas of primarily coniferous forests with fairly dense canopies and large trees, snags, and down logs.	CSC	U
Taxidea taxus	American badger	Dry, open grasslands, fields, and pastures.	CSC	U

Scientific Name	Common Name	Preferred Habitat	Status SE= CA State Endangered ST = CA State Threatened DL = Federally delisted FP = Fully protect in CA BCC=Birds of Conservation Concern CSC = CA Species of Special Concern NL = Not listed	Potential Occurrence in the Planning Area C = Confirmed P = Possible U = Unlikely
Vulpes vulpes necator	Sierra Nevada red fox	Forest openings, meadows, and barren rocky areas associated with its high elevation habitats.	ST	U

Notes: *Special Status species in this table include state-listed threatened and endangered species and California special concern species, USFWS Birds of Conservation Concern (USFWS 2002b) that appear in the California Department of Fish and Game Natural Diversity Database (CNDDB 2006) for Tuolumne or Calaveras County, or those otherwise documented in the planning area, such as in the Draft RMP (Reclamation 1995)
Sources: CNDDB 2006; USFWS 2006a; Reclamation 1995

Resource Management

Decision and Guidance Documents. Guidance for fish and wildlife resources in the New Melones Lake planning area is found in the Lake Area Master Plan of 1976 (USACE 1976). Internal guidance for managing these resources or their habitat is found in the Vegetation Management Plan (Reclamation 1997), the Draft Peoria Wildlife Management Area Environmental Assessment (Reclamation 2006b), and the Draft Fire Management Plan (Reclamation 2006c). Management actions are listed below in Table R-20.

Table R-20: Management of Special Status Species

Decision	Source
Protect wildlife species and habitats legally listed or proposed for listing under the Federal and state Endangered Species Acts.	ESA
Internal Guidance	**Source**
Allow designation of climbing routes, areas, and route development only if further study shows climbing is not impacting sensitive species.	Draft Peoria EA 2006
During the habitation period, conduct monthly inventories of sensitive bat species such as the mastiff bat on the northwest slope of Table Mountain. Climbing routes in the area are monitored for effects to sensitive species.	DRMP 1995
Conduct semi-annual inventories of eagles, osprey, and other raptors.	DRMP 1995
Maintain, construct, or modify osprey platforms and other nesting structures as needed.	DRMP 1995
Conserve sensitive wildlife habitats, such as cave and riparian habitats, by minimizing disruption and loss.	DRMP 1995, Cave Plan, Final Report New Melones Fish and Wildlife Resources

4.3 Vegetation

4.3.1 General Plant Species and Communities

Current Conditions

Five broad categories of vegetation are found within the planning area: woodlands, grasslands, wetlands, serpentine, and other. These are subdivided into more specific vegetation associations. The most common plant communities, as well as their acreage and percentage of the planning area can be found in Table R-21 (USACE1997).

Table R-21: Plant Communities Found in the Planning Area

Plant Community	Acreage	Percentage of Study Area
Woodlands		
Blue oak woodland	7,915	52 %
Blue oak-foothill pine woodland	2,082	14%
Montane hardwood woodland	592	4%
Montane hardwood-conifer woodland	257	2%
Grasslands and chaparral		
Annual grassland	1,709	11%
Chamise chaparral	1,090	7%
Wetlands		
Valley and foothill riparian woodland	249	2%
Wet meadow	91	< 1%
Vernal pool	53	< 1%
Serpentine-based communities		
Serpentine foothill pine-chaparral	669	4%
Blue oak woodland & serpentine foothill pine-chaparral	84	< 1%
Other land-use designations		
Non-classified	203	1%
Barren land	148	1%
Residential or park	18	< 1%
Total	15,168	

Source: USACE 1997

The two most common vegetative communities in the planning area are blue oak woodland and blue oak-foothill pine woodland, with annual grassland as the third most common vegetation type (USACE 1997).

Montane hardwood and montane hardwood-conifer woodlands are the dominant vegetative communities in the northeasterly portion of the planning area. Wetland vegetation is found in some locations along the edges of the lake and in moist canyons. There are many riparian communities, seeps, and wet meadows in the upper reaches of streams tributary to the lake (Reclamation 1995). Each vegetation community is described in detail below.

Blue oak woodland (Sawyer and Keeler-Wolf 1995: blue oak series). In this community, blue oaks average 47 percent of the vegetation cover and grasses comprise nearly 100 percent of the understory (Allen et al. 1989 in Reclamation 1995). Oaks usually form an open canopy on hills and ridges, usually on less steep slopes (less than 45% slope), particularly on the rolling hills surrounding the lake (Reclamation 1995). Blue oak woodlands grow on all types of soils and parent materials (Allen et al. 1989 in Reclamation 1995) and occur in the planning area between 300-1000 feet in elevation. Characteristic plant species include blue oak (*Quercus douglasii*), bromegrass (*Bromus* sp.), and wild oats (*Avena* sp.). Other species that may be found in blue oak woodland communities are ponderosa pine (*Pinus ponderosa*), California buckeye (*Aesculus californica*), manzanita (*Arctostaphylos* spp.), ceanothus (*Ceanothus* spp.), yerba santa (*Eriodictyon californicum*), foothill pine (*Pinus sabiniana*), scrub oak (*Quercus berberidifolia*), black oak (*Quercus kelloggii*), valley oak (*Quercus lobata*), interior live oak (*Quercus wislizenii*), coffeeberry (*Rhamnus californica*), redberry (*Rhamnus crocea*), holly-leaved cherry (*Prunus ilicifolia*), and needlegrass (*Stipa* sp.) (USACE 1997).

Blue oak woodland is a common community type within the Tuttletown, Dam and Spillway, Glory Hole, Greenhorn Creek, and West side management areas. It is also the most extensive plant community in the Peoria Wildlife Management Area (PWMA); it occurs along the southern two-thirds of the PWMA access road and is also present at the Peoria Basin trailhead site (Reclamation 2006b). Within the Peoria Wildlife Area management area, blue oak woodlands are particularly prevalent where steep rock outcrops and fields with boulders occur, including the talus slopes of Table Mountain and the rocky slopes overlooking the lake and the dam output. Stands of blue oak woodland also occur in a riparian corridor in the Peoria Wildlife Area management area (Evens et al. 2004).

Blue oak woodlands are common but are under considerable development and grazing pressure in the California foothills (Reclamation 1995). The main issue that may affect the future of blue oak woodlands is a lack of recruitment from new seedlings (Reclamation 1995). Throughout the state, deer herd size has shown a general increase from year to year, resulting in greater browsing pressure on oak seedlings. Several statewide surveys of oaks have shown a shortage of small trees for certain oak species. If this shortage continues, then oak stands will gradually be lost (IHRMP, in USACE 1997). Inadequate blue oak regeneration has been found in areas around the lake, and it is likely that blue oak regeneration at the lake is inadequate to sustain existing blue oak stands (Swiecki 1997, in USACE 1997). Blue oaks can also reproduce vegetatively, as stumps sprout after fire, but as fire has been increasingly controlled, even this mode of reproduction has declined (Reclamation 1995). Other activities threatening oaks in the planning

area, particularly along the PWMA access road corridor, include illegal ORV traffic, and unregulated camping, fire building, trash dumping, and woodcutting (Reclamation 2006b). Soil compaction from concentrated recreational use, such as camping, also threatens oak trees. In addition, fluctuating levels in the reservoir impact oaks, since high water levels occasionally inundate lower growing oaks and cause mortality.

The lack of blue oak regeneration is a concern in the Tuttletown, Bear Creek, Peoria Wildlife Area, Dam and Spillway, Glory Hole, and Westside management areas (Reclamation 1995). Blue oak woodland covers more than half of Reclamation's lands; as such, oak conservation and regeneration are significant issues to consider when making land management decisions (USACE 1997).

Blue oak-foothill pine woodland (Sawyer and Keeler-Wolf 1995: blue oak series). In this community, mixed stands of oak and pine occur. The open oak canopy ranges from 20-40 feet in height with occasional less open pine canopies above. Frequent fire favors blue oak over pine. This community occurs between 500-3000 feet in elevation (Verner in GWH 1988 in Reclamation 1995) on steep, rocky or exposed, largely north-facing sites along ridges or canyons with poor or shallow soils (Holland 1986 in Reclamation 1995). Dominant species in this woodland are foothill pine and blue oak, with associated species including California buckeye, coast live oak (*Quercus agrifolia*), scrub oak, valley oak, interior live oak, poison oak (*Toxicodendron diversilobum*), woodland star (*Lithophragma heterophylla*), sugar cups (*Saxifraga californica*), shooting stars (*Dodecatheon hendersonii*), Chinese houses (*Colinsia heterophylla*), and gooseberry (*Ribes quercetorum*) (USACE 1997).

Blue oak-foothill pine woodlands are found in the Westside, Bowie Flat, and Peoria Wildlife Area management areas on gentle to moderate slopes with variable parent material. In particular, this community type occurs on all of the slopes at the immediate base of Table Mountain, with foothill pine, blue oak, California buckeye, and toyon as the common species (Ayres 2005, Evens et al. 2004). Additionally, mixed oak woodlands are found in the Bear Creek planning area.

Montane hardwood woodland (Sawyer and Keeler-Wolf 1995: Interior live oak series). Vegetation in this community is broad-leaved and grows up to 50 feet tall, where dense canopy closure and abundant, persistent leaf litter preclude an herbaceous understory (Holland 1986 in Reclamation 1995). It occurs on north-facing hillsides further upstream and at higher elevations (300-3,000 feet) than the blue oak woodland, above the reservoir's historic high water mark (GWH 1988 in Reclamation 1995). Slopes where this vegetation occurs are steep to very steep. Dominant plant species include interior live oak, blue oak, buckeye, and California bay laurel (*Umbellularia californica*). Species that are less abundant in the montane hardwood woodland include canyon oak (*Quercus chrysolepis*), elderberry (*Sambucus mexicana*), western redbud (*Cercis occidentalis*), redberry (*Rhamnus crocea*), buck brush (*Ceanothus cuneatus*), and poison oak. Special status plant species that may occur in this woodland include Layne's butterweed (*Scenecio laynea*), and Red Hills soaproot (*Chlorogalum grandiflorum*) (Reclamation 1995). A more detailed discussion of special status plants can be found in Sections 4.2.2 and 4.2.4 below.

This community type can be found in the Camp Nine management area at elevations ranging from 1,500-2,000 feet. Upstream of Camp Nine, the Stanislaus River flows through very narrow, steep canyons. Montane hardwood woodland vegetation such as interior live oak, canyon oak, and black oak is found along the canyon walls. Stands of this community type occur throughout the Peoria Wildlife Area management area, usually on somewhat steep, cool slopes with moderately high rockiness. In particular, it is found on the north-facing slope of Table Mountain and on the metavolcanic slopes overlooking the lake (Evens et al. 2004). In addition, montane hardwood woodland is present along the northern third of the PWMA access road and on the slopes between the road and Table Mountain.

*Montane hardwood-conifer woodland (Sawyer and Keeler-Wolf 1995: Black oak series OR canyon live oak series).*This community occurs most commonly on north-facing slopes (between 25-66 percent grade) in canyons upstream from the lake between 1,000-2,400 feet in the planning area. It occurs mainly on soils having sandstone parent material, but metamorphic and igneous parent materials are also known to support this community (Allen et al. 1989 in Reclamation 1995). Species of this community are less tolerant of dry conditions than montane hardwood woodland, and are adapted to regular but light ground fires (Holland 1986 in Reclamation 1995). Dominant species are black oak, canyon oak, interior live oak, and coast live oak. Species that may associate with this community type include foothill pine, California buckeye, mariposa manzanita (*Arctostaphylos viscida*), deer brush (*Ceanothus intergerrimus*), toyon (*Heteromeles arbutifolia*), redbud, mountain mahogany (*Cercocarpus betuloides*), and poison oak (USACE 1997).

The composition and diversity of these woodlands has changed as a result of fire suppression throughout California (USACE 1997). In particular, densities of incense cedar (*Calocedrus decurrens*) and white fir (*Abies concolor*) have increased in previously ponderosa pine-dominated forests (Vankat 1970, in USACE 1997). Continuation of fire suppression policies may further shift the dominant species in the montane woodlands to incense cedar and white fir (USACE 1997).

Annual grassland (Sawyer and Keeler-Wolf 1995: California annual grassland series). This vegetation type is characterized by dense to sparse cover of annual grasses and some perennial bunchgrasses. Flower heads are generally 1-2 feet in height, although they may be as tall as 8 feet in a moist year. Annual grasslands occur between 800-3000 feet on relatively flat plains and rolling hills of valleys or on steep slopes of foothill regions. Perennial grasslands are often found on finely textured, moist soils. Common annual plant species include wild oats, soft chess (*Bromus mollis*), ripgut (*Bromus diandrus*), fiddleneck (*Amsinckia* sp.), longbeak stork's bill (*Erodium botrys*), and redstem stork's bill (*Erodium cicutarium*). Dominant perennial grasses may include triple-awned grass (*Aristida* spp.), wheat grass (*Agropyron* spp.), bent grass (*Agrostis* spp.), wild-rye (*Elymus triticoides*), melic grass (*Melica* spp.), needle-grass (*Stipa pulchra, S. cernua, S. lepida*), and muhly (*Muhlenbergia* spp.). Other plant species that may be associated with grasslands are foothill pine, blue oak, California poppy (*Eschscholzia californica*), and lupines (*Lupinus* spp.) (USACE 1997).

Annual grasslands are found within the Peoria Wildlife Area, Bowie Flat, and Glory Hole management areas. It is the principal plant community on the top of Table Mountain.

Throughout these areas, grasslands are often correlated with areas burned in the mid-1990's or along roads and powerlines where native shrub vegetation has been cleared. They are also found on relatively gentle volcanic and serpentine substrates, particularly the long, narrow draws on the ridgetop of Table Mountain that collect more soil than the surrounding, more exposed rocky areas of the ridgetop (Evens et al. 2004). Annual grassland also occurs in a narrow band along the PWMA access road and is a component of the understory of the oak woodlands along the PWMA access road corridor. In this area, the characteristic grasses are soft chess, ripgut brome, medusahead (*Taeniatherum caput-medusae*), and Italian ryegrass (*Lolium multiflorum*). The forb component is diverse, composed of both native and non-native species, including winecup clarkia (*Clarkia purpurea*), popcornflower (*Plagiobothrys* sp.), yellowflower tarweed (*Holocarpha virgata*), sky lupine (*Lupinus nanus*), winter vetch (*Vicia villosa*), and clover (*Trifolium* sp.) (Reclamation 2006b).

Nonnative annual grasses dominate annual grasslands and cannot be eliminated under current rangeland management practices (USACE 1997). Further, grazing livestock and wildlife depend on some introduced species for forage, such as soft chess (*Bromus hordeaceus*), wild oats (*Avena fatua*), slender wild oats (*Avena barbata*), and annual ryegrass (*Lolium multiflorum*).

Chamise chaparral (Sawyer and Keeler-Wolf 1995: Chamise series). This community type is dominated by the chamise shrub (*Adenostoma fasciculatum*), generally 3-10 feet tall. Vegetation can be very dense, reaching 50 percent cover in 10 years. This community is adapted to frequent fires by stump sprouting, and plants will reach maturity in 25-60 years in the absence of fire. Chamise chaparral occurs between 1000-2000 feet in elevation on dry, south or west facing slopes and ridges. Limestone soils in the middle basin above the reservoir but not far upstream in the lake area support chamise. Species that may co-occur with chamise in this community include several manzanitas (*Arctostaphylos glauca, A. tomentosa, A. viscida*), ceanothus species (*Ceanothus cuneatus, C. papillosus*), mountain mahogany, buckwheat (*Eriogonum fasciculatum*), yerba santa, deer brush, holly-leaf cherry, and scrub oak (USACE 1997).

Chamise chaparral occurs on various substrates throughout the Peoria Wildlife Area management area (Evens et al. 2004). This community type is intermixed with oak woodland in the PWMA access road corridor (Reclamation 2006b). In addition, several stands were located on the volcanic ridgetop of Table Mountain (Evens et al. 2004).

Similar to montane woodlands, fire suppression is likely decreasing the biodiversity in chaparral communities (Meadows 1996, in USACE 1997). If management of chaparral is unchanged, the community would continue to decrease in biodiversity, reducing its sustainability and value to wildlife (USACE 1997).

Valley and Foothill riparian woodland (Sawyer and Keeler-Wolf 1995: California sycamore series). Vegetation in this community consists of tall, dense, winter-deciduous, broadleafed, riparian forest whose canopy may be closed with a shade tolerant understory. It grows on relatively fine-textured alluvium, somewhat receded from river channels, in the flood plains of low gradient streams and rivers. Dominant species in this community include box elder (*Acer negundo californica*), sycamore (*Platanus racemosa*), Fremont cottonwood, and several willow species (*Salix gooddingii variabilis, S. laevigata, S. lasiandra*). White alder (*Alnus rhombifolia*)

and big-leaf maples (*Acer macrophylla*) are less common species (USACE 1997). California vervain (*Verbena californica*) is a special status plant species that may grow in valley and foothill woodlands, particularly near streams that run through serpentine areas, as in the northernmost reach of the north fork of the Stanislaus River (USACE 1997).

Little riparian vegetation exists along the shoreline because fluctuating water levels makes it hard for riparian vegetation to establish (USACE 1997). Riparian vegetation is more commonly found in the upstream reaches of some of the perennial drainages that flow into the reservoir, within the Stanislaus River Arm, Tuttletown, Greenhorn Creek, Carson, and Coyote Creek management areas. Other management areas that support riparian vegetation include: Camp Nine, Parrotts Ferry, Mark Twain, Bear Creek, and Dam and Spillway.

Wet meadow (Sawyer and Keeler-Wolf 1995: Sedge series). This community is comprised of generally grass (or grasslike) species and forbs ranging from 6 inches to 3 feet in height. Cover may be sparse to dense depending on the intensity of grazing, if any. In the planning area, wet meadows are found at elevations between 800-2000 feet. This natural community develops on flats or in bowl-like basins which may have rapid drainage or none at all. Soils may vary from 20 percent organic material to sandy loam with almost no organic material. In wet meadows, water is at or near the soil surface most of the growing season, rather than having standing water (Holton Associates 1987 in USACE 1997). They may dry up in the summer or stay ponded all year. Meadow-type indicator species include short-hair sedge (*Carex exserta*), shorthair (*Calamagrostis breweri*), gentian-aster (*Gentian newberryi aster* sp.), few-flowered spikerush (*Heleocharis pauciflora*), carpet clover (*Trifolium monathum*), bentgrass (*Agrostis scabra*), pull-up muhley (*Muhlenbergia filiformis*), beaked sedge (*Carex rostrata*), Nebraska sedge (*Carex nebrascensis*), Kentucky bluegrass (*Poa pratensis*), longstalk clover (*Trifolium longipes*), and tufted hairgrass (*Deschampsia caespitosa*) (Ratliff 1982 in Reclamation 1995). Special status plant species that grow in wet meadows are California vervain and Cusick's speedwell (*Veronica cusickii*).

Field observations at the Angels Creek arm, conducted by the USACE in 1997, found no typical wet meadow community or topography, despite previous documentation of wet meadows in this planning area (Reclamation 1995). However, the bunch grass (reed canarygrass) found on a hillside at Angels Creek grows in moist areas, indicating a seep-like condition which is considered a wetland community (USACE 1997). Such a unique upland site with more available water than the surrounding upland areas increases wildlife habitat values and the overall biodiversity at the lake.

Vernal pool (Sawyer and Keeler-Wolf 1995: Northern basalt flow vernal pools). Vernal pools are an ephemeral wetland vegetative community with predominantly low-growing, ephemeral herbs. Germination and early growth occur in winter and early spring, often while plants are submerged, and pools dry out by summer. Flowering is often in bands at the margins of the pools. This community type occurs in shallow depressions, ranging from a few meters to tens of meters in diameter. Characteristic plant species found in vernal pools are Pacific foxtail (*Alopecurus saccatus*), common blennosperma (*Blennosperma nanum*), Cleveland's shooting star (*Dodecatheon clevelandii* var. *patulum*), toothed downingia (*Downingia cuspidata*), spiny-sepaled button-celery (*Eryngium spinosepalum*), hedge-hyssop (*Gratiola ebracteata*), Fremont's

goldfields (*Lasthenia fremontii*), Douglas' meadowfoam (*Limnanthus douglasii* var. *rosea*), white-headed navarretia (*Navarretia leucocephala* ssp. *leucocephala*), adobe popcorn flower (*Plagiobothrys acanthocarpus*), miniature popcorn flower (*Plagiobothrys stipitatus* var. *micranthus*), Sacramento pogogyne (*Pogogyne zizyphoroides*), Delta woolly marbles (*Psilocarphus brivissimus* var. *multiflorus*), greater duckmeat (*Spirodela polyrrhiza*), and Wildenov's clover (*Trifolium willdenovii*) (Stone et al. 1993 in Reclamation 1995). Special status plant species that may grow in the planning area vernal pools include Sacramento orcutt grass (*Orcuttia viscida*), slender orcutt grass (*Orcuttia tenuis*), Bogg's Lake hedge-hyssop (*Gratiola hetersepala*), and legenere (*Legenere limosa*).

Within the planning area, intermittently-formed pools appear after rainfall or snowmelt on top of Table Mountain between 1,200 feet in elevation in the south and 2,600 feet in the north. Although these pools share some of the characteristics of some vernal pools in the Central Valley, they are not true vernal pools in that they do not have a clay underlayer that prevents percolation. Instead, they form in swales in the rocky surface of Table Mountain. The soil is poorly drained and the parent material on Table Mountain is a Pliocene lava flow (andesite). Intermittent pools occur on Table Mountain in seasonally wet to saturated rocky meadows that have slight soil development (Evens et al. 2004). They are interspersed within the annual grassland (Reclamation 2006b). Intermittent pools at Table Mountain do not support the range of species found in vernal pools in the Central Valley, possibly due to differences in substrate (primarily shallow, rocky substrate versus clay substrate in valley vernal pools). Although vernal pool habitats are very delicate and easily disturbed in general, this is even more pronounced on Table Mountain where soils are poor, shallow, and loose.

To date, vernal pools have resisted invasion by exotic plant species, probably due to their ephemeral nature (USACE 1997). However, the scientific community is concerned that exotic plants may colonize vernal pool communities, possibly displacing the highly specialized native vernal pool species (USACE 1997). Despite these concerns, there is no supporting evidence that this change is occurring in vernal swales found on Table Mountain (USACE 1997).

Serpentine foothill pine-chaparral (Sawyer and Keeler-Wolf 1995: Foothill pine series). This natural community consists of an open woodland with some chaparral on "Redhills" soils derived from serpentine. Serpentine soils are high in magnesium, iron, silicates, and asbestos and low in nitrogen and phosphorus (USACE 1997). Serpentine soils in the planning area are of the Delpiedra and Henneke Series. The Redhills form a rounded, rolling terrain, and occur at elevations between 800-2000 feet. Characteristic plant species on Delpiedra soils are foothill pine and buckbrush, while on Henneke soils manzanitas (*Arctostaphylos manzanita* and *A. viscida*), chamise, and toyon are prevalent. A number of special status plant species prefer serpentine foothill-pine chaparral habitat, including Rawhide hill onion (*Allium tuolumnense*), Chinese camp brodiaeae (*Brodieaea pallida*), Red Hills soaproot, Congdon's lomatium (*Lomatium congdonii*), shaggyhair lupine (*Lupinus spectabilis*), veiny monardella (*Monardella douglasii* ssp. *venose*), Cleveland's butterweed (*Packera clevelandii*), Layne's butterweed, and California vervain.

Stands of this community type have been found in the southwest and lower central portions of the Peoria Wildlife Area planning area on serpentine parent material (Evens et al. 2004).

Serpentine soils provide habitat for only very specialized plant species that are highly adapted to the relatively inhospitable soil type. There is no evidence of ecological stages in serpentine vegetation (Kruckeberg 1984, in USACE 1997). Therefore, unless severely disturbed by human-induced or natural causes, the composition and structure of serpentine-based vegetative communities at the lake will likely change little over time.

Blue oak woodland and serpentine foothill pine-chaparral (Sawyer and Keeler-Wolf 1995: foothill pine series). This type of chaparral is similar to serpentine foothill pine-chaparral, with blue oaks interspersed throughout. It occurs in upland on gentle to steep slopes. Soils are shallow, infertile, moderately to excessively drained. The soil surface may be covered with stones and rock outcrops. Foothill pine emerges from a shrub canopy composed of blue oak, black oak, California buckeye, coast live oak, Coulter pine, interior live oak, valley oak, and western juniper. Vegetation height is less than 70 feet and occurs at elevations between 1,000 and 7,000 feet.

Serpentine chaparral plant communities can be found in the Stanislaus River Canyon, Peoria Wildlife Area and Dam and Spillway planning areas (Reclamation 1995).

Resource Management

Decision and Guidance Documents. Documents that provide internal guidance regarding vegetation resources in the New Melones Lake area include the Peoria Wildlife Management Environmental Assessment (Reclamation 2006b), Vegetation Management Plan (VMP) (USACE 1997), vegetation classification and mapping of Peoria Wildlife Area report (Evens et al. 2004), and Reclamation survey for special status plant species on Peoria Wildlife Area serpentine (Ayres 2005). Management actions for vegetation are listed below in Table R-22.

Table R-22: Management of Vegetation

Internal Guidance	Source
Manage oak woodlands for long-term viability or sustainability so oak stands replace themselves.	VMP 1997
Rejuvenate oak woodlands affected by brush encroachment through the use of prescribed burns where possible.	DFMP 2006, VMP 1997
Increase biodiversity in montane woodland communities.	VMP 1997
Prevent severe invasions of exotics (such as yellow starthistle). Invasive exotics should comprise less than 5 percent of the total plant cover.	VMP 1997
Protect and promote native perennial grasslands.	VMP 1997
Manage grasslands for sustainability.	VMP 1997
Minimize disturbance to grassland communities.	VMP 1997
Enhance the biodiversity, and a variable structure and age composition in chaparral communities.	VMP 1997

Internal Guidance	Source
Prohibit clearing or conversion of chaparral to any other plant community; only type conversion by natural processes is recommended.	VMP 1997
Rejuvenate brushlands through the use of prescribed burns where possible.	VMP 1997
Protect the riparian zone and riparian vegetation from degradation, including prevention of soil compaction, head-cutting, and undercutting.	VMP 1997
Restore or enhance lost or degraded riparian communities where sustainable.	VMP 1997
Promote streambank and reservoir shoreline stability to encourage establishment of riparian vegetation.	VMP 1997
Protect any seep vegetation and wet meadow communities from loss or degradation.	VMP 1997
Protect vernal pool communities from loss or degradation, including the invasion of exotic plants.	VMP 1997
Preserve serpentine-based communities and special status plants such Chlorogalum grandiflora, and Allium tuolumnense.	VMP 1997
Prescribed burning may be used to achieve the following vegetation management goals, objectives, and benefits: • Enhance wildlife habitat by increasing access and diversity Rejuvenate chaparral for wildlife forage	DFMP 2006, VMP 1997
Use of herbicides as a vegetation treatment option will be carefully examined, for potential impacts to water sources, wildlife habitat, and cultural/traditional uses.	DFMP 2006, VMP 1997
Protect serpentine-based communities from erosion and high-impact uses that would degrade habitat values (including building roads).	VMP 1997

4.3.2 Federally Endangered, Threatened, Proposed or Candidate Species of Plants

Current Conditions

The project area encompasses portions of Tuolumne and Calaveras counties. Within these counties, the six Federally-listed plant species that may occur include Ione manzanita (*Arctostaphylos myrtifolia*), Chinese Camp brodiaea (*Brodiaea pallida*), succulent owl's clover (*Castilleja campestris* ssp. *succulenta*), Hartweg's golden sunburst (*Pseudobahia bahifolia*), Layne's ragwort (*Packera layneae*), and California vervain (*Verbena californica*) (US Fish and Wildlife Service [USFWS] 2007a). These are presented in Table R-23 and described in detail below.

Table R-23: Federally Endangered, Threatened, Proposed or Candidate Plant Species That Occur in or May Be Affected by Projects in Calaveras and Tuolumne Counties

Scientific Name	Common Name	Preferred Habitat	Status E= Endangered T = Threatened	Potential Occurrence in the Planning Area C = Confirmed P = Possible U = Unlikely
Arctostaphylos myrtifolia	Ione manzanita	Chaparral or oak-dominated, open-canopied woodlands.	T	U
Brodiaea pallida	Chinese Camp brodiaea	Valley and foothill grassland, vernal swales, or serpentine clay.	T	U
Castilleja campestris ssp. *succulenta*	Succulent owl's clover	Margins of vernal pools, swales, and some seasonal wetlands, often on acidic soils.	T	U
Pseudobahia bahifolia	Hartweg's golden sunburst	Valley and foothill grasslands at the margins of blue oak woodland.	E	
Packera layneae	Layne's ragwort	Dry serpentine or gabbroic soils in chaparral and foothill pine/oak woodlands.	T	P
Verbena californica	California vervain	Cismontane woodland, valley and foothill grassland, and foothill pine-blue oak woodland.	T	

Source: CNPS 2007; CDFG 2007; Reclamation 2006b; USFWS 2007b; Ayres 2005

Ione manzanita. This species is Federally-listed as threatened and is found in Calaveras and Amador counties (CNPS 2007). It is an evergreen shrub, with white flowers that bloom November through February (CNPS 2007).

This species may grow in chaparral or oak-dominated, open-canopied woodlands lower in elevation than coniferous forests (though conifers may be present). It grows on Ione clay with chaparral associates (CDFG 2007). Common associates include Mariposa manzanita (*Arctostaphylos mariposa*), Indian manzanita (*A. mewukka*), chamise (*Adenostoma fasciculatum*), Bisbee peak rush-rose (*Helianthemum suffrutescens*), goldwire (*Hypericum concinnum*), and Sonoma sage (*Salvia sonomensis*) (CDFG 2007). It often makes up 50 to 80 percent cover and can be found at elevations of 250 to 1,800 feet (CDFG 2007). The California Natural Diversity Database (CNDDB) does not have a recorded occurrence of this species within the project area (CDFG 2007), and the plant has not been documented in surveys of the area (Evens et al. 2004).

Chinese Camp brodiaea. This species is Federally-listed as threatened and is found in the Central Sierra Nevada foothills, near Chinese Camp, in Tuolumne County (Reclamation 2006b).

It is a perennial, bulbiferous herb, with pale purple flowers that bloom May through June (CNPS 2007). The species hybridizes with *B. elegans* ssp. *elegans* (CNPS 2007).

Chinese Camp brodiaea is known from only two occurrences near Chinese Camp. Part of one occurrence was destroyed by construction in 1982; the remainder is threatened by residential development (CNPS 2007). The species may grow in valley and foothill grassland, vernal swales, or on serpentine clay, and has been recorded in rocky, vernally wet streams on serpentine at 1,250 feet elevation (Reclamation 1995; Reclamation 2006b). The CNDDB does not have a recorded occurrence of this species within the project area; further, surveys conducted on Peoria Wildlife Area serpentine did not record the species either (CDFG 2007; Reclamation 2006b).

Succulent owl's clover. This species is Federally-listed as threatened and is listed as endangered under the California ESA (CDFG 2007). It is found only along the rolling lower foothills and valleys along the eastern San Joaquin Valley in the Southern Sierra Foothills Vernal Pool Region, which includes the planning area (USFWS 2006b). It is an annual partially parasitic herb, with bright yellow to white flowers that bloom in April and May (USFWS 2007b; CNPS 2007).

The species grows on the margins of vernal pools, swales, and some seasonal wetlands, often on acidic soils (USFWS 2007b). It is never dominant and it is found in only a few of the pools in an area (USFWS 2007b). It grows in between 80 and 2,450 feet elevation and is not recorded within the project area (CDFG 2007).

Hartweg's golden sunburst. This species is Federally- and state-listed as endangered (CDFG 2007). It is a slender, woolly annual and is only found in the Central Valley (USFWS 2007c). The species has yellow flowers that bloom in March and April (USFWS 2007c).

The species occurs in valley and foothill grasslands at the margins of blue oak woodland, primarily on shallow, well-drained, fine-textured soils (USFWS 2007c; CDFG 2007). They can also be found along shady creeks, near vernal pools, or around the margins of volcanic boulders (CDFG 2007). They are often found on the northern slopes of knolls 1-6 feet high and 10-100 feet in diameter at the base. These are interspersed with basins that may pond water in the rainy season (USFWS 2007c; CDFG 2007). The species has not been recorded within the project area (CDFG 2007).

Layne's ragwort. This species is Federally-listed as threatened and is listed as rare in California (CDFG 2007). It is a perennial herb, with yellow flowers (CNPS 2007). Layne's ragwort has 8-13 ray flowers and less than 40 disk flowers that bloom April through July (Reclamation 1995; Reclamation 2006b).

The species can be found on dry serpentine or gabbroic soils in chaparral and foothill pine/oak woodlands (Ayres 2005). It has been found in the Red Hills area, approximately 10 miles south of the lake area (BLM 2006), and a possible population was recorded in a drying stream margin in Peoria basin (Ayres 2005). The CNDDB does not have a recorded occurrence of this species within the project area (CDFG 2007).

California vervain. This species is Federally-listed as threatened and is found in Tuolumne County (CNPS 2007). It is a perennial or biennial herb, with violet to purple flowers that bloom May through September (CNPS 2007; Reclamation 1995).

The species is known from ten occurrences in the Red Hills, and is threatened by grazing, mining, development, recreation, and vehicles (CNPS 2007). It is protected in part at Red Hills ACEC on BLM land (CNPS 2007). California vervain may grow in cismontane woodland, valley and foothill grassland, and foothill pine-blue oak woodland (CDFG 2007; Ayres 2005). It has been found on mesic sites on Delpiedra serpentine, usually seeps, creeks, swales, or in wet meadows at 830 to 1,300 feet (CDFG 2007; BLM 2006; Ayres 2005). It is often associated with Cleveland's butterweed (Ayres 2005). The CNDDB does not have a recorded occurrence of this species within the project area; further, surveys conducted on Peoria Wildlife Area serpentine did not record the species (CDFG 2007; Reclamation 2006b). California vervain has been recorded at Yosemite Junction, approximately seven miles from the lake area (Reclamation 1995).

Resource Management

Listed plant species are managed in accordance with ESA requirements. Management actions used by Reclamation to accomplish this are generally not directed at preservation of a particular species, but instead towards preserving habitats where listed or sensitive species may be found. Other decisions for general vegetation and for maintenance of listed fish and wildlife habitat could have more indirect connection to Federal threatened and endangered species. Management actions for listed plant species are listed below in Table R-24.

Table R-24: Management of Listed Plant Species

Internal Guidance	Source
Protect serpentine-based communities from erosion and high-impact uses that would degrade habitat values (including building roads).	VMP 1997
Preserve serpentine-based communities and special status plants such *Chlorogalum grandiflora*, and *Allium tuolumnense*.	VMP 1997
Restore or enhance lost or degraded riparian communities where sustainable.	VMP 1997
Promote streambank and reservoir shoreline stability to encourage establishment of riparian vegetation.	VMP 1997
Protect any seep vegetation and wet meadow communities from loss or degradation.	VMP 1997
Protect vernal pool communities from loss or degradation, including the invasion of exotic plants.	VMP 1997
Protect the riparian zone and riparian vegetation from degradation, including prevention of soil compaction, head-cutting, and undercutting.	VMP 1997

4.3.3 Federally Proposed or Designated Critical Habitat for Plants

Current Conditions

Within Tuolumne county, there is designated critical habitat for four special status plant species: succulent owl's clover (*Castilleja campestris* ssp. *succulenta*), Hoover's spurge (*Chamaesyce hooveri*), Colusa grass (*Neostapfia colusana*), and Greene's tuctoria (*Tuctoria greenei*) (USFWS 2007a).

For all species, critical habitat was designated in Federal Register (FR) 68:46683, on August 6, 2003. The designation was revised in FR 70:46923 on August 11, 2005 and species by unit designations were published in FR 71:7117 on February 10, 2006 (USFWS 2007b). The critical habitat in Tuolumne County is present as a small band on the western edge of the county, outside of the planning area.

Succulent owl's clover. Succulent owl's clover occurs on the margins of vernal pools, swales and some seasonal wetlands, often on acidic soils. It is never dominant and it is found in only a few of the pools in an area (USFWS 2007b). It has not been recorded within the planning area.

Hoover's spurge. Hoover's spurge grows in relatively large, deep vernal pools and tends to occur where competition from other species has been reduced by prolonged seasonal inundation or other factors (USFWS 2007g). It has not been recorded within the planning area and is unlikely to occur, given the size and depth of the vernal pools on Table Mountain.

Colusa grass. Colusa grass occurs in large or deep vernal pools with substrates of high mud content (USFWS 2007h). It has not been recorded within the planning area and is unlikely to occur, given the size and substrate of the vernal pools on Table Mountain.

Greene's tuctoria. Green's tuctoria grows in the dried bottom of vernal pools (CDFG 2007). It has not been recorded within the planning area or within either Calaveras or Tuolumne County.

Resource Management

Since critical habitat does not exist at New Melones, it is not a managed resource.

4.3.4 Other Special Status Plant Species

Current Conditions

A list of other special status plant species that may occur within the planning area was compiled from USFWS, CNDDB, and CNPS lists for Tuolumne and Calaveras counties (USFWS 2007a; CDFG 2007; CNPS 2007).

The Peoria Wildlife Area has documented occurrences of special status plant species. Other planning areas may have suitable habitat for several special status species, but have not been surveyed. In addition, special status plants have been documented on lands near to, but not within, the planning area. These species may occur within the planning area, particularly in areas that have not been surveyed.

Table Mountain. On Table Mountain, *Allium jepsonii* occurs near Rawhide Flat (Reclamation 1995). In addition, *Eryngium spinosepalum* is found in vernal pools of the Sierra Nevada foothills and may occur on Table Mountain (Reclamation 1995).

Peoria Wildlife Management Area. In the Peoria Wildlife Area management area, several occurrences of *Lupinus spectabilis*, and one occurrence of *Packera clevelandii* and *Monardella douglasii* ssp. *venosa* have been documented (Ayres 2005; Vasquez 2007). Populations of *Allium tuolumnense* and *Allium jepsonii* have been identified in the lower Peoria basin (Ayres 2005, Vasquez 2007), and this species also occurs on Rawhide Hill and in the BLM Red Hills Management Area adjacent to the planning area (Reclamation 1995). *Chlorogalum grandiflorum* is endemic only to the Red Hills of Tuolumne County, as well as El Dorado and Placer Counties, south of the planning area (Reclamation 1995). Potential populations of this species have been found in the Peoria basin (Ayres 2005; Evens et al. 2004) and the species was found adjacent to the PWMA access road (Reclamation 2006b). *Lomatium congdonii* can be found in the Red Hills Management Area (Reclamation 1995) and has been recorded throughout the Peoria basin (Ayres 2005, Evens et al. 2004).

Resource Management

Reclamation undertakes the following actions to manage sensitive plant species, as shown below in Table R-25.

Table R-25: Management of Sensitive Plant Species

Internal Guidance	Source
Protect serpentine-based communities from erosion and high-impact uses that would degrade habitat values (including building roads).	VMP 1997
Preserve serpentine-based communities and special status plants such *Chlorogalum grandiflora*, and *Allium tuolumnense*.	VMP 1997
Restore or enhance lost or degraded riparian communities where sustainable.	VMP 1997
Promote streambank and reservoir shoreline stability to encourage establishment of riparian vegetation.	VMP 1997
Protect any seep vegetation and wet meadow communities from loss or degradation.	VMP 1997
Protect vernal pool communities from loss or degradation, including the invasion of exotic plants.	VMP 1997
Protect the riparian zone and riparian vegetation from degradation, including prevention of soil compaction, head-cutting, and undercutting.	VMP 1997

4.3.5 Sensitive Habitat Types

Current Conditions

Several sensitive habitat types occur in the planning area. These are serpentine communities and wetlands such as vernal pools and valley and foothill riparian woodlands.

Serpentine communities. Serpentine is considered an ultramafic rock formation, meaning that it is high in ferromagnesian silicate minerals (Kruckberg 1984, US Fish and Wildlife Service 2002 in Ayres 2005). These minerals produce soils with several unique characteristics, including 1) low calcium levels, 2) high magnesium levels 3) high concentrations of heavy metals (especially iron, chromium, and nickel), and 4) levels of nitrogen, potassium, and phosphorus below that needed to grow agricultural crops (Kruckeberg 1984 in Ayres 2005). These chemical characteristics usually co-occur with a distinctive vegetation pattern of sparse amounts of plant biomass, even in areas known for their productivity, such as coastal forests. The sparse vegetation in these environments contributes to low turnover of nitrogen and phosphorus, high temperatures, high water stress, and low soil stability (Kruckberg 1984, US Fish and Wildlife Service 2002 in Ayres 2005). The coexistence and interdependence of these biochemical factors in the same environment has been dubbed the "serpentine effect" (Kruckeberg 1984 in Ayres 2005). However, this sparse vegetation is also characterized by a high degree of endemic plant species (found only in California or only on west coast serpentine). In California, endemic serpentine species make up 10% (215 taxa) of the total endemic flora of California (2125 taxa) while serpentine soils only makeup 0.6% of the area of California (Raven and Axelrod 1978, Kruckeberg 1984 in Ayres 2005). In addition, many of these endemic species are endangered, threatened, or rare. Of the 6 Federally listed plant species potentially occurring in the planning area, 3 are found on serpentine soils (Section 4.2.2).

This community's small land area and high proportion of endemic plant species makes it particularly important to the preservation of biodiversity. Further, the barren appearance of serpentine communities falsely indicates that they lack ecological value; as a result, they are threatened by disturbance and degradation (e.g. grazing or mining) (USACE 1997). Serpentine communities are found within the West Side, Peoria Wildlife Area, and Dam and Spillway planning units.

Wetlands. In California's Mediterranean climate with hot, dry summers, wetlands have always been scarce and limited in size. These small, isolated areas are very productive because associated plants have longer growing periods. Further, wetlands are valuable to animals because they provide abundant food and water. Since the distribution of wetlands has generally declined, associated plants and animals have, in some cases, become rare and endangered (Reclamation 1995). Further, wetlands play a critical role in the watershed as the most productive of all ecosystems, as habitat for many sensitive plant and wildlife species, as flood control areas, as natural water quality purification systems, and as buffers against erosion (Reclamation 1995). Wetlands are found in all planning areas.

Vernal pools. The ponded water in vernal pools prevents annual grasses and other introduced forbs from growing in these depressions. Instead, the depressions are host to a number of native plants that may be limited in distribution to the pools of one particular area. Many vernal pool

plants are known for their medicinal value (BLM 2006). Frequently, the endemic plant species are considered endangered or threatened due to lack of habitat caused by development and urban encroachment (Reclamation 1995). Due to their ephemeral nature, vernal pools provide habitat for short-lived invertebrates and breeding habitat for amphibians, such as the pacific tree frog and western toad. Species that inhabit surrounding grasslands may also use the pools as a temporary water source. An extremely seasonal water regime provides foraging habitat for waterfowl and a number of bird species during spring migrations, as well as habitat for endemic species specifically adapted to vernal pool edaphic conditions (Reclamation 1995). More than 70 rare species are restricted to vernal pools, with new species discovered on a regular basis (BLM 2006).

Only about 10-25% of the vernal pools which originally occurred in California remain. The two biggest threats to vernal pools right now are development and agricultural conversion (USFWS 2007i). Vernal pools have not been documented in the New Melones Lake Area, although vernal swales may be found on the top of Table Mountain.

Valley and foothill riparian woodland. Riparian areas along larger streams tributary to New Melones Lake provide important habitat for a diverse array of species, including nesting habitat for a great variety of birds. More than 225 species of mammals, birds, reptiles, and amphibians rely on riparian areas. These shaded, moist, and typically well-vegetated corridors serve as escape cover and facilitate movement and dispersal of several species, such as black-tailed deer. Perennial stream courses also provide a year-long source of water for mammals, reptiles, and amphibians; a large range of species require riparian zones for breeding and foraging needs (Reclamation 1995).

Riparian systems are vulnerable and are easily altered by human activities. Even a slight change in the vegetation can modify the flow of the system, the temperature and pH of the water, the amount of oxygen in the water, and even the substrate. All of these changes have a subsequent impact on the species that depend on the systems. River corridors and riparian areas with natural flows and qualities are becoming a diminished resource throughout all of California (BLM 2006). Riparian woodlands can be found in the Camp Nine, Stanislaus River Canyon, Parrotts Ferry, Mark Twain, Tuttletown, French Flat, Bear Creek, Dam and Spillway, Greenhorn Creek, Carson, and Coyote Creek Planning Areas.

Resource Management

Reclamation undertakes the following actions listed in Table R-26 below, to manage sensitive habitat types.

Table R-26: Management of Sensitive Habitat Types

Internal Guidance	Source
Protect serpentine-based communities from erosion and high-impact uses that would degrade habitat values (including building roads).	VMP 1997
Preserve serpentine-based communities and special status plants such *Chlorogalum grandiflora*, and *Allium tuolumnense*.	VMP 1997

Internal Guidance	Source
Restore or enhance lost or degraded riparian communities where sustainable.	VMP 1997
Promote streambank and reservoir shoreline stability to encourage establishment of riparian vegetation.	VMP 1997
Protect any seep vegetation and wet meadow communities from loss or degradation.	VMP 1997
Protect vernal pool communities from loss or degradation, including the invasion of exotic plants.	VMP 1997
Protect the riparian zone and riparian vegetation from degradation, including prevention of soil compaction, head-cutting, and undercutting.	VMP 1997

4.3.6 Invasive Species

Current Conditions

Non-native species have been documented within the Peoria Wildlife Area planning area, and it is likely that non-native species may be found to some extent throughout the planning area. Surveys are needed to document non-native species in other planning areas, however.

In the Peoria Wildlife Management Area, 74 non-native species have been recorded (Evens et al. 2004). Of these, 11 are on the California lnvasive Plant Council's (Cal-IPC) list of species of ecological concern (Evens et al. 2004). Table R-27 shows rankings and characteristics of these species, along with several of the other most abundant non-native species within the Peoria Wildlife Area planning area.

Table R-27: Common and Invasive Non-Native Species within Peoria Wildlife Area Planning Area

Species Name	Cal-IPC Ranking	Characteristics
Ailanthus altissima	List A-2[1]	Tree; found to occur only in two locations within the Peoria Wildlife Area: along the banks of the Stanislaus river, south of the New Melones Dam and in a drainage in the central portion of the Peoria Wildlife study area.
Avena barbata	Annual Grass List[2]	Annual grass; very widespread
Avena fatua	Annual Grass List[2]	Annual grass; very widespread
Brachypodium distachyon	Annual Grass List[2]	Annual grass.
Bromus diandrus	Annual Grass List[2]	Annual grass; very widespread, but monotypic stands uncommon.
Bromus hordeaceus	None	Annual grass; very widespread, but primarily in converted annual grasslands.
Bromus madritensis ssp. *rubens*	List A-2[1]	Annual grass.
Bromus tectorum	List A-1[3]	Annual grass.
Carduus pycnocephalus	List B[4]	Biennial forb; the most abundant of the exotic thistles

Species Name	Cal-IPC Ranking	Characteristics
		within the study area. It was found in 30 associations, ranging in cover from <1% to as high as 40%.
Centaurea melitensis	List B[4]	Annual forb; the second most abundant of the exotic thistle species. It occurs in 24 associations ranging in cover from <1% to as high as 20%.
Centaurea solstitialis	List A-2[1]	Annual forb; found in 11 associations, ranging in cover from as low as <1% to as high as 34%. There were only two stands where its cover was greater than 5%.
Cirsium vulgare	List B[4]	Biennial forb; widespread, can be very problematic regionally.
Cynodon dactylon	List A-2[1]	Perennial grass; common landscape weed.
Ficus carica	List A-2[1]	Tree; found in three associations with cover of less than 1%; it occurs in drainages with intermittently flowing streams and the species was found as scattered individuals rather than dense thickets.
Gastridium ventricosum	None	Annual grass.
Hypochaeris glabra	None	Annual forb; widespread; impacts appear to be minor; some local variability.
Lolium multiflorum	Annual Grass List[2]	Annual grass; widely used for post-fire erosion control; widespread; impacts can vary with region.
Phalaris aquatica	List B[4]	Perennial grass; limited distribution; can be highly invasive locally.
Polypogon monspeliensis	None	Perennial grass; widespread; impacts appear to be minor.
Taeniatherum caput-medusae	List A-1[3]	Annual grass; found in seven associations ranging in cover from less than 1% to 50%. Though widespread across the study area, the highest concentrations occur primarily along the roads and powerline corridors on Peoria Ridge.
Torilis arvensis	None	Annual forb; expanding range; appear to have moderate ecological impacts.
Trifolium hirtum	None	Annual forb; widely planted in California; impacts relatively minor in most areas.
Vicia villosa	None	Annual forb; widespread but impacts minor in wildlands.
Vulpia myuros	None	Annual grass; widespread; rarely forms monotypic stands, but locally problematic

[1] Notes: Cal-IPC - Ranking: List A-2 - Most invasive wildland pest plants, regional
[2]Cal-IPC - Annual Grass List - Grasses that are abundant and widespread in California that pose significant threats to wildlands but for which there is currently no treatment information
[3]Cal-IPC - Ranking: List A-1 - Most invasive wildland pest plants, widespread
[4]Cal-IPC - Ranking: List B - Wildland Pest Plants of Lesser Invasiveness; invasive pest plants that spread less rapidly and cause a lesser degree of habitat disruption; may be widespread or regional.
Sources: Evens et al. 2004; Cal-IPC 2006

Resource Management

Reclamation undertakes the following actions listed in Table R-28 to manage invasive weeds.

Table R-28: Management of Invasive Species

Internal Guidance	Source
Monitoring for pest species, detection of new types of pests, and increased severity of invasive species is coordinated with Calaveras Agricultural Department.	Integrated Pest Management Plan
Evaluate all pest problems and previous pest control measures.	DRMP 1995
When pesticide application is necessary for invasive species control, targeted chemicals will be used when available such as Transline for thistle control.	Integrated Pest Management Plan
Use Integrated Pest Management strategies that determine the acceptable level of pest populations rather than attempting to eradicate populations; apply pesticides only when necessary, considering alternative measures first or as a means of complementing pesticide application.	DRMP 1995

5. Indian Trust Assets and Tribal Lands

5.1 Overview

5.1.1 Introduction

Indian Trust Assets (ITAs) are legal interests in property held in trust by the United States for Indian Tribes or individuals. The Secretary of the Interior, acting as the trustee, holds many assets in trust. Examples of objects that may be trust assets are lands, minerals, hunting and fishing rights, and water rights. While most ITAs are on-reservations, they may also be found off-reservations. The United States has an Indian trust responsibility to protect and maintain rights reserved by or granted to Indian Tribes or Indian individuals by treaties, statutes, and executive orders. These are sometimes further interpreted through court decisions and regulations.

Tribal lands are lands that have been deeded to tribes or upon which tribes have a historical claim. There are no such lands in the New Melones Lake Area.

5.1.2 Specific Mandates and Authority

Management of ITAs is based on the following regulations, Executive Orders, and agreements:

- **Executive Order 13751, Consultation and Coordination with Indian Tribal Governments, 63 F.R. 96.** Executive Order 13175 was issued to establish regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications. When implementing such policies, agencies shall consult with tribal officials as to the need for Federal standards and any alternatives that limits their scope or otherwise preserves the prerogatives and authority of Indian tribes.
- **Government-to-Government Relations with Native American Tribal Governments (Memorandum signed by President Clinton; April 29, 1994).** Federal Register, Vol. 59, No. 85. The Memorandum directs Federal agencies to consult, to the greatest extent practicable and to the extent permitted by law, with tribal governments prior to taking actions that affect Federally recognized tribal governments. Federal agencies must assess the impact of Federal government plans, projects, programs, and activities on tribal trust resources and assure that tribal government rights and concerns are considered during such development.
- **Secretarial Order No. 3175 – Departmental Responsibilities for Indian Trust Resources.** Secretarial Order 3175 requires Interior bureaus and offices to consult

with the recognized tribal government with jurisdiction over the trust property that a proposal may affect.

- **Secretarial Order No. 3206 – American Indian Tribal Rights, Federal -Tribal Trust Responsibilities, and the Endangered Species Act.** This order clarifies the responsibilities of the Interior agencies with regard to the effects of ESA compliance actions affect, or may affect, Indian lands, tribal trust resources, or the exercise of American Indian tribal rights. Interior agencies will carry out their responsibilities in a manner that harmonizes the Federal trust responsibility to tribes, tribal sovereignty, and statutory missions of the departments, and that strives to ensure that Indian tribes do not bear a disproportionate burden for the conservation of listed species.
- **Secretarial Order No. 3215 – Principles for the Discharge of the Secretary's Trust Responsibility.** This order provides guidance to the employees of the Department of the Interior who are responsible for carrying out the Secretary's trust responsibility as it pertains to ITAs.
- **Departmental Manual 512 DM Chapter 2 – Departmental Responsibilities for Indian Trust Resources.** This chapter of the manual establishes the policies, responsibilities, and procedures for operating on a government-to-government basis with Federally recognized Indian tribes for the identification, conservation, and protection of American Indian and Alaska Native trust resources to ensure the fulfillment of the Federal Indian Trust Responsibility.
- **Indian Policy of the Bureau of Reclamation.** Affirms that Reclamation will comply with both the letter and the spirit of Federal laws and policies relating to Indians; acknowledge and affirm the special relationship between the United States and Federally recognized Indian Tribes; and actively seek partnerships with Indian Tribes to ensure that tribes have the opportunity to participate fully in the Reclamation program as they develop and manage their water and related resources.
- **Bureau of Reclamation Protocol Guidelines: Consulting with Indian Tribal Governments.** The document provides guidance on the protocol for conducting consultation and maintaining government to government relationships with Indian tribes.
- **Bureau of Reclamation Indian Trust Asset Policy and Guidance –** 1993 Memorandum outlining National Environmental Policy Act Handbook Procedures to Implement Indian Trust Asset Policy.

5.1.3 Other Plans That Will Be Considered

Other Federal agencies that manage land in the vicinity of New Melones have similar responsibilities to identify and avoid impacting ITAs. The BLM manages 34,000 acres in Calaveras County and almost 46,000 acres in Tuolumne County, and the Stanislaus National Forest also manages land in Calaveras and Tuolumne Counties. Findings regarding ITAs in their management documents are as follows:

- ***BLM*** The recently released Folsom BLM-Sierra Draft RMP/EIS (BLM 2006) indicates that no ITA issues were identified.
- ***USFS The*** Stanislaus National Forest Land and Resource Management Plan (USDA 1991) and Forest Plan Direction Update (USDA 2005) do not identify any ITA issues.

5.1.4 Trends

There are no trends affecting ITAs that are known to specifically involve the New Melones Lake Area. Section 5.2 contains a discussion of trends relating to ITAs that may become relevant to management of lands within the New Melones Lake Area over the life of the RMP/EIS.

5.2 Current Conditions

There are no known ITAs or treaty rights exercised by tribes in the New Melones Lake Area and no reservation or trust lands border on New Melones. Although some treaties were made with California tribes in the Sierra Nevada in the 19th century, these were not ratified by the U.S. Congress and left native groups largely landless and without rights

There are three tribal groups recognized by the Federal government in Calaveras and Tuolumne counties. The California Valley Miwok Tribe (formerly Sheep Ranch Rancheria) has a very small reservation (0.92 acres) in Calaveras County. This land was purchased in 1916 as a reservation for landless Native Americans. There are two reservations in Tuolumne County. The Tuolumne Band of Miwok Indians governs the 356 acre Tuolumne Rancheria. The original 177 acres of land for the reservation was purchased in 1910 and additional lands were subsequently acquired. The Chicken Ranch Rancheria occupies 2.85 acres near Jamestown. Federal recognition of the Chicken Ranch Rancheria was restored as the result of a lawsuit in 1985. Both the Tuolumne Rancheria and the Chicken Ranch Rancheria have gaming operations.

There are no trends affecting ITAs that are known to specifically involve the New Melones Lake Area. Overall trends in California and elsewhere include the assertion of tribal sovereignty, aboriginal rights and Federal recognition. Many tribes were parties to unratified treaties or dispute the legal basis for the past loss of land and resources. Tribal groups such as the Calaveras County Band of Miwok Indians are seeking Federal recognition. As these tribes become recognized, they will be sovereign nations under Federal law. There have been attempts by other tribes to assert the Winters Doctrine named for a Supreme Court decision in 1908 that held that when a reservation is established under treaty, it is implicit that sufficient water is reserved for the tribe's present and future use. Tribes in many places have also sought and succeeded in acquiring Federal land in trust through transfer, exchange or legislation. Tribes are also purchasing land for economic development. Tuolumne Rancheria has expressed an interest in the acquisition of BLM-managed lands that adjoin the reservation (BLM

2006). As individuals and tribes continue to pursue and assert rights, local communities and state and Federal land and resource management practices will be affected.

5.2.1 Resource Management

As a Federal land management agency, Reclamation has the responsibility to identify and consider potential impacts of its plans, projects, programs, or activities on Indian Trust resources. When planning any proposed project or action, Reclamation must ensure that all anticipated effects on Indian trust resources are addressed in the planning, decision, and operational documents prepared for each project. Reclamation also has the responsibility to ensure that meaningful consultation and coordination concerning trust assets and treaty rights with Federally-recognized tribes is conducted on a government-to-government basis. In accordance with Reclamation Indian Trust Asset Policy and Guidance, consultation addressing trust assets is initiated with appropriate Indian tribal groups and the Bureau of Indian Affairs (BIA) and the presence or absence of Indian Trust resources are addressed explicitly in all NEPA documents.

Decision and Guidance Documents

Consideration of the potential presence ITAs were not discussed in the 1976 Master Plan (USACE 1976). Because no resources are believed to be present, there are no decisions guiding their management other than consultation incorporated into the planning process. The 1995 internal Draft RMP (Reclamation 1995) includes a brief description of current management practices for ITAs. Table R-29 summarizes current management actions for ITAs.

Table R-29: Current Decisions and Guidance for Indian Trust Assets

Guidance	Source
Early in the planning process, consultation should be initiated with appropriate Indian Tribes/Nations and the Bureau of Indian Affairs (BIA) concerning potential ITAs. The initial contact with the Indian Tribes/Nations in the immediate area should be government-to-government in a face-to-face meeting, if possible. Coordination should also occur with Reclamation's Native American Affairs Office and the BIA to identify other Indian Tribes/Nations outside the immediate area that may be interested or affected.	DRMP 1995

6. Land Management, Ownership, and Planning Influences

6.1 Overview

6.1.1 Introduction

Management of lands within the New Melones Lake Area is influenced by conditions both within and outside of the planning area. Likewise, both the quality of visitors experiences and visitors safety result from such features as commercial services, facilities, transportation features, fire management, and trespassing. This section describes land use practices that affect the way lands in the New Melones Lake Area are managed and preserved, and infrastructure features that are managed by either Reclamation or a separate entity and which directly or indirectly affect planning at New Melones.

This section is organized into the following subsections:

- **General Land Use**. This subsection describes general land use on Reclamation lands and influences on land use in the New Melones Lake Area.
- **Commercial Services-Concessions**. This subsection describes concessionaire agreements and other services that are offered by operators in the absence of agreements.
- **Facilities.** This subsection describes non-commercial facilities offered by Reclamation. These facilities include developed recreation areas, the headquarters and visitor's center, and undeveloped recreation areas.
- **Fire Management:** This subsection describes Reclamation's approach to management of wildfire in the New Melones Lake Area.
- **Transportation:** This subsection describes local transportation routes and uses, as well as the roads and access available in the New Melones Lake Area.
- **Trespassing:** This subsection describes issues associated with trespassing both onto and from Reclamation lands.
- **Utilities.** This subsection includes discussion of management of water, electricity, sewage, and communications infrastructures in the New Melones Lake Area.
- **Range Management.** The range management subsection describes grazing allotments, use of prescribed fire, and invasive weed species control within the planning area.

- **Public Health and Safety.** This subsection describes management and availability of features designed to protect and enhance public health and safety, and issues that influence public health and safety.

6.1.2 Specific Mandates and Authority

Land Use

- Mining Law of 1872, as amended;
- The Recreation and Public Purposes Act of 1926, as amended;
- Land and Water Conservation Fund Act of 1965, as amended;
- Federal Land Transaction Facilitation Act of 2000;
- Federal Cave Resources Protection Act of 1988, as amended;
- The Declaration of Taking Act of 1931;
- The Condemnation Act of 1888, as amended;
- The Engle Act of 1958;
- The Federal Power Act of 1920, as amended;
- The Act of May 24, 1928, as amended;
- The Carey Act of 1894, as amended;
- Unlawful Enclosures Act of 1885;
- The Act of December 22, 1928, as amended;
- Sections 2275 and 2276 of the Revised Statutes, as amended;
- 43 CFR 402: Sale of Lands in Federal Reclamation Projects;
- 43 CFR 420: Off-road vehicle use;
- 43 CFR 429: Procedure to process and recover the value of rights-of-use and administrative costs incurred in permitting such use;
- Reclamation Manual Directive/ Standard LND 03-01: Land Withdrawals, Withdrawal Reviews and Withdrawal Revocations;
- Reclamation Manual Directive/ Standard LND 05-01: Real Estate Appraisal;
- Reclamation Manual Directive/ Standard LND 06-01: Land Acquisition;
- Reclamation Manual Directive/ Standard LND 08-01: Land Use Authorizations;
- Reclamation Manual Directive/ Standard LND 08-02: Land Disposal;
- Reclamation Manual Directive/ Standard LND 09-01: Real Property Management Records;
- Reclamation Manual Directive/ Standard LND 09-02: Payments in Lieu of Taxes (PILT); and

- Reclamation Manual Directive/ Standard LND 011-01: Disposal of Bridges and Crossings on Reclamation Land.

Concessions

- Reclamation Manual Policy LND P02: Concessions Management;
- Reclamation Manual Directive/ Standard LND 04-01: Concessions Management by Reclamation; and
- Reclamation Manual Directive/ Standard LND 04-02: Concessions Management by Non-Federal Partners.

Facilities Management

- Reclamation Manual Policy LND P05: Environmental Management Systems-
- Reclamation Manual Policy FAC P01: Emergency Management-
- Reclamation Manual Policy ENV P01: Hazardous Waste and Materials Management-
- Reclamation Manual Directive and Standard ENV 02-03: Pollution Prevention-Hazardous and Solid Waste Minimization-
- Reclamation Manual Directive and Standard FAC 01-01: Emergency Management-

Fire Management

- Protection Act of September 20, 1922 (42 Stat. 857; USC 594);
- Reciprocal Fire Protection Act of May 27, 1955 (69 Stat. 66; 42 USC 1856, 1856a);
- Economy Act of June 30, 1932 (47 Stat. 417; 31 USC 686);
- Disaster Relief Act, Section 417 (Public Law 93-288);
- Annual Appropriations Acts for the Department of the Interior;
- The Multiple-Use Sustained-Yield Act of June 12, 1960;
- The Forest and Rangeland Renewable Resources Planning Act of August 17, 1974; and
- Healthy Forests Restoration Act, December 2003 (PL 108-148).
- United States Department of the Interior Manual (910 DM 1.3)
- 1995 Federal Wildland Fire Management Policy
- 2001 Updated Federal Wildland Fire Management Policy (1995 Federal Wildland Fire Management Policy Update)
- 1998 Departmental Manual 620 Chapter 1, Wildland Fire Management General Policy and Procedures

Transportation

- Federal-Aid Highway Act of 1958, 1962, 1966, 1968, and 1973, as amended;
- Highway Safety Act of 1966, as amended;
- Architectural Barriers Act of 1968, as amended; and
- Surface Transportation Act of 1978 and 1982, as amended.

- **Executive Order 11644 (37 Federal Register [FR] 2877), as amended by EO 11989 (42 FR 26959h),** requires Federal agencies to adopt rules regulating OHV use on public lands and to adopt a designation process and designation criteria to protect land resources and promote public safety. The stated underlying authority for issuance of the orders is NEPA (42 USC 4321).

Range Management

- The Taylor Grazing Act of 1934 (43 USC 315) states "[T]he Secretary of the Interior is authorized, in his discretion, by order to establish grazing districts or additions thereto…of vacant inappropriate and unreserved lands from any part of the public domain…which in his opinion are chiefly valuable for grazing and raising forage crops[.]…" The act also provides for the classification of lands for particular uses;
- The Public Rangelands Improvement Act of 1978 (43 USC 1901) provides that the public rangelands be managed so that they become as productive as feasible in accordance with management objectives and the land use planning process established pursuant to 43 USC 1712;
- 43 CFR 4100 (Grazing Regulations); and,
- General Allotment Act of 1887, as amended.

Public Safety

- The Federal Water Pollution Control Act of 1977 (33 USC 1323) requires Federal land managers to comply with all Federal, state, and local requirements, administrative authority, process, and sanctions regarding the control and abatement of water pollution in the same manner and to the same extent as any nongovernmental entity;
- The CWA of 1972, as amended (33 USC 1251) establishes objectives to restore and maintain the chemical, physical, and biological integrity of the nation's water;
- The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended (42 USC 9601 et seq.), also known as Superfund, is primarily intended to address risks posed to human health and welfare or the environment resulting from releases or potential releases of hazardous substances. Other key acts related to CERCLA include the following:
- Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) amends CERCLA/SARA (42 USC I 100 1) and adds sections 120 and 121 dealing with Federal facilities;

- Community Environmental Response Facilitation Act of 1992 (CERFA) amends CERCLA Section 120(h) (42 USC 9620);
- Pollution Prevention Act of 1990 (42 USC 13 101);
- Resource Conservation and Recovery Act of 1976, as amended (42 USC 6901 et seq.);
- Toxic Substances Control Act of 1976 (15 USC 2601 et seq.);
- Federal Insecticide, Fungicide, and Rodenticide Act of 1975 (7 USC 136 et seq.);
- Clean Air Act of 1970, as amended (42 USC 7401 et seq.);
- Safe Drinking Water Act of 1974, as amended (42 USC 300 et seq.);
- Transportation Safety Act of 1974; Hazardous Materials Transportation Act amendments of 1976 and 1990 (49 USC 1801 et seq.);
- Atomic Energy Act of 1954 (42 USC 200 If);
- Uranium Mill Tailings Radiation Control Act of 1978, as amended (42 USC 2014 et seq.);
- Nuclear Waste Policy Act of 1982 (42 USC 10101 et seq.); and
- Executive Order 11514, Protection and Enhancement of Environmental Quality, March 5, 1970.
- National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR Part 300);
- Occupational Safety and Health Act of 1970, as amended;
- Lead-based Paint Poisoning Prevention Act, as amended;
- Reclamation Manual Policy ENV P01: Hazardous Waste and Materials Management;
- Reclamation Manual Policy ENV P02: Pest Management;
- Reclamation Manual Policy SAF P01: Occupational Safety and Health Program Policy;
- Reclamation Manual Directive/Standard ENV 01-01: Pest Management/Resource Protection (Integrated Pest Management) Program;
- Reclamation Manual Directive/Standard ENV 01-02: Public Notification of Aerial Pesticide Applications on Lands Managed Directly by Reclamation;
- Reclamation Manual Directive/Standard ENV 02-03: Pollution Prevention-Hazardous and Solid Waste Minimization;
- Reclamation Manual Directive/Standard FAC 01-01; and
- Reclamation Manual Directive/Standard FAC 01-03: Hazardous Materials.

6.1.3 Other Plans That May Be Considered

Management at New Melones is coordinated with adjacent Federal land owners to ensure consistency with their management plans. The BLM is revising the RMP for lands that they manage in proximity to New Melones Lake, and an opportunity exists to coordinate with the BLM during this process on common management issues such as traffic and trespassing.

Reclamation also participates in the Fire Safety Council, which is a multiagency entity that wrote the Highway 108 Fire Safety Master Plan. The following plans provide guidance for management of lands adjacent to New Melones Lake:

- Folsom BLM-Sierra Draft RMP (August 2006);
- Tuolumne County General Plan (December 1996);
- Stanislaus National Forest Land and Resource Management Plan (October 1991) and Forest Plan Direction Update (July 2005).
- There is an interagency working group composed of Reclamation and other city, county, state, and Federal agencies (Brooks 2007b). The purpose of the working group is to keep local city and county leaders informed about activities at New Melones Lake.

- The fire and fuels management program is consistent with the fire planning effort at national and state levels, including the National Fire Plan. Planning documents address cooperating agencies and existing planning efforts in the region and nationally.
- **Calaveras County General Plan** The Calaveras County General Plan recommends the following: identify a system of classification and new road placement consistent with the existing road system to reflect areas suitable for land development; secure funding for state highway improvements needed to keep pace with increased development to provide for the public safety; and provide and maintain a state highway system with capacity to serve projected state highway traffic at acceptable levels of service.
- **Calaveras County Regional Transportation Plan (RTP).** The Calaveras County 2005 RTP provides a coordinated 20-year vision of the regionally significant transportation improvements and policies needed to efficiently move goods and people in the Calaveras County region. The purpose of the RTP is to provide a vision of transportation services and facilities for 10- and 20-year planning horizons.
- **Tuolumne County Regional Transportation Plan (1996).** Prior to 1996, Tuolumne County's RTP served as the Circulation Element of the County's General Plan, and was designed to be the base document for all transportation planning in the County. In 1996, the General Plan contained a separate Circulation Element that more closely correlated land development with the circulation system.
- **Draft Tuolumne Community Plan (2006).** The Tuolumne Community Plan, which will become a part of the Tuolumne County General Plan, has been proposed to address planning issues specific to the development of the Tuolumne community. Goals include promoting safe, efficient transportation systems consistent with community character.
- **City of Angels Camp General Plan (Draft 2006).** The City of Angels Camp Circulation Element of the General Plan provides goals, policies, and implementation programs aimed at balancing the city's already overburdened transportation system with the need to accommodate an increasing population of residents and visitors while maintaining the rural character of Angels Camp.
- **Angels Camp Bypass** Angels Camp is located at the junction of SR 4, which provides access to the High Sierras to the north, and SR 49, which provides access to New Melones

in the south. Due to the increasing interregional traffic on both routes, nearly every intersection along the route experiences congestion and delay. The problem is exacerbated during periods of peak recreational traffic. The Angels Camp Bypass, which is approximately 2.4 miles long, is expected to divert the majority of interregional traffic on SR 4 from Murphy's Grade Road and downtown Angels Camp. Construction of this project is scheduled to begin in early 2007.

- **North/South Connector Project.** State Route 49 provides access to New Melones for visitors coming from the south or the east. The current traffic pattern on SR 49 through downtown Sonora currently carries up to 20,200 vehicles per day during peak months, causing delays through the downtown area. The North/South Connector Project is a feasibility study of several potential alignments to meet the local and regional transportation needs for improved circulation, access, and safety. The final report will be presented to the Tuolumne County Board of Supervisors in the spring of 2007. The Board will then consider whether to continue into the preliminary design and environmental documentation phase of the project.
- **Fire Protection Services.** New Melones is part of the California Mutual Aid System, a system where all local and state agencies have an agreement to assist in emergency situations. Reclamation is the only Federal agency that is not a member of the National Fire Plan agreement, which is the Federal equivalent of the California Mutual Aid System. Reclamation is not a member because it is not considered a "land manager." It would be beneficial for Reclamation to join the National Fire Plan agreement in order to qualify for Federal support.
- **Medical Services.** New Melones Lake is part of the California Mutual Aid System.

6.1.4 Trends

General Land Use. Residential development may continue to encroach on Reclamation lands, causing increased trespass and land management issues. Rural residential development could continue to expand around surrounding existing clusters, such as areas along Jackass Hill and French Flat Road.

Commercial Services and Concessions. Increased recreational demand is resulting in pressure to allow more houseboats and develop more marina facilities like the one at Glory Hole.

Fire Management. Wildland fires in the western US have become increasingly dangerous due to the proximity of structures and a build-up of fuels (invasive weeds or vegetation that would have burned more often, but due to successful fire suppression continue to accumulate). In response to the risks wildland fires pose to firefighters and the impacts on communities, the National Fire Plan (NFP) was initiated by a partnership of government land management agencies in 2000. This coordinated effort to protect communities and natural resources from increasingly severe wildfire resulted in the 10-Year Comprehensive Strategy and specific goals and objectives to guide fire management planning (Reclamation 2006b). In addition to the guidance provided by the NFP, the fire regime condition class (FRCC) method was established. FRCC is an interagency, standardized tool for determining the degree of departure from reference condition vegetation, fuels, and disturbance regimes. Assessing FRCC can help guide management

objectives and set priorities for treatments. Reference conditions are vegetation and disturbance attributes that can sustain current native ecological systems and natural fire regimes. Reference conditions are determined by experts through professional judgment, published literature, and historical information using standardized computer models. This quantitative method links landscape-scale assessments and stand-level classifications (Hann et al. 2003). The objective of this method is to target those areas exhibiting the greatest departure from reference condition as priority for fuel treatment.

Development around New Melones Lake and surrounding areas continues to increase as demand for recreation and housing in the area increases. Greater numbers of people, homes, and structures within the WUI, coupled with accumulating hazardous fuels due to fire suppression and the lack of fuel management measures, creates a dangerous situation. Many of Reclamation's lands are highly fragmented and not easily accessible, further increasing the fire hazard. The three FMUs (Reclamation 2006b) in the decision area list WUI as a major decision factor. As the WUI continues to grow, it will become more of a driving factor on fire suppression and fuels management in the future.

Smoke management and associated air quality concerns may increase as resource users and residences increase in and around the project area, potentially limiting prescribed burning activity.

Noxious and invasive weed species will continue to colonize disturbed sites. This trend will likely increase if fire severity and size increases and if fuels continue to build up as a result of fire suppression.

Transportation. Projected increases in population will result in increased demand on roads within the project area; use of the New Melones Lake Area is expected to increase 20 percent over the planning period. The increase in travel demand on the roadway system will require increased cost for roadway maintenance and rehabilitation. Since the existing roadways and facilities were not designed to carry large amounts of traffic, roadway improvements will be required to keep up with this growth.

Trespassing. Reclamation will continue to enforce policies related to trespass onto or the unauthorized use of the land and water under Reclamation's jurisdiction. Trespass and unauthorized use, when permitted to continue, deprive the public of its rightful use and enjoyment of the public lands. It is the general policy of Reclamation to facilitate and ensure the proper use of land resources. Benefits to the public as a whole resulting from non-exclusive uses of Federal lands is the primary management emphasis.

Utilities. Recent and planned upgrades to the utilities infrastructure have improved the provision and reliability of water services (Brooks 2007a). The need to provide additional wastewater and solid waste services continues to change as recreation demands change. Changes in recreation demands include new types of recreation in new areas and fluctuating user levels.

Range Management. Reclamation previously leased 4,394 acres of land in two areas (Bear Creek and Glory Hole Recreation Areas) for livestock grazing. Subject to a grazing suitability analysis, grazing may continue, but its purpose and intensity would be directed by water quality

concerns, by vegetation management goals (usually related to fuel loading), and by policies and actions identified in current Reclamation guidance.

Public Health and Safety. Boating activities, safety concerns, law enforcement incidents, and accidents are increasing at New Melones Lake Area (Laird 2007) and will probably continue to increase as population and visitor rates increase. Speeding and drinking alcohol while boating are the primary safety problems that are increasing on the lake. In the campgrounds, speeding and improper boat hauling methods are of concern.

Safety concerns related to abandoned mines, illegal drugs, and illegal dumping are increasing because the number of visitors to New Melones Lake Area is increasing.

Requests for law enforcement services are increasing because the number of visitors to New Melones Lake Area is increasing (Laird 2007). It is likely that many law infraction incidents at New Melones Lake Area will continue to go unchallenged. Requests for fire protection services remain constant, but requests for medical services are increasing because the number of visitors to New Melones is increasing (Laird 2007).

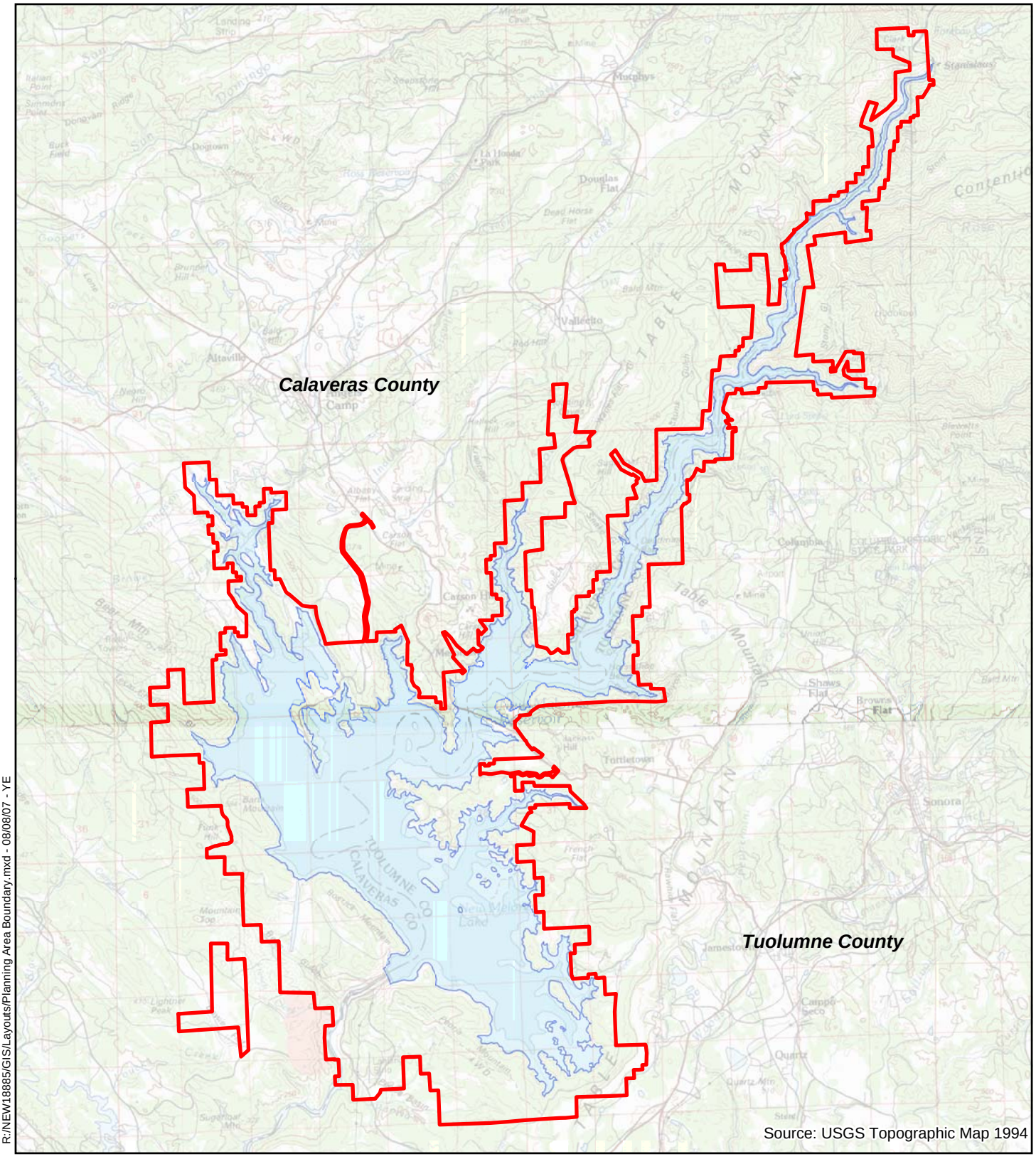
6.2 General Land Use

6.2.1 Current Conditions

Approximately 13,864 acres of land above the gross pool reservoir level (1,088 feet above mean sea level) surrounding New Melones Lake Area are administered by Reclamation (Figure R-8). Approximately 5,405 acres of the surrounding lands are designated for recreation and wildlife purposes, and 4,065 acres are held as operations or open space lands.

Included in the 5,405 acres of land designated for recreation and wildlife purposes, 2,520 acres encompass the Peoria Wildlife Management Area (PWMA). The PWMA was acquired by USACE to partially mitigate for loss of approximately 10,000 acres of fish and wildlife habitat associated with expanding the reservoir.

Within Reclamation resource area lands, easements are managed by both Reclamation and adjacent land owners. Pacific Gas and Electric (PG&E) maintains a transmission line easement along the southwestern edge of the Reclamation boundary at the base of Table Mountain. Also, PG&E operates and has an easement for an afterbay dam that is related to the Stanislaus Powerhouse near Clarks Flat. Also in the Camp Nine management area, Northern California Power Agency and Calaveras County Water District jointly operate the Collierville Powerhouse which is also partially located on Reclamation lands. Tuolumne County Irrigation District (TCID) also maintains a permanent easement for a water intake structure, pumping plant, switchyard, 100,000-gallon storage tank, 16-inch pipeline, and roadway access to the pump station. The TCID easement is off of Old Abbeys Ferry Road approximately two miles north of Parrotts Ferry Bridge.



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Planning Area Boundary

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New Melones Lake Area, California
Central California Area Office

Figure R-8

Adjacent Land Management and Uses. Lands adjacent to the project boundary are mostly undeveloped and are used primarily for grazing and for open space values. The largest adjacent land owners are BLM and USFS. Adjacent BLM lands are managed primarily for watershed protection and for preserving and improving forage and wildlife habitat. Six grazing allotments and twenty-two mining claims are held on BLM lands that adjoin Reclamation lands. The grazing allotments are categorized as custodial allotments with a year-round season of use. Of the 22 mining claims adjacent to the New Melones Resource Area, only one is actively mined near French Flat on the southeastern side of the reservoir.

The Stanislaus National Forest adjoins Reclamation lands at Clarks Flat and near the South Fork area of the New Melones Resource Area. The USFS has one grazing allotment adjacent to Reclamation lands in Clarks Flat. The 480-acre allotment has a season of use from May 1 through September 15.

Residential development continues to encroach on Reclamation lands as population in the area increases, causing increased trespass and land management issues. Rural residential development has expanded around existing clusters, such as areas along Jackass Hill and French Flat Road. Management conflicts and discrepancies could be reduced if Reclamation were to minimize and consolidate right-of-way and easement grants in the New Melones Lake Area.

6.2.2 Resource Management

Guidance Documents

Specific management actions for land use are not given in the 1976 Management Plan. Internal guidance for land use management comes from the following draft documents:

- New Melones Project Area Draft Fire Management Plan-2006
- New Melones Draft Resource Management Plan-1995

Table R-30 lists management guidance for land use management.

Table R-30: Summary of Current Guidance for Land Use

Internal Guidance	Source
Encourage and support cooperative planning within the Stanislaus watershed between Reclamation, other affected Federal, state, and local agencies, and the public.	DRMP 1995
-Continue communications with representatives from Reclamation, BLM, USFWS, CDFG, Calaveras and Tuolumne Counties, and others to share information and work cooperatively on resource protection and public safety issues.	
-Review and/or participate in the development of General Plans and Resource Management plans on adjacent lands to ensure that land use decisions and activities are compatible with those at New Melones.	
-Comment on environmental documents for new major projects within the watershed to ensure that potential adverse effects on Reclamation lands are mitigated to the fullest extent.	
-Coordinate with the Tuolumne and Calaveras County Departments of Planning to	

Internal Guidance	Source
review and contribute to all resource and land use plans that may affect the Stanislaus watershed. -Encourage Tuolumne and Calaveras Counties to monitor ongoing and reclaimed mining operations for compliance with permitting criteria.	
Work with appropriate agencies to regulate land use activities under their jurisdiction at New Melones. -Encourage the CDFG to monitor and enforce rules and regulations related to hunting and fishing. -Maintain and oversee contract obligation with both Tuolumne and Calaveras Counties to provide law enforcement services.	DRMP 1995
Resolve jurisdiction uncertainties with appropriate agencies. -Resolve land ownership and jurisdictional uncertainties with USFS and BLM when discrepancies are identified.	DRMP 1995
Minimize and consolidate right-of-way and easement grants on Reclamation lands; if granted, monitor and enforce for compliance with permit measures. -Avoid/minimize the approval of future easements and rights-of-way over Reclamation lands. If allowed, new easements (e.g., roadways, electrical transmission lines, pipelines, structures, and facilities) must follow alignments of existing easements and adhere to strict guidelines to avoid potential environmental impacts. -Ensure proper environmental compliance prior to construction and monitor compliance after construction by easement grantees and/or contractors. As indicated and required through a monitoring program, steps shall be taken to correct any resource degradation problems immediately.	DRMP 1995
Inform cooperators of changes to maps by acquiring or disposing of Reclamation lands.	DFMP 2006
Ensure the California Department of Forestry and Fire Protection – Tuolumne-Calaveras Ranger Unit (CDF-TCU) has updated maps for fire suppression annually.	DFMP 2006

6.3 Commercial Services, Concessions, and Licenses

6.3.1 Current Conditions

Concessionaire agreements are used by Reclamation to achieve needed recreational support services, programs, and facilities and as a means for disseminating public use information. The primary concessionaire at New Melones Lake Area runs the New Melones Lake Marina at the Glory Hole Management Area. The marina provides rentals of houseboats, patio boats, fishing boats, and jet skis. There are 20 rental houseboats and 38 private houseboats docked at the marina, and an additional 50 private houseboats are docked at mooring balls in the cove. The marina also rents boat slips and runs a store offering food, beverages, and fishing tackle. The marina also has a boat fueling station, sewage pump-out service, propane sales, baggage cart service, etc.

Reclamation supports concessionaire agreements with private enterprises to achieve needed recreational support services, programs, and facilities and to disseminate Reclamation information (Reclamation 1995). All concessionaire contracts include explicit measures related to the notice and dissemination of public information, communications equipment necessary in the event of emergencies, medical emergency provisions, and spill emergency response measures.

The marina concessionaire at New Melones Lake Area holds a County Non-Community Water Permit for the marina's water system and a Calaveras County Store Permit for the convenience store at the marina (Reclamation 1995). The concessionaire also holds a fuel permit for the convenience store and a State of California license for selling beer and wine, which includes a Federal tax stamp from the Federal Bureau of Investigation.

Whitewater boating activities are popular, particularly in the summer months, but are heavily dependent upon low reservoir water levels (Reclamation 1995). The Stanislaus River, when it is not inundated by New Melones Reservoir, offers generally forgiving to fairly difficult rafting runs. Depending upon seasonal water fluctuations, commercial rafting companies may offer organized guided raft trips down the river. Most of the whitewater boating consists of organized permitees that provide day-long, guided raft trips; however, several individuals also kayak and raft the reservoir/river.

Unpermitted commercial outfitters offer guided gold panning expeditions at New Melones (Reclamation 1995). Gold panning is an unregulated activity and is allowed throughout the area. Unpermitted fishing guide services and an unpermitted float plane school are also occurring on the project. Reclamation is seeking voluntary compliance of these unpermitted commercial services with 43 CFR 423, 429 and other directives. Per 43 CFR 429, all commercial activities, events, and occupation or use of Federal land must obtain a land use authorization such as a "right of use" permit. Permitted uses are listed in Section 6-10.

The Marina Concessionaire at Glory Hole would like to put more houseboats on the lake. Increased recreational demand results in pressure to develop more marina facilities like the one at Glory Hole. Additional requests include allowing for guided horseback riding, guided kayak/canoe tours, guided lake tours by boat, RV campgrounds with hookups, houseboat/boat storage and repair facilities etc.

Licensees Reclamation licenses the Sonora Radio Controlled Flyers (RC Flyers) and New Melones Water Skiers Inc. to operate in the New Melones Lake Area. These licenses allow these non-profit organizations to operate on Reclamation land with the understanding that the organizations operate the water ski course (located in the South Bay Planning Area) and radio controlled airplane strip (located downstream of the dam) in a way that is fully open to the public.

California Department of Forestry (CDF) has a lease agreement to run Baseline Conservation Camp on approximately 66 acres of Reclamation land. The facility is self-contained and has its own water treatment plant and power source. In this case, CDF pays Reclamation rent to house their facility on Reclamation land. The rent in this case is an exchange in which Baseline provides New Melones services such as fire fuels reduction which at the end of the year total a

certain number of CDF crewmember hours. The benefits of this agreement to New Melones Lake Area include fire suppression, recreation area maintenance, and wildlife habitat enhancement.

6.3.2 Resource Management

Current management of commercial services, licenses and concessions is under authority of 43 CFR 429, 43 CFR 423, Reclamation Manual LND PO2, LND PO4, LND 04-01, LND 04-02, PEC 01-01. Reclamation may "promote appropriate opportunities for private sector development of recreation facilities and services when an opportunity exists for a reasonable profit for the operator, an appropriate return of fees to the Government, and reasonable user fees and charges to the public"(LND PO4).

Decision and Guidance Documents

- New Melones Draft Resource Management Plan-1995

Table R-31 lists current management guidance for commercial services and concessions.

Table R-31: Summary of Current Guidance for Commercial Services and Concessions

Internal Guidance	Source
Explore and, where appropriate, support concessionaire agreements with private enterprises to achieve needed recreational support services, programs, and facilities and to disseminate Reclamation information.	DRMP 1995
Require that all concessionaire contracts include: 1) explicit measures related to the notice and dissemination of public information; 2) communications equipment necessary in the event of emergencies; 3) medical emergency provisions; and 4) spill emergency response measures.	DRMP 1995 CFR 423, Concession Management by Reclamation LND 04-01, Concession Management by Non-Federal Partners LND 04-02

6.4 Facilities

6.4.1 Current Conditions

New Melones Lake Area is in a rural area among the foothills of the west slope of the Sierra Nevada. Altaville, Angels Camp, Columbia, Springfield, Sonora, Copperopolis, and Jamestown are the closest towns to the reservoir.

Each year, approximately 800,000 visitors take advantage of the various recreational opportunities at New Melones Lake Area (Reclamation 2007a). Facilities at New Melones Lake are found at Glory Hole and Tuttletown Recreation Areas, the visitor's center, and undeveloped areas. The types of facilities include access and parking facilities, day-use facilities, overnight facilities, and support facilities. There are other miscellaneous facilities, such as amphitheater, trailhead parking areas, and playgrounds. The types and number of facilities at New Melones Lake Area are identified in Appendix C.

Developed Recreation Areas. Developed recreation areas are designated by Reclamation for recreational use and have been developed in conformance with the Master Plan (Reclamation 1995). Glory Hole Recreation Area is in Calaveras County in the mid-basin area and is accessed from Highway 49 via Whittle Ranch Road. The recreation area is composed of the following three areas: 1) the main portion, which includes the large peninsula extending into the reservoir; 2) the New Melones Lake Marina; and 3) Angels Creek, which is north of the main area.

The Tuttletown Recreation Area is in Tuolumne County in the mid-basin area and is accessed from Highway 49 via Reynolds Ferry Road (Reclamation 1995). The recreation area is on a large peninsula extending into the reservoir.

The administration area and visitor's center is in Tuolumne County near the Highway 49 Stevenot Stanislaus River Bridge (Reclamation 1995). It is accessed from Highway 49 along and adjacent to the old Highway 49 road. The area is on the gradual incline of the north-facing side of Jackass Hill. In addition to housing Reclamation's administration and maintenance operations facilities, the area also has a visitor's center and restroom facility.

The Dam Overlook is in Tuolumne County and is accessed via Peoria Flat Road from Highway 108/120 (Reclamation 1995). The area contains viewing shelters, a restroom, and a parking lot. The view from the overlook is of the west side of New Melones Dam, the powerhouse, and the Stanislaus River. The overlook facility was built to enable public viewing for the dam and powerhouse construction. Once construction was completed, the facility became obsolete and has been closed to the public since that time.

Reclamation constructed playgrounds in camping areas shortly after the lake was filled. During winter 2007, the playgrounds will be removed because of safety concerns.

Undeveloped Recreation Areas. Undeveloped recreation areas are sites that were planned for future development in the DRMP but remained undeveloped or with minimum basic facilities. These areas are presently used, having been designated by Reclamation for dispersed recreational use, as well as other uses such as wildlife management. Various facilities are found in the nine undeveloped recreation areas identified in Appendix C. Vehicle access, including both car-top and trailered boat launching occurs at the Mark Twain undeveloped lake access, which is actually the old Highway 49 route. Parrotts Ferry undeveloped lake access, also a former roadway, was formerly open to trailered boat launching/vehicle access but is currently open only for foot traffic/hand launching. Both former roadways have deteriorated and are in disrepair because of shoreline erosion undercutting the road and hillside.

Most of the facilities in the developed areas are meeting current recreation demands from the public, except when the water level in the lake is high and during peak visitor periods (Brooks 2007b). Parking areas are inundated when the water level in the lake is high, resulting in a lack of parking space. During peak visitor periods, there is a lack of Americans with Disabilities Act (ADA)-accessible facilities, reservable group picnic spots, fish-cleaning stations, pay phones, and showers at the campgrounds. High water level day use parking, parking at the marina, and overflow parking for campers is also lacking.

The undeveloped areas do not have facilities to support current or future levels of visitor activities (Brooks 2007b). Undeveloped areas have limited parking, restroom, and refuse facilities, and lack vehicle barriers, fencing, signage, and visitor information boards.

6.4.2 Resource Management

Management actions for facilities include:

- Annual Facility Condition assessments;
- Tracking and reporting requirements under the Government Performance and Results Act (GPRA);
- Five year periodic reviews of recreation facilities and infrastructure;
- Annual inspections and 5 year external reviews of concession facilities;
- Accessibility surveys;
- Programmed funding for Extra-ordinary Replacement, Maintenance and Repair (RAX program); and
- Maximo computerized maintenance tracking program.

6.5 Fire Management

6.5.1 Current Conditions

Wildland Fire. Fire is an integral part of California's Sierra Foothill landscape. Historically, frequent low- or mixed-severity fire was common at New Melones. Now, much of this area has transitioned to stand-replacing fire due to increased fuel loads and overstocking. Wildland fire fuels consist of live and dead vegetation, including branches (on the tree or on the ground), leaves, needles, seeds, and cones. Wildland fire fuels continue to accumulate due to successful fire suppression and a lack of prescribed fire and other fuel reduction strategies.

Fuel conditions have also been affected by an increase of nonnative invasive species such as star thistle *(Centaurea solstitialis)*. Burning tends to stimulate star thistle germination and may lead

to more robust plants following fire due to reduced competition from native species. In addition, star thistle retains moisture longer and grows larger than native plants; thus, the fuel it creates is more concentrated and burns slower and hotter, increasing fire severity.

Deteriorating forest health creates fuel conditions that contribute to high-intensity fires. Tree density, dense patches of shrubs, and introduced weeds increase fuel loads and competition among species, promoting tree mortality and disease and resultant high-intensity fire.

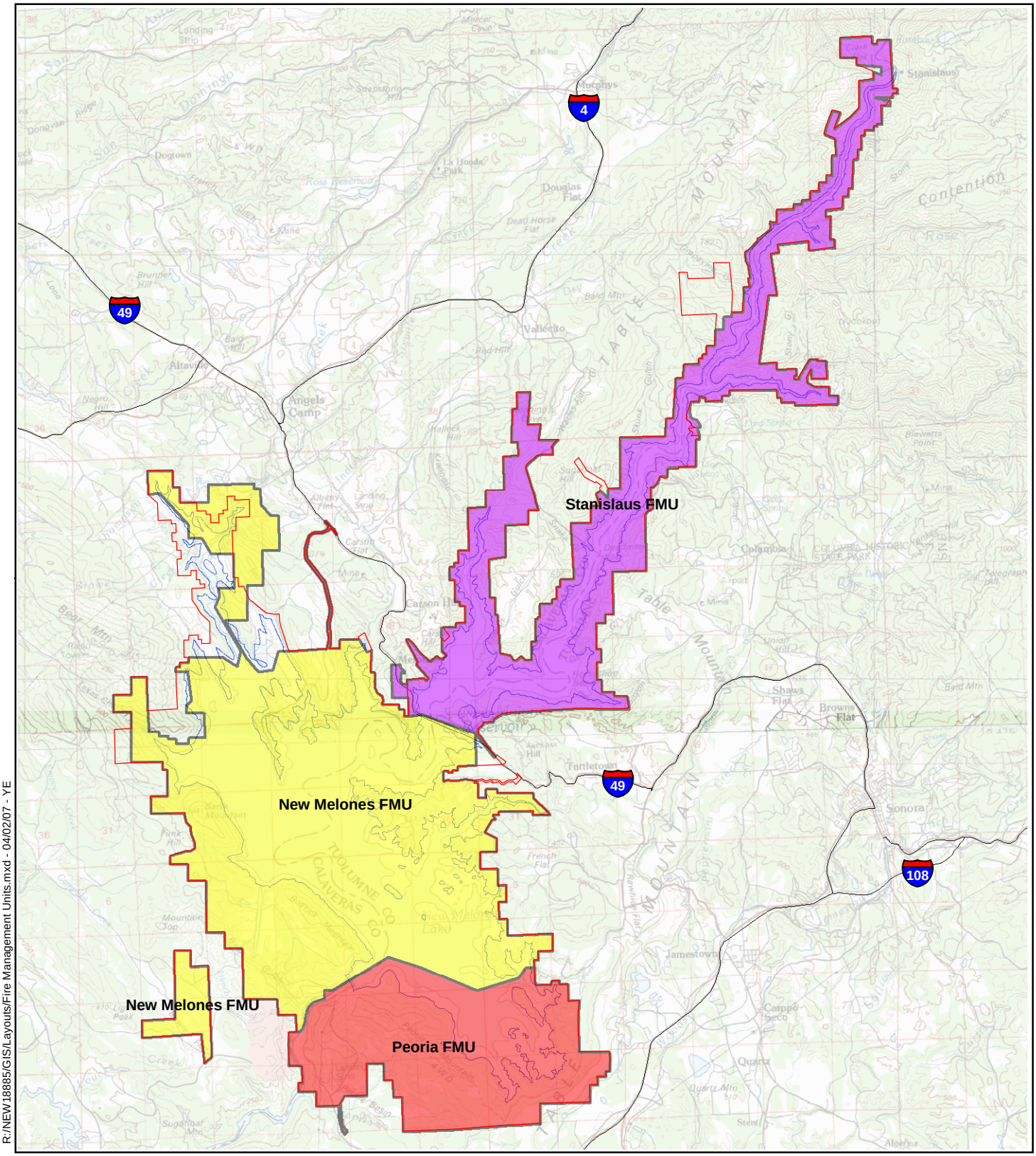
Fire Management Units. Fire is managed in three distinct Fire Management Units (FMU) on New Melones Project Lands (New Melones, Stanislaus, and Peoria-see Figure R-9). An FMU is any land management area definable by objectives, management constraints, topographic features, access, value to be protected, political boundaries, fuel types, and major Fire Regime groups that set it apart from the management characteristics of an adjacent FMU. The New Melones unit's primary resource management strategy is to protect the wildland-urban interface (WUI) and high-value watersheds; the Stanislaus unit's primary strategy is to protect watersheds and the WUI; and the Peoria unit is primarily managed to protect high-value habitat and the WUI (Reclamation 2006b).

New Melones FMU consists of four fuel types totaling 6,589 acres (Table R-32). The eight planning units (PU) in the FMU are Tuttletown French Flat, Bear Creek, Dam and Spillway, West Side, Greenhorn Creek, Glory Hole, and Carson. The northern half of Bear Creek and the eastern two-thirds of Carson are managed under different FMUs. Fire and fuels management in this unit are necessary to protect resource values such as water quality, watershed values, private property, developed recreation sites, cultural resources, special status species, wildlife habitat, air quality, recreation, and visual resources. The following communities/WUI areas are at risk from wildland fire: Angels Camp, Stanislaus, Tuttletown, Jamestown, Carson Hill, Cloy House, Copperopolis, and Jackass Hill.

New Melones FMU had 57 fires from 1994 to 2003, averaging 91 acres. The largest fire burned 3,212 acres, 62 percent of the total acres (5,186) burned. Wildland fire has been controlled with aggressive fire suppression activities (Table R-33). Eighty-six percent of the fires were human-caused, while fourteen percent were attributed to natural causes.

Table R-32: Fuel Types Represented in the New Melones FMU

Fuel type	Acres	Percent
Annual grassland	179	3
Blue oak-foothill pine	5,650	85
Chamise-redshank chaparral	190	3
Montane chaparral	570	9
Total	**6,589**	**100**



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Fire Management Units

New Melones Lake Area, California
Central California Area Office

Figure R-9

Table R-33: Historic Fire Ignitions in the New Melones FMU (1994 to 2003)

Size Class (acres)	Number of Ignitions	Total Acres Burned
A (0.0-0.2)	32	2
B (0.3-9.9)	16	48
C (10-99.9)	4	65
D (100-299.9)	3	610
E (300-999.9)	0	0
F (1000-4999.9)	2	4,462
G (5,000+)	0	0
Total	**57**	**5,187**

Source: Reclamation 2006c

Stanislaus FMU consists of six fuel types totaling 4,341 acres (Table R-34). The PUs in the FMU are Camp Nine, Stanislaus River Canyon, Parrotts Ferry, Mark Twain, Carson, and Coyote Creek. Fire and fuels management in this unit are necessary to protect resource values such as water quality, watershed values, private property, developed recreation sites, cultural resources, special status species, wildlife habitat, air quality, recreation, and visual resources.

Table R-34: Fuel Types Represented in the Stanislaus FMU

Fuel type	Acres	Percent
Blue oak woodland	50	1
Blue oak-foothill pine	2,964	68
Chamise-redshank chaparral	940	22
Montane hardwood	129	3
Montane hardwood-conifer	85	2
Ponderosa pine	173	4
Total	**4,341**	**100**

Source: Reclamation 2006c

The following communities/WUI areas are at risk: Forest Meadows, Vallecito, Columbia, Italian Bar, Clark Flat, Jackass Hill, Skunk Ridge, Natural Bridges, Douglas Flats, and Murphy.

Stanislaus FMU had 42 fires from 1994 to 2003, averaging 384 acres. The largest fire burned 14,280 acres, 88 percent of the total acres (16,144) burned. Table R-35 displays the number and size of fires between 1994 and 2003. Ninety-three percent of the fires were human-caused, while seven percent were attributed to natural causes.

Table R-35: Historic Fire Ignitions in the Stanislaus FMU (1994 to 2003)

Size Class (acres)	Number of Ignitions	Acres
A (0.0-0.2)	20	1
B (0.3-9.9)	15	23
C (10-99.9)	2	40
D (100-299.9)	1	100
E (300-999.9)	3	1,700
F (1000-4999.9)	0	0
G (5,000+)	1	14,280
Total	**42**	**16,144**

Source: Reclamation 2006c

Peoria FMU consists of four fuel types totaling 3,788 acres (Table R-36). The two PUs in the FMU are Bear Creek and Peoria Wildlife Area. The northern half of Bear Creek is managed under the New Melones FMU. Fire and fuels management in this unit is necessary to protect resource values such as private property, Federal and state infrastructure, water quality, watershed values, private property, developed recreation sites, cultural resources, special status species, wildlife habitat, habitat impact mitigation area, air quality, recreation, grazing, and visual resources. The following communities/WUI areas are at risk: Peoria Flat, Rawhide Flat, Copperopolis, and scattered rural housing developments in the area.

Table R-36: Fuel Types Represented in the Peoria FMU

Fuel type	Acres	Percent
Annual grassland	89	2
Blue oak-foothill pine	3,673	96
Chamise-redshank chaparral	18	1
Montane chaparral	8	1
Total	**3,788**	**100**

Source: Reclamation 2006c

Peoria FMU had 11 fires from 1994 to 2003, averaging 1 acre. The largest fire burned 6 acres, 60 percent of the total acres (10) burned. Table R-37 displays the number and size of fires between 1994 and 2003. Ninety-one percent of the fires were human-caused (camp fires, smoking, fire use, incendiary or equipment), while nine percent were attributed to natural causes.

Table R-37: Historic Fire Ignitions in the Peoria FMU (1994 to 2003)

Size Class (acres)	Number of Ignitions	Acres
A (0.0-0.2)	5	1
B (0.3-9.9)	6	10
C (10-99.9)	0	0
D (100-299.9)	0	0
E (300-999.9)	0	0
F (1000-4999.9)	0	0
G (5,000+)	0	0
Total	**11**	**11**

Wildland fires in the western US have become increasingly dangerous due to the proximity of structures and a build-up of fuels (invasive weeds or vegetation that would have burned more often, but due to successful fire suppression continue to accumulate). In response to the risks wildland fires pose to firefighters and the impacts on communities, the National Fire Plan (NFP) was initiated by a partnership of government land management agencies in 2000. This coordinated effort to protect communities and natural resources from increasingly severe wildfire resulted in the 10-Year Comprehensive Strategy and specific goals and objectives to guide fire management planning (Reclamation 2006b). In addition to the guidance provided by the NFP, the fire regime condition class (FRCC) method was established. FRCC is an interagency, standardized tool for determining the degree of departure from reference condition vegetation, fuels, and disturbance regimes. Assessing FRCC can help guide management objectives and set priorities for treatments. Reference conditions are vegetation and disturbance attributes that can sustain current native ecological systems and natural fire regimes. Reference conditions are determined by experts through professional judgment, published literature, and historical information using standardized computer models. This quantitative method links landscape-scale assessments and stand-level classifications (Hann et al. 2003). The objective of this method is to target those areas exhibiting the greatest departure from reference condition as priority for fuel treatment.

Development around New Melones Lake Area and surrounding areas continues to increase as demand for recreation and housing in the area increases. Greater numbers of people, homes, and structures within the WUI, coupled with accumulating hazardous fuels due to fire suppression and the lack of fuel management measures, creates a dangerous situation. Many of Reclamation's lands are not easily accessible, further increasing the fire hazard. The three FMUs (Reclamation 2006b) in the decision area list WUI as a major decision factor. As the WUI continues to grow, it will become more of a driving factor on fire suppression and fuels management in the future.

The CDF-TCU is the principle agency responsible for fire suppression in the project area. On adjacent BLM lands the levels of resources available have not allowed for ideal fire management (BLM 2006b). Competition among agencies for CDF staff and equipment could lead to a lack of

personnel and equipment to accomplish fuel treatment goals, resulting in a backlog of high priority fuels management projects.

Smoke management and associated air quality concerns may increase as resource users and residences increase in and around the project area, potentially limiting prescribed burning activity.

Noxious and invasive weed species will continue to colonize disturbed sites. This trend will likely increase if fire severity and size increases and if fuels continue to build up as a result of fire suppression.

6.5.2 Resource Management

Decision and Guidance Documents

- New Melones Project Area Draft Fire Management Plan-2006
- New Melones Draft Resource Management Plan-1995
- New Melones Vegetation Management Plan-1997
- New Melones Master Plan-1976

Fire management direction has been defined first by the 1976 Master Plan and most recently in the 2006 New Melones Project Area Draft Fire Management Plan. The draft FMP presents an integrated set of policies and management actions that focus on mitigating fire hazard near infrastructure and residences by reducing fuel loads and the probability of human ignitions.

Management guidance common to all FMUs includes the following:

- Suppressing all wildfires through aggressive attack;
- Reducing hazardous fuel loads with emphasis on WUI areas, high-value infrastructure, and critical watersheds;
- Implementing post-fire rehabilitation with native species, as appropriate, to protect water quality, potential for invasive species, native species diversity, and resource values;
- Protecting water quality;
- Protecting wildlife resources;
- Protecting wetlands, riparian areas, and sensitive vegetation resources;
- Protecting fisheries resources;
- Protecting cultural resources;
- Protecting soil resources; and
- Protecting air resources.

Table R-38 presents specific fire and fuels management objectives for the FMUs.

Table R-38: Wildland Fire Management Objectives and Strategies by FMU

Management Objective	New Melones Unit	Stanislaus Unit	Peoria Unit
Wildfire			
Target individual wildfire size	< 1 acres or 90% success rate	≤ 10 acres or 90% success rate	≤ 10 acres or 90% success rate
Maximum target acres burned per decade	250	1,000	500
Prescribed fire			
Target annual acres	25 to 100	50 to 250	50 to 250
Target decadal acres	500	1,500	1,500
Non-fire fuel reductions			
Target annual acres	100	10	75
Target decadal acres	1,000	100	750

Source: Reclamation 2006c

Table R-39 lists current management guidance for fire management.

Table R-39: Summary of Current Decisions and Guidance for Fire Management

Decision	Source
Use natural or in-place barriers (e.g., roads, streams, ponds, wetlands) to minimize the need for fireline construction.	National Fire Plan 2004
Limit open campfires to designated overnight campgrounds and within provided fire rings and pedestal grills. Prohibit open fires in all areas during periods of high fire danger.	43 CFR 423, Recreation Policy 2005
Internal Guidance	**Source**
100% protection of adjacent communities and resource/social values at risk from unwanted wildfire. Community and resource/social values specifically include critical wildlife habitat.	DFMP 2006
Minimize pollution resulting from wildfire suppression while recognizing safety and operational priorities of fighting wildfires.	DFMP 2006
Project lands are within a USFS and CDF mutual aid zone, with the CDF having responsibility for fire control. Fire prevention and suppression activities will be supervised and coordinated by the CDF through the Unit Chief stationed at the Tuolumne/Calaveras Unit in San Andreas.	DFMP 2006
Minimize the use of bulldozing firelines in high erosion areas. If unavoidable, construct on contour or stabilize with waterbars to control erosion.	DFMP 2006
Fire suppression strategies should be tailored to address areas of significant constraints including critical habitat for wildlife, T&E species, areas of soil instability, areas of other critical resource constraints (cultural), and where plant communities are at risk due to current conditions/times of year or other ecological constraints.	DFMP 2006

Internal Guidance	Source
Actions will be taken in these identified areas to protect the sensitive sites from damage by heavy mechanized equipment.	
Burned area environmental response (BAER) plan will be followed. -Consider nonpoint sources of pollution resulting from wildfire suppression and rehabilitation, while recognizing safety and operational priorities of fighting wildfires. -Consult with staff archaeologist, botanist, wildlife biologist, and other staff specialists to evaluate fire and suppression operations effects and determine if additional restoration is necessary. -Revegetate burned areas with native plant species.	DFMP 2006
Meet resource, watershed, wetlands, wildlife, fisheries, cultural and vegetation/fuels management goals and objectives through the appropriate use of fire and non-fire fuel treatments. Implement appropriate decisions as identified in the final draft New Melones Fire Management Plan.	DFMP 2006
Maintain adequate grass and brush clearance directly adjacent to roads and in recreation areas consistent with the Integrated Pest Management Plan and special status plant requirements.	DFMP 2006
In prescriptions for burns, firelines should be constructed on contour or stabilized with water bars and/or other appropriate techniques to control erosion, protect water quality, and prevent rolling fire brands. Prevent runoff from directly entering waterbodies.	DFMP 2006
Fuel breaks and firebreaks will be designed in a manner that minimizes impacts to aesthetic, scenic, and ecological resources, and consider resource objectives for vegetation management, wildlife habitat management, soil stabilization public safety, ignition sources, and safety of fire-fighting personnel. -Create fuel breaks with blended or feathered edges through selective thinning and by cutting indentations in brush to create bays. -Retain clumps of unmodified vegetation within fuel breaks to provide cover and food for wildlife. -Retain mature oaks for their wildlife benefits and scenic qualities.	DFMP 2006
Fuel hazard reduction activities will be designed and implemented to maintain adequate grass and brush clearance directly adjacent to high use roads and in Reclamation recreation areas during the fire season, consistent with Vegetation Management Plan for New Melones Lake objectives and special status plant requirements.	DFMP 2006
Suppress fires that threaten life, property, and public safety.	DRMP 1995
Implement site closure procedures during periods of extreme fire danger according to the state fire warning system. -Post and gate main entry points to Reclamation lands. Signs will give the current fire hazard warning status and/or the reason for site closure, if necessary under extreme fire hazard conditions.	DRMP 1995

Internal Guidance	Source
Use low-intensity prescribed burns to establish fire breaks within wetland/riparian buffer zones.	DRMP 1995
Carefully plan burning to adhere to weather and fuel conditions that will help achieve the desired results while minimizing water quality impacts.	DRMP 1995

6.6 Local Transportation Routes and Uses

6.6.1 Current Conditions

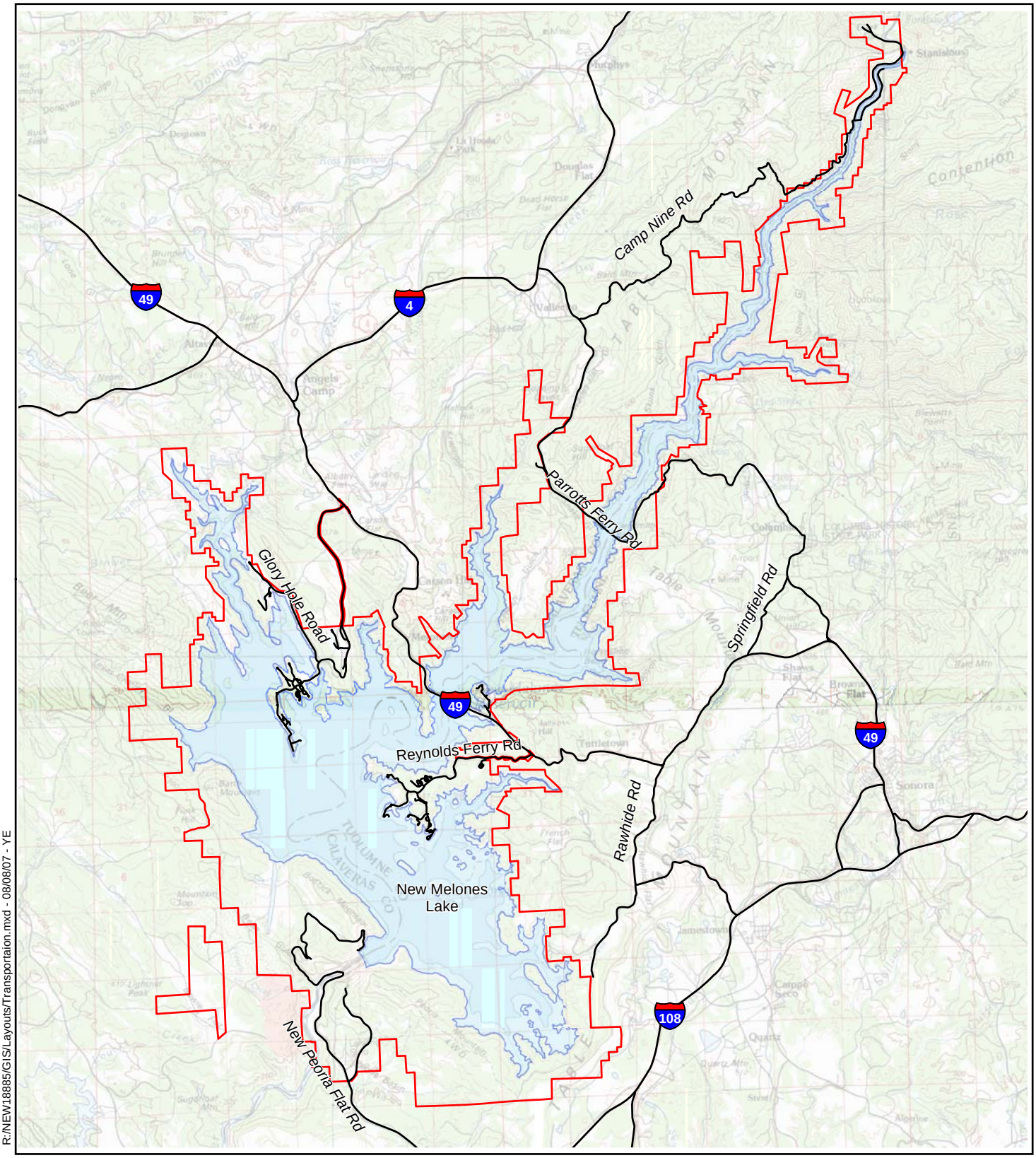
Road Access. The road system serving the project area consists of the state highways, county roads, and private roads used for motor vehicle traffic, as seen in Figure R-10.

SR 49. SR 49 provides access to the recreational areas of the New Melones Lake Area from Angels Camp in the north and Sonora in the south. Both commuters and tourists use the highway, as it is the primary access roadway between Tuolumne County and Calaveras County. The highway links communities in the Sierra foothills and acts as "Main Street" for the City of Angels (Angels Camp). SR 49 meets with SR 4 at the north end of Angels Camp. Both state routes are owned and maintained by Caltrans.

Annual Average Daily Traffic (AADT) volume is defined as the total two-way traffic volume on a roadway over the year divided by 365 days. Caltrans traffic counts reflect an estimate of annual average daily traffic by compensating for seasonal fluctuation, weekly variation, and other variables. The recordation of AADT is necessary for presenting a comprehensive picture of traffic flow, evaluating traffic trends, computing accident rates, and planning and designing highways. Roads surrounding New Melones Lake Area include SR 49, Highway 108/120, O'Brynes Ferry Road, Glory Hole Road, Rawhide Road, Tuttletown Road, Springfield Road, Parrotts Ferry Road, Camp Nine Road, New Peoria Flat Road, and Peoria Flat Road. The highest AADT volume in Calaveras County in 2004 was 16,700, observed on SR 49 in Angels Camp on Murphy's Grade Road. Table R-40 presents AADT data for SR 49.

Table R-40: Calaveras County Annual Average Daily Traffic (AADT)

SR 49	2002	2003	2004
Tuolumne/Calaveras County Line	5,500	5,500	5,900
Angels Camp, Centennial Road, South	5,500	5,500	5,900
Angels Camp, Centennial Road, North	7,600	8,000	8,100



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Roads and Access

N

0 2

Miles

New Melones Lake Area, California
Central California Area Office

Figure R-10

Reclamation facilities are accessible from SR 49 at the following locations:

Whittle Ranch Road turnoff to Glory Hole Recreation Area. Whittle Ranch Road is owned and maintained by Reclamation. It consists of two lanes and is in good condition. Circulation and roadways within the campground areas are generally well positioned and adequately signed and maintained. Access to the marina from Whittle Ranch Road is well marked; however, the road leading down to the marina is somewhat hazardous due to its steep incline and composition of loose gravel material at lower lake levels. Access to the boat ramps is generally good. From the end of Glory Hole Road non-motorized access to the Westside Management Area and Bowie Flat Management Area is possible along unimproved fire road.

Reynolds Ferry Road turnoff to Tuttletown Recreation Area. Reynolds Ferry Road is owned and maintained by Reclamation at about a mile from SR 49 to its terminus. This road is in excellent condition. Boat ramp access is generally good at this recreation area.

Minor paved road to Reclamation Headquarters and Mark Twain Unimproved Day Use Recreation Area. The two-lane paved road from SR 49 to Reclamation Headquarters and the recreation area is the former SR 49, and is owned and maintained by Reclamation. It is in good condition to the headquarters area but deteriorates somewhat from the headquarters gate to the recreation area.

Minor paved road to Old Town (Melones) Unimproved Day use Recreation Area. The two lane paved road from SR 49 to the recreation area is gated approximately 0.1 mile from the SR 49 junction. However there is non-motorized vehicle access to Old Town (Melones) Unimproved Day use Recreation Area.

Rawhide Road (Tuolumne County Road E5) turnoff to Shell Road to Table Mountain and Peoria Wildlife Management Area (PWMA). Rawhide Road is a well maintained, paved, two-lane county road that is accessible from two points along SR 49. Shell Road, a county road for the first 2.59 miles from its intersection at Rawhide Road, starts as a well maintained, two-lane then one lane, paved road. At the 1.6 mile mark and beyond it becomes a poorly maintained, two-track dirt road which serves as a utility road for Reclamation access to PWMA, the dam, and for emergency vehicles. This road is open to equestrian, hiking, biking, and hunting use by the public. PWMA is closed to public vehicles as per the PWMA EA (Reclamation 2007). Another way to access Bear Creek Management Area, an unimproved recreation area, would be to travel to Peoria Wildlife Management Area as described then to travel north and west of the public parking along Shell Road. No vehicle access into Bear Creek Management Area is permitted.

Rawhide Road (Tuolumne County Road E5) turnoff to French Flat Road to French Flat Day Use Recreation Area – Rawhide Road is a well maintained, paved, two-lane county road that is accessible from two points along SR49. French Flat Road, a county road, is a well maintained two lane paved road which at two miles enters gated Bureau of Land Management land. At this point public vehicle access is restricted, however there is a very poor unpaved road approximately 0.5 miles in length which crosses BLM land and connects with Reclamation property.

Rawhide Road (Tuolumne County Road E5) turnoff to Old Melones Road to Bear Creek Recreation Area - Rawhide Road is a well maintained, paved, two-lane county road that is accessible from two points along SR49. Old Melones Road, a county road, is a well maintained two lane paved road which at approximately 0.5 miles has gated non-motorized access to Bear Creek Recreation Area.

Parrotts Ferry Road. Reclamation facilities are accessible from Parrotts Ferry Road at the following locations:

The two lane paved road from Parrots Ferry Road to the recreation area is gated approximately 0.1 mile from the Parrotts Ferry Road junction. However, there is non-motorized vehicle access to Old Parrotts Ferry Unimproved Day use Recreation Area and New Melones Lake.

Camp Nine Unimproved Day Use Recreation Area. Approximately 3 miles of Camp Nine Road is on land owned by Reclamation. This portion of the road is owned by Reclamation, but maintained via a road maintenance agreement with the Collierville Powerplant, owned by Calaveras County Water District (CCWD) and operated by Northern California Power Authority (NCPA). The remainder of Camp Nine Road is privately owned by 22 landowners, with easements to PG&E and NCPA. In exchange for access rights, the power companies are responsible for the maintenance of the road. Reclamation's access rights across the privately owned portion of Camp Nine road are based on prescriptive easement. PG&E's Stanislaus Powerplant is located across the New Camp Nine Bridge and at the end of the road along the Tuolumne County side of the river. This road is on Reclamation property until it reaches land owned by PG&E for the powerplant. PG&E has easement rights to access the powerplant across Reclamation land, and Reclamation has easement rights to access across PG&E land. It is in fair to poor condition with numerous potholes, eroded shoulders, and deteriorated guardrails. It has two lanes and in some places has deteriorated to one lane.

Coyote Creek Nature Trail and Natural Bridges. The paved two-lane turnoff and dead end public road from Parrotts Ferry Road to the trailhead is owned and maintained by Reclamation. It is in fair condition. Designated parking stalls are not available. The Natural Bridges area has limited parking.

New Melones Flat Road. Reclamation facilities are accessible from SR 108/ SR120 at the following locations:

Minor paved road to Peoria Equestrian Staging Area to Peoria Wildlife Area – From SR108/SR120 to get to Peoria Equestrian Staging Area, one turns west onto county road E15/O'Byrne's Ferry Road for approximately .2 miles and then turns north onto New Peoria Flat Rd for approximately three miles, until the Baseline Conservation Camp entrance. At this point, a public parking lot is available to the right approximately .2 miles down an access road. The parking lot provides non-motorized access to Peoria Wildlife Area and the radio control flyers facility.

Minor paved road to Overlook - From SR108/SR 120 to get to the Overlook, one turns west onto county road E15/O'Bryne's Ferry Road for approximately 0.2 miles and then turn north onto New Melones Dam Rd/New Peoria Flat Rd for approximately three miles. From this point

motorized public access to the Overlook has been restricted. However non-motorized access to the Overlook is possible by following Old Melones Rd/Old Melones Dam Rd for approximately two more miles.

Lake Only Access. Three management areas, Dam and Spillway Management Area, Westside Management Area, and Bowie Flat Management Area can only be accessed by the public via New Melones Lake.

Boat and Personal Watercraft Use. Motorized boats are the principle means to access and enjoy many of the recreation opportunities available at New Melones Lake Area. Motorboats support activities such as waterskiing, fishing, sightseeing, and power boating. House boating and jet skiing are other popular motorized boating activities on the reservoir. Boat launch ramps with courtesy docks are located in Glory Hole and Tuttletown Recreation Areas. Boaters must have the required safety equipment (e.g., lifejackets, ski flag, fire extinguisher, etc.) on board their boat, as required by the US Coast Guard and California Department of Boating and Waterways. Kayaks, canoes, and sailboats used in public waters are expected to have similar safety equipment.

Projected increases in population will result in increased demand on roads within the project area; use of the New Melones Lake Area is expected to increase 20 percent over the planning period. The increase in travel demand on the roadway system will require increased cost for roadway maintenance and rehabilitation. Since the existing roadways and facilities were not designed to carry large amounts of traffic, roadway improvements will be required to keep up with this growth. Reclamation is working with county planning departments to ensure proposed development projects have legal access across Reclamation land before approving.

6.6.2 Resource Management

Decision and Guidance Documents

- 43 CFR 420
- New Melones Draft Resource Management Plan-1995
- New Melones Master Plan-1976

Table R-41 lists current management guidance for transportation.

Table R-41: Summary of Current Decisions for Transportation

Decision	Source
Roads above gross pool in the main lake area will be paved. Roads below gross pool will have a stabilized aggregate surface. Major access and circulation roads will have a maximum sustained grade of 10 percent and a maximum pitch grade of 12 percent.	Master Plan 1976
Surface runoff will be adequately controlled by grade, ditches, and drainage structures; flume downdrains will be used to guard against the formation of runnels or channels. Culverts or bridges will control cross drainage. They will be located as required and sized in accordance with current California culvert practices.	Master Plan 1976
Signs, markers, guideposts, guardrails, and center line and shoulder striping will be provided on surfaced roads for traffic control and safety purposes. Standard guardrails will be used on fill slopes over 10 feet and on all daylight or fill slopes in steep terrain. Movable signs and barriers will be used below gross pool level. For further traffic control and safety, slow-down bumps will be provided where needed on circulation roads. Barriers will be installed to prevent vehicles from going off the travelway and generally will be constructed of natural materials such as large rocks, timber, and logs.	Master Plan, 1976
The access and circulation roads will be designed in accordance with criteria contained in Technical Manuals 5-822-2 and 5-822-5, except as otherwise directed.	Master Plan, 1976
Adequate parking facilities will be provided within each area for the planned design day load.	Master Plan, 1976
Operation of seaplanes for other than recreational purposes is prohibited (commercial, pilot training etc.) Operation is prohibited within 1500 feet of dam and within 500 feet of an occupied beach. Landings and takeoffs permitted only on water at least 1000 feet from any shoreline and in designated landing area. No overnight moorage or beaching of seaplanes except in designated concession operated resort areas.	Reclamation Seaplane Policy, 2006

6.7 Trespass Issues

6.7.1 Current Conditions

Prohibited acts on Federal land include grazing or watering livestock, trespass into areas specified as off limits to public access (e.g., operations facilities and areas with sensitive ecological or cultural resources), using motorized vehicles in any areas other than on paved or specified roads, construction, placing, or maintaining any kind of road, trail, structure, fence, enclosure, communication equipment, pump, well, or other improvement without a permit.

Trespassing, vandalism, and illegal dumping are common problems within the New Melones Planning Area, especially in areas that are difficult to access or patrol. Adjacent grazing livestock often access Reclamation lands through poorly maintained fencing or areas where fencing has been taken out illegally.

The following areas within the New Melones Lake Area have been, and will remain, closed until further notice. Note that the type of closure varies by location (Brooks 2007a).

a. New Melones Powerplant and Vicinity, including outlet works and river downstream to buoy line, and Visitor overlook, and area leased to and occupied by California Division of Forestry, Baseline Conservation Camp. Closed to public vehicles, hunting, and fishing;

b. New Melones Dam and Spillway. Closed to all public access;

c. Old Parrotts Ferry Road. Closed to public vehicles;

d. Peoria Wildlife Management Area. Closed to public vehicles;

e. Melones Recreation Area. Closed to public vehicles;

f. French Flat Recreation Area. Closed to public vehicles; and

g. Bear Creek Recreation Area. Closed to public vehicles.

Reclamation will continue to enforce policies related to trespass onto or the unauthorized use of the land and water under Reclamation's jurisdiction. Trespass and unauthorized use, when permitted to continue, deprive the public of its rightful use and enjoyment of the public lands. It is the general policy of Reclamation to facilitate and ensure the proper use of land resources. Benefits to the public as a whole resulting from non-exclusive uses of Federal lands is the primary management emphasis.

6.7.2 Resource Management

Decision and Guidance Documents

- 43 CFR 420
- New Melones Master Plan- 1976
- New Melones Draft Resource Management Plan-1995

Table R-42 lists current management guidance for trespass issues.

Table R-42: Summary of Current Decisions and Guidance for Trespass Issues

Decision	Source
The New Melones Power Plant and vicinity are closed to public vehicles, hunting and fishing: including outlet works and river downstream to buoy line, and Visitor overlook, and area leased to and occupied by California Division of Forestry, Baseline Conservation Camp.	43 CFR 423
The New Melones Dam and Spillway are closed to all public access.	43 CFR 423
The following areas are closed to public vehicles: Old Parrotts Ferry Road, Peoria Wildlife Management Area, Melones Recreation Area, French Flat Recreation Area, and Bear Creek Recreation Area.	43 CFR 423
The New Melones Lake Project is designated in its entirety as a Special Use Area pursuant to 43 CFR 423, for the protection of public health and safety, the protection and preservation of cultural and natural resources, the protection of environmental and scenic values, scientific research, the security of Reclamation facilities and the avoidance of conflict among visitor use activities. Reclamation has established schedules of visiting hours, public use limits, special uses and other conditions, restrictions and prohibitions on particular uses or activities.	43 CFR 423
43 CFR 423 and subsequently established special use area regulations are used to maintain law and order and protect persons and property within the New Melones Lake Project.	43 CFR 423
Internal Guidance	**Source**
Unauthorized entry into caves containing significant paleontological finds would be prohibited. Sensitive caves would be accessed in a manner that would not adversely affect cave organisms or cave microclimate.	DRMP 1995
Reclamation would continue to enforce policy related to trespass onto, or the unauthorized use of, the land and water under its jurisdiction. Trespass and unauthorized use, when permitted to continue, deprives the public of its rightful use and enjoyment of the public lands. It is the general policy of Reclamation to facilitate and ensure the proper use of land resources. Benefits to the public as a whole resulting from nonexclusive uses of Federal lands is the primary management emphasis.	DRMP 1995
Prohibited acts on Federal land include the grazing or watering of livestock, trespass into areas specified as off-limits to public access (e.g., operations facilities and areas with sensitive ecological or cultural resources), the use of motorized vehicles in any areas other than on paved or specified roads, construction, placing, or maintaining any kind of road, trail, structure, fence, enclosure, communication equipment, pump, well, or other improvement without a permit.	DRMP 1995
Reclamation would enforce its general policy related to trespass or unauthorized use, as follows: "Clear, and keep clear, all lands of trespasses and unauthorized uses. In resolving trespass or unauthorized use issues, priority will be given to those trespasses which are not in the best public interest, or are not compatible with the primary uses of the land. In cases where a trespass or unauthorized use has occurred, prompt resolution of the conflict is encouraged. Seek to resolve unauthorized uses and trespasses before they become permanently established. When violations do occur, Reclamation will seek first to negotiate solutions to resolve all violations. Attempts to	DRMP 1995

Internal Guidance	Source
negotiate solutions to unauthorized uses and trespass will be the first priority, using the courts will be a last resort. In the event such negotiations fail, Reclamation will take those actions necessary to protect the public interest and project lands."	
Reclamation would pursue cooperation aimed at preventing unauthorized use and trespass by implementing a program of public information, education, and contact (for example, through signs, pamphlets, maps, and public notices).	DRMP 1995
Reclamation would eliminate unpermitted grazing and water access on lands under its jurisdiction.	DRMP 1995
Reclamation would initiate a program to periodically patrol areas where unpermitted grazing or water access occurs.	DRMP 1995
Reclamation would enforce its off-road vehicles policy, which states that all Reclamation lands are closed to off-road vehicles, except for those areas specifically designated for such use (43 CFR 420). No off-road vehicles are allowed at New Melones Lake; vehicles must remain on paved or other specified hard surface roads. In accordance with 43 CFR 420, vehicular use would permit access to fire, emergency, or law enforcement vehicles and those used for officially designated purposes.	DRMP 1995
Reclamation would initiate a program to periodically patrol areas where off-road vehicle use is known to occur.	DRMP 1995

6.7.3 Other Plans That Will Be Considered

Management at New Melones Lake Area is coordinated with adjacent Federal land owners to ensure consistency with their management plans.

6.8 Utilities

6.8.1 Current Conditions

Electrical Services. PG&E provides electrical service to the headquarters, visitor's center, maintenance building, a private concessionaire at Glory Hole Recreation Area marina, and the southern end of the reservoir for dam operations and an archeological storage facility and Baseline camp (Brooks 2007a). Western Area Power Authority (WAPA) provides electrical service to Glory Hole and Tuttletown Recreation Areas. With few exceptions, all of the electrical lines are aboveground. Some electrical lines are owned by Reclamation; these are maintained by WAPA, which may contract out maintenance work to PG&E occasionally. Solar panels on top of the maintenance building provide electricity to the immediate buildings.

Water. A needs assessment identifies water system demands at New Melones Lake Area (Reclamation 2001). The assessment was based on planned recreation facilities identified in the Master Plan (USACE 1976). Table R-43 summarizes projected system demands.

Table R-43: Estimated Peak-Day (Gallons) Water Demand for 2040

Recreation Area	Day Use	Campers	Total Demand
Tuttletown	48,405	36,225	84,630
Glory Hole	48,750	56,700	105,450
Angels Arm	19,905	17,500	37,405
	Visitors	**Staff**	
Visitor's Center	6,600	150	6,750
Administration Offices	1,200	0	1,200
Total	123,660	111,775	235,435

Source: Reclamation 2001

Reclamation maintains one 50,000-gallon water storage tank and one 80,000-gallon tank at Tuttletown Recreation Area, one 36,000-gallon tank at Angels Arm, and one 50,000-gallon tank at Glory Hole Recreation Area (Brooks 2007a). There are also two 16,000-gallon tanks at the Glory Hole Recreation Area marina. One of these, installed in 2005, is owned by Reclamation and is used for water storage; the other is owned by the marina operator.

Glory Hole Recreation Area has two wells that provide water for public uses, including in the restrooms and for water spigots (Brooks 2007a). A third well at the marina is used by staff and for concessionaire operations, such as cleaning houseboats and filling houseboat hot tubs. Treatment of water from the reservoir at Glory Hole Recreation Area no longer occurs.

Tuttletown Recreation Area will have a new well at the end of this fiscal year because the current well does not provide enough water (Brooks 2007a). The treatment plant will still be used to treat the well water for odor and taste.

Angels Arm has a new water treatment plant, installed in 2006, that treats water from the reservoir (Brooks 2007a).

The headquarters, maintenance building, and visitor's center are served by a well. Approximately 25 personnel are served by the well. There is no potable water available at any of the undeveloped recreation areas.

Waste

Wastewater. A Needs Assessment identifies wastewater systems demands at New Melones Lake (Reclamation 2001). The assessment was based on planned recreation facilities identified in the Master Plan (USACE 1976). Table R-44 summarizes projected system demands.

Table R-44: Estimated Maximum Wastewater Production Rates (Gallons per Day) for 2004

Recreation Area	Day Use and Campers
Tuttletown	60,766
Glory Hole	43,741
Visitor's Center and Administration Offices	1,070
Total	51,721

Source: Reclamation 2001

Glory Hole and Tuttletown Recreation Areas and the Baseline Conservation Camp generate wastewater that is piped to evaporation ponds and then to polishing ponds (Brooks 2007a). Some of the wastewater is then applied to spray fields.

Glory Hole Recreation Area generates wastewater at the campground, restrooms, boat launches, recreational vehicle (RV) dump station, houseboats, and floating restrooms (Brooks 2007a). It is either piped to or trucked to wastewater lagoons, or it is taken off site by private commercial services.

Tuttletown Recreation Area generates wastewater at the restrooms and RV dump station (Brooks 2007a). The wastewater at the RV dump station is trucked to the wastewater lagoons. The wastewater at the restrooms is either piped to the wastewater lagoons or taken off site by private commercial services.

The headquarters, maintenance building, and visitor's center generate wastewater that is piped to a nearby leach field (Brooks 2007a). Approximately 25 personnel generate wastewater in this area.

The Baseline Conservation Camp at the southern end of the reservoir has a California Department of Corrections Facility and CDF facility (Brooks 2007a). The wastewater from these facilities is piped to the evaporation ponds. The power plant is also at the southern end of the reservoir. The wastewater from the power plant is kept in a holding tank for off site removal by private commercial services.

Portable toilets are located at all of the recreation areas (Brooks 2007a). The waste from the portable toilets is either taken off site by private commercial services or to the wastewater lagoons.

Solid Waste. Private commercial services remove solid waste (Brooks 2007a). The closest transfer stations to the reservoir in Calaveras County are Red Hill in Vallecito and Copperopolis in Copperopolis (Calaveras County 2007). The closest transfer station to the reservoir in Tuolumne County is Cal Sierra Transfer Station in Sonora (Tuolumne County 2007).

Communications. A microwave tower on top of Peoria Mountain is used for communications between headquarters and the dam (Brooks 2007a). Peoria Mountain is in the southern portion of Reclamation lands. Tuttletown Recreation Area has a radio repeater that is used for communications between Reclamation personnel.

Recent and planned upgrades to the utilities infrastructure have improved the provision and reliability of water services (Brooks 2007a). The need to provide additional wastewater and solid waste services continues to change as recreation demands change. Changes in recreation demands include new types of recreation in new areas and fluctuating user levels.

6.8.2 Resource Management

Decision and Guidance Documents
New Melones Master Plan- 1976

Table R-45 lists current management guidance for utilities.

Table R-45: Summary of Current Decisions for Utilities

Decision	Source
Maintenance of right of way utility crossings will be coordinated with Reclamation prior to any land alterations.	Master Plan 1976
Public telephones will be provided at the entrance stations and concession areas at Glory Hole and Tuttletown.	Master Plan 1976

6.9 Range Management

6.9.1 Current Conditions

Range conditions vary throughout the planning area. In general, the annual grass community that covers much of the planning area is stable and provides good range conditions. Restricted vehicular access to many areas and fire management methods have kept disturbance to a minimum in most areas. Areas that have been disturbed by inappropriate motor vehicle use, weed infestations, or wildfire may have lower quality range conditions in terms of providing for grazing or ecosystem health. Lack of livestock grazing has allowed vegetation to accumulate in some areas, leading to fuel loading conditions that could allow for hot, damaging fires.

Range management combines, at a minimum, application of fire science, weed control methodology, and sustainable grazing practices. Other aspects of Reclamation's overall management strategy, including banning the use of OHVs and restricting vehicular traffic in sensitive areas, assist in maintaining range conditions.

Prescribed Fire. The recently created Draft FMP recognizes fire as a resource to assist in managing for desired range conditions and proposes methods to incorporate prescribed fire into its range management program. The Draft FMP incorporates several aspects of the National Fire Plan, including use of the fire regime condition class (FRCC) method. FRCC uses established reference conditions created by assessment of ecological features and natural fire regimes in healthy rangelands. Features assessed in the field to determine FRCC include vegetative and disturbance attributes and can be used to determine the overall ecological health of a particular study area. This data will be used by Reclamation and partnering agencies to determine range

management priorities, including making decisions as to when and where prescribed fires may be appropriate.

Weed Control. Most of the grasslands found in the New Melones Lake Area have been converted from perennial native bunchgrasses to non-native annual grasses. Tree and shrub communities show a greater incidence of native species. In the Peoria Wildlife Management Area, which has extensive rangeland, 74 non-native species have been recorded (Evens et al. 2004), most of which are ground layer species. While many of these species have substantially replaced the role of native grasses in terms of providing forage for wildlife and livestock, others such as cheatgrass *(Bromus tectorum)* are able to change the fire and hydrologic regimes and seriously alter range conditions.

Grazing. The California Department of Finance (DOF) determined that in 2000, livestock produced $10.4 million, cattle and calves produced $3.3 million, and livestock products produced $200,000 in Tuolumne County. In Calaveras County, cattle and calves produced $6.7 million, and livestock and poultry products produced $800,000 (DOF 2000). Both private and public grazing added to the county statistics. Six grazing allotments totaling 3,746 acres are located on BLM lands adjacent to the project area. One grazing allotment is permitted on USFS land in the Clark's Flat area. The allotment encompasses 480 acres and has a season of use from May 1 through September 15. Although historically allowed, no grazing is currently permitted on New Melones lands.

Reclamation previously leased 4,394 acres of land in two areas (Bear Creek and Glory Hole Recreation Areas) for livestock grazing. Subject to a grazing suitability analysis, grazing may continue, but its purpose and intensity would be directed by water quality concerns, by vegetation management goals (usually related to fuel loading), and by policies and actions identified in current Reclamation guidance.

6.9.2 Resource Management

Decision and Guidance Documents

- New Melones Draft Resource Management Plan-1995
- New Melones Draft Vegetation Management Plan-1997
- New Melones Draft Fire Management Plan- 2006

Table R-46 lists current management guidance for range management.

Table R-46: Summary of Current Decisions and Guidance for Range Management

Decision	Source
Livestock grazing will be initially eliminated from the Peoria Mountain area so there will be no food competition between wildlife and livestock. All grazing leases on New Melones are now expired and have not been renewed.	Master Plan 1976
Guidance	**Source**
Limited grazing for invasive species control and fuel reduction has been utilized by Reclamation and may occur in the future.	Integrated Pest Management Plan
Trespass grazing will be minimized through maintenance of fencelines and posting of signs. When trespass occurs, Reclamation will coordinate with local law enforcement for the removal of animals.	DRMP 1995
Reseed impacted grassland habitats with native seed.	DFMP 2006
Monitoring for pest detection of new types and increased severity of invasive species is coordinated with Calaveras Agricultural Department.	Integrated Pest Management Plan
Evaluate all pest problems and previous pest control measures.	DRMP 1995
Fuel breaks and firebreaks will be designed in a manner that minimizes impacts to aesthetic, scenic, and ecological resources, and consider resource objectives for vegetation management, wildlife habitat management, soil stabilization public safety, ignition sources, and safety of fire-fighting personnel. -Create fuel breaks with blended or feathered edges through selective thinning and by cutting indentations in brush to create bays. -Retain clumps of unmodified vegetation within fuel breaks to provide cover and food for wildlife. -Retain mature oaks for their wildlife benefits and scenic qualities.	DFMP 2006
Maintain adequate grass and brush clearance directly adjacent to roads and in recreation areas consistent with the Integrated Pest Management Plan and special status plant requirements.	DFMP 2006
Burned Area Environmental Response (BAER) Plan will be followed. -Consider nonpoint sources of pollution resulting from wildfire suppression and rehabilitation, while recognizing safety and operational priorities of fighting wildfires. -Consult with staff archaeologist, botanist, wildlife biologist, and other staff specialists to evaluate fire and suppression operations effects and determine if additional restoration is necessary. -Revegetate burned areas with native plant species.	DFMP 2006
Fire suppression strategies should be tailored to address areas of significant constraints including critical habitat for wildlife, T&E species, areas of soil instability, areas of other critical resource constraints (cultural), and where plant communities are at risk due to current conditions/times of year or other ecological constraints. Actions will be taken in these identified areas to protect the sensitive sites from damage by heavy mechanized equipment.	DFMP 2006
Project lands are within a USFS and CDF mutual aid zone, with the CDF having responsibility for fire control. Fire prevention and suppression activities will be supervised and coordinated by the CDF through the Unit Chief stationed at the Tuolumne/Calaveras Unit in San Andreas.	DFMP 2006

6.10 Public Health and Safety

6.10.1 Current Conditions

Reclamation provides that staff levels commensurate with recreation visitation in order to fully implement policies and management actions and to maintain the level and quality of safety and services expected by visitors to New Melones Lake Area. All Reclamation employees take safety training pertaining to the identification of public safety hazards. Reclamation's employees provide interpretive programs and public contact to educate the public about safety issues relating to boating, firearms use, natural hazards such as poisonous snakes, and use of fire. There is also a visitor's center to inform and educate the public about safety matters at New Melones Lake Area. Additionally, campground hosts provide information to campers and report public safety issues to the Reclamation staff (Laird 2007); campground hosts patrol the campground three times a day.

Use Permits. Permits are issued to regulate the allocation and intensity of use for activities that are in high demand or that have significant safety and/or environmental concerns (Reclamation 1995). Reclamation regulates the following activities through a permitting process (Laird 2007):

- White water rafting;
- Fishing derbies;
- Model aircraft use;
- Houseboat launch and retrieving;
- Mountain bike races;
- Triathlons;
- Search and rescue dog trials;
- CDF fire training;
- Large group camping events;
- Group events involving 8-12 rented houseboats that are operated together;
- Horseback trail ride events;
- Slalom water ski course events (right of use permit);
- Commercial recreation gold panning access to private gold panning area (right of use permit); and
- Others.

Concessionaire Agreements. Concessionaire agreements are prepared with private entities that are permitted to operate businesses at New Melones Lake Area. Agreements are used by Reclamation to achieve needed recreational support services, programs, public safety features, and facilities and as a means for disseminating public use information (Reclamation 1995). Concessionaire agreements include adequate water quality protection measures, public safety

requirements, medical and emergency response requirements, and environmental protection standards.

Recreation. There are a number of recreation zones for regulating the type of and intensity of use to protect sensitive resources and maintain public safety (Reclamation 1995). The various zones include the following:

- No Hunting Zones: No hunting is allowed within a half mile of existing recreational uses;
- Reservoir Management Zone A: All boating uses are allowed;
- Reservoir Management Zone B: 5 mph "No Wake Zone" provides for slow boating and fishing areas. This protects the health and safety of others in the marinas, docks, and boat launch areas and helps minimize shoreline erosion; and
- Reservoir Management Zone C: No boating is allowed in designated swimming areas and in areas off limits for operations (i.e., dam and spillway area).

Boaters must have required safety equipment such as lifejackets, ski flag, and fire extinguisher on board their boat, as required by the US Coast Guard and California Department of Boating and Waterways (Reclamation 2007). Reclamation seeks to comply with boating laws and regulations such as the California Boating Law of 2006 and the Harbors and Navigation Code.

Caves. Caves in the New Melones Lake Area are concentrated along the Stanislaus River near the South Fork confluence; in Coyote Creek, Grapevine Gulch, and Skunk Gulch; and in all areas of soluble limestone terrain (Reclamation 1995). The caves are important components of the natural and cultural systems, with an impressive range of resource values. Reclamation provides limited entry to caves in the Stanislaus River canyon due to safety hazards such as flooding.

According to the New Melones Lake Revised Cave Management Plan, caves can present a hazard to the untrained public (Reclamation 1996). Safety issues in or around caves involve the possibility of falling or getting lost. Because many of the caves are located on steep rock faces, access to caves may be hazardous. Depending on a variety of factors, caves at New Melones Lake Area may be gated or ungated.

Abandoned Mines. Reclamation closes unsafe or potentially hazardous areas (e.g., caves, old mine shafts, exposed steep areas, high fire hazard areas and time periods) in a manner compatible with ecological concerns (Reclamation 1995).

The exact number and location of abandoned mines is not centrally cataloged (Laird 2007). Some mines were filled in by the USACE at the beginning of the New Melones project. In an effort to avoid attracting visitors to potentially hazardous abandoned mines, these features are not signed or identified on public materials.

Illegal Drugs. Illegal drug use, sales, and manufacturing present potential public health and safety hazards at New Melones Lake Area. Manufacturing of drugs, such as methamphetamine and marijuana, occurs in isolated areas on Reclamation lands (Laird 2007). As a result, illegal

drug manufacturing material and hazardous waste is abandoned on New Melones lands, drug manufacturing areas are contaminated, and waste products may be dumped on the roadways. The presence of people involved in production, use, or sale of illegal drugs may present a hazard to other lake users who happen upon such activities.

Illegal Dumping. Illegal dumping of household hazardous waste is a problem at New Melones, especially on Reclamation land in Tuolumne County (Laird 2007). In Tuolumne County, the public pays to dispose of household hazardous waste, providing them with an incentive to dump household waste illegally. In Calaveras County, disposal of household hazardous waste is covered by land owners' taxes.

Public Services

Ranger Services. Reclamation has a staff of 15 permanent and seasonal rangers. Rangers' titles include Chief Park Ranger/Concession Specialist, Park Ranger, Park Ranger for Natural Resources, and Park Ranger VC Specialist. Examples of ranger duties include traffic and crowd control, concession oversight, campground maintenance, issuance of special use permits, natural resources maintenance and planning, volunteer management, education and outreach, interpretation, fee collection, and patrol. Reclamation rangers are not authorized to perform law enforcement duties (see next section).

Law Enforcement Services. Reclamation is developing a new policy to comprehensively describe the duties and responsibilities of rangers. Rangers are responsible for the law enforcement and medical services at New Melones Lake Area, therefore this revised policy may change some of the public services provided. The policy is expected in the fall of 2007 and will be included in this document as Appendix G when it becomes available.

Reclamation performs safety inspections and encourages lake visitors to comply with state and Federal safety laws and regulations, even though it does not have the authority to enforce agency or other Federal rules and regulations designed to provide for the safe and orderly management of the recreation facilities and surrounding resources at New Melones Lake (Reclamation 1995). Lack of enforcement authority constrains Reclamations management options since Reclamation rangers can only issue warnings if visitors choose to ignore management policy. Reclamation rangers also patrol recreational facilities, monitor compliance with permits and concessionaire agreements, and check on the condition of natural and cultural resources (Reclamation 1995).

Reclamation is able to contract with other Federal land management agencies such as BLM or the National Park Service (NPS) for policing personnel. Management of resources on Reclamation land emphasizes interagency coordination with Federal, state, and local agencies, including but not limited to USFS, BLM, Tuolumne County, Calaveras County, USFWS, CDF, and CDFG.

Federal, state, and local laws are enforced by the Sheriffs' Offices of Tuolumne and Calaveras Counties in their respective areas of jurisdiction (Reclamation 1995). When their services are needed, Reclamation contacts the Sheriff's department by radios that are carried in all Ranger vehicles and kept at Reclamation Headquarters. The California Highway Patrol (CHP) is responsible for enforcing the vehicle code. In general, the level of the Sheriff patrols and

presence at the New Melones Lake Area is limited, particularly given the size of New Melones Lake and its surrounding lands, heavy visitor use, and the frequent vandalism and theft incidents that continue to occur at all of the recreation areas. The local law enforcement agencies are unable to provide adequate proactive enforcement at the New Melones Lake Area due to insufficient resources (Reclamation 1995). These agencies respond to the law enforcement needs at the reservoir on a case-by-case basis as their resources permit, with each case considered according to the nature of the particular violation and available resources. There have been numerous incidents when county law enforcement officials have been unable to respond to Reclamation's law enforcement needs. In light of the budgetary situation these agencies face, it is likely that many law infraction incidents at New Melones Lake will continue to go unchallenged. Requests for law enforcement services are increasing because the number of visitors to New Melones is increasing (Laird 2007).

Tuolumne and Calaveras County Sheriff boat patrols share responsibility for enforcing boating laws at New Melones Lake and at Tulloch Reservoir (also on the Stanislaus River just south of New Melones Lake) (Reclamation 1995). Because both counties have many lakes they are responsible to patrol, staffing levels are inadequate to provide effective patrols on New Melones Lake (Laird 2007).

Reclamation currently has three boats available for use on the reservoir most of the year and provides infrequent boating safety patrols on the lake during the summer months (Reclamation 1995; Laird 2007). One of the boats is designated for patrolling the reservoir. Since Reclamation has no law enforcement authority, the focus of this patrol is to advise boaters of unsafe acts, inspect boating safety equipment, and provide boaters with current safe boating regulations and safety information. In addition, Reclamation patrol boats are used to provide assistance to disabled boats and mark boating waterways and hazards (Appendix F). Due to a lack of enforcement power and staffing limitations, boat patrols by Reclamation are inadequate at New Melones Lake to manage safety issues such as speeding.

New Melones Lake Area is within the CDFG Sierra District and Tuolumne County Region (Reclamation 1995). The CDFG issues fishing and hunting permits and is empowered to enforce the State Fish and Game Code, including issuing violations and revoking sport fishing and hunting privileges at New Melones Lake Area. CDFG also regulates catch from fishing tournaments and issues dredging permits as needed.

The PWMA access road crosses approximately 1.8 miles of the PWMA (Jones and Stokes 2006). This section of road was temporarily closed to public vehicles on December 15, 2002, as a preventative measure to stop increasing damage to natural resources from illegal and inappropriate uses by both local and non-local recreationists. Illegal actions including target shooting, poaching, off-road driving, fires, littering, dumping of large debris and hazardous materials, vandalism, and illegal camping have resulted in soil erosion, habitat degradation, and widespread damage to the natural resources and have compromised the safety of the public and adjacent landowners in the area. Closing the road to use by public vehicles has minimized further degradation of this area.

The Animal Control units of the respective counties are called approximately ten times a year, usually for a vicious dog or a distressed animal (Laird 2007). However, animal control typically responds to two of the ten calls a year.

Fire Protection Services. Reclamation evaluates and maps fire hazard throughout its lands with a focus on current and proposed recreational facilities and adjacent residences and structures (Reclamation 1995). Hazard analysis is based on fire behavior, fuel load, slope, probable location and rate of ignition, potential loss of life, potential loss of valuable property, and access restrictions.

The CDF is the primary agency responsible for wildfire suppression at New Melones (Reclamation 1995). The agency maintains a fire unit facility on Reclamation lands located on Peoria Flat Road within the PWMA. Minimum-security inmates staff this facility.

It is Reclamation's responsibility to provide for the initial response to any fires on its lands at New Melones that are accessible to them (Reclamation 1995). Reclamation's primary fire fighting equipment consists of the following (Laird 2007):

- Hydrant system in campgrounds;
- Hydrant system around administration buildings;
- Visitor's center and maintenance building with burglar alarms but no fire hydrant systems;
- A shaded fuel break on the visitor's center side of SR 49;
- Marina with fire alarms in the store and covered area of docks, water storage tanks, and a Trimex 30 Fire Foam System;
- Marina with hand-held fire extinguishers on open docks;
- Fire hydrant system on land around the marina; and
- Rangers carrying hand tools and 5-gallon water backpacks to put out campfires in case of emergency.

Reclamation's responsibility for fire suppression ends when a CDF fire unit or any fire unit having a mutual aid agreement with CDF arrives at the fire. Requests for fire protection services remain constant (Laird 2007).

Reclamation takes a proactive approach to preventing fires by clearing vegetation along roads and clearing overgrown vegetation from campgrounds and other areas where human use is likely to occur (Reclamation 1995). A shaded fuel break is on the visitor's center side of SR 49; another fuel break will be installed on the other side (Laird 2007). In addition, Reclamation participates in the Highway 108 Fire Safety Council, which prepares cooperative fire management strategies with other local fire control entities.

Vegetation clearing is carried out by mechanical means (bulldozers, tractors), chemical application (herbicides), and by hand with the assistance of the California Department of

Corrections (Sierra Conservation Corps inmate labor). Caltrans also carries out similar vegetation removal activities along SR 49.

Medical Services. Reclamation rangers on permanent status are required to have First Responder certification (Reclamation 1995). Temporary employees receive Basic First Aid and CPR training. Most medical emergencies are responded to by Reclamation rangers who provide some emergency medical assistance commensurate with their training until an ambulance or the fire department arrives at the scene. Rangers call the fire department for assistance. The responding fire department is decided by the coordinated 911 system (Laird 2007). Requests for medical services are increasing because the number of visitors to New Melones is increasing (Laird 2007).

Reclamation's New Melones ranger staff do not have the appropriate emergency medical response training necessary to carry out cave or cliff-face (rock climbing) rescues, nor do they have the authority to obtain this type of training (Reclamation 1995). Reclamation is responsible for managing the activities on lands under their jurisdiction and is thereby liable for the potential consequences of activities that occur on their lands.

In 2006, there were three rattlesnake bites (Laird 2007). Reclamation provides fliers to educate the public about rattlesnakes and removes rattlesnakes from campgrounds. Reclamation rangers may provide first aid to snakebite victims, but more extensive treatment is required and must be provided by area hospitals.

6.10.2 Resource Management

Decision and Guidance Documents

- 43 CFR 422
- 43 CFR 423
- New Melones Draft Resource Management Plan-1995
- New Melones Master Plan-1976
- Reclamation Safety and Health Standards- 2002
- New Melones Draft Fire Management Plan- 2006

Table R-47 lists current management guidance for public health and safety.

Table R-47: Summary of Current Decisions and Guidance for Public Health and Safety

Decision	Source
A project Safety Plan will be formulated by Reclamation. Under this plan, project personnel will identify common recurring hazards or unsafe conditions in all necessary areas.	Master Plan, 1976
Signs, markers, guideposts, guardrails, and center line and shoulder striping will be provided on surfaced roads for traffic control and safety purposes. Standard guardrails will be used on fill slopes over 10 feet and on all daylight or fill slopes in steep terrain. Movable signs and barriers will be used below gross pool level. For further traffic control and safety, slow-down bumps will be provided where needed on circulation roads. Barriers will be installed to prevent vehicles from going off the travelway and will generally be constructed of natural materials such as large rocks, timber, and logs.	Master Plan, 1976
Inform visitors of fire activity in the area, including suppression and prescribed burns, through the use of personal contact, announcements, signs, and news articles.	Master Plan, 1976
Internal Guidance	**Source**
Provide staff levels commensurate with recreation visitation in order to fully implement the policies and management actions of this RMP, as well as to maintain the level and quality of services expected by the visitors to New Melones.	DRMP 1995
Until, and/or in the absence of full enforcement authority, explore additional law enforcement mechanisms to ensure that public safety and resource needs are met in Reclamation lands. -Pursue obligation of both Tuolumne and Calaveras Counties to provide required boating law enforcement services. -Encourage the CDFG to increase their presence and patrols at New Melones. Contract with the Tuolumne and Calaveras County Sheriff Departments and/or the BLM, USFS, NPS, or other appropriate Federal, state, or local agencies to provide increased law enforcement services. --Coordinate with applicable agencies (i.e., Tuolumne County, BLM, USFWS, CDFG, etc.) and appropriate private entities to develop measures to protect and preserve the ecological values of the Table Mountain formation. Measures would address issues such as access, recreational shooting, and the potential disturbance of vegetation, soils, and geologic features.	DRMP 1995
Prevent violations and increase visitor awareness through ranger visibility and a program of distributing public information related to applicable policies, rules, and regulations. -Require that all concessionaire contracts include: 1) explicit measures related to the notice and dissemination of public information; 2) communications equipment necessary in the event of emergencies; 3) medical emergency provisions; and 4) spill emergency response measures. -Increase visitor awareness of applicable policies, rules, and regulations by implementing a program that includes signage and the distribution of pamphlets, maps, and other literature.	DRMP 1995
Ensure adequate closure of all unsafe or potentially hazardous areas in a manner compatible with ecological concerns (e.g., caves, old mine shafts, exposed steep areas, high fire hazard areas, and time periods).	DRMP 1995

Internal Guidance	Source
Initiate a program to seek compliance and monitor boating activities to achieve compliance with state laws and regulations, reservoir management requirements, and general boating etiquette.	DRMP 1995
Ensure adequate closure of all unsafe or potentially hazardous areas.	FMP 2006
Provide staff levels commensurate with recreation visitation in order to fully implement the policies and management actions of this RMP, as well as to maintain the level and quality of services expected by the visitors to New Melones.	FMP 2006
The law enforcement program will be a multi-agency effort; state and county laws will apply to all project lands. Reclamation should consider contracting with the counties for project land law enforcement activities.	DRMP 1995

7. Visitor Use and Recreation Resources

Reclamation provides a variety of services and opportunities for recreation at the New Melones Lake Area, and the public is encouraged to take advantage of these resources. This section describes recreational opportunities available in various management areas of the lake and associated uplands, and identifies strategies that Reclamation currently uses to manage these management areas and to manage recreation overall. For each management area, issues that Reclamation may address in the RMP/EIS are identified as well. This section is organized according to the following subsections:

- **Overview.** This subsection describes general recreational resources and management of those resources in the New Melones Lake Area.
- **Recreational Opportunities.** This subsection describes aquatic and land based recreational opportunities and management of special uses.
- **Recreational Facilities and Management Areas.** The planning area is broken down into management units, each with their own issues and opportunities. This section describes recreational facilities maintained by Reclamation according to management units.
- **Trends.** This section summarizes the influences that Reclamation may address while planning for recreational resources in the RMP/EIS.

7.1 Overview

7.1.1 Introduction

Lakes and rivers have always been a primary focus for outdoor recreation activities, and many outdoor recreational activities are considered water dependent or water enhanced. Water dependent recreational activities include boating, fishing, and swimming, which are often complemented by land-based activities, such as picnicking, camping, hunting, spelunking, and hiking. Recreational facilities to accommodate these activities include beaches, day use areas, restrooms, parking lots, boat ramps, trails, access roads, and campgrounds. These activities and facilities provide much of the foundation for recreation opportunities in California.

New Melones Lake is the fifth largest lake in California, with over 100 miles of shoreline. The lake and its surrounding lands provide recreation opportunities for a variety of visitors each year. Annual recreation occurs mainly from April to late September, and an estimated 95 percent of the visitors come from counties in the San Joaquin Valley (San Joaquin River Group 1999). Future population projections specific to Calaveras and Tuolumne Counties clearly indicate an ever-increasing need for outdoor recreation in California, specifically the New Melones region (Calaveras County 1996c; Tuolumne Counties 1996c). Detailed information regarding

population growth of the surrounding towns is provided in Section 8: Socioeconomics and Environmental Justice.

Other large reservoirs in the New Melones Lake Area that also accommodate outdoor recreational visitors are Comanche Reservoir, New Hogan Reservoir, Pardee Reservoir, Tulloch Reservoir, and Don Pedro Reservoir. Several small reservoirs in the area also provide recreation opportunities, but these reservoirs contain minimal or no facilities.

7.1.2 Management Authority and Relevant Regulations

The authority for the provisions of the recreation opportunities on Reclamation projects comes from Federal laws, Executive Orders (EOs), Memorandums of Agreement (MOAs), and internal policies. Some of these are specific to Reclamation, while others are intended for other Federal agencies including Reclamation:

Reclamation Specific Authority

- **Reclamation Manual Policy LND P04:** Recreation Management-Defines Reclamation's overall responsibilities and establishes the basic principles for planning, development, management, and protection of public recreation resources on Reclamation lands and waters.
- **Reclamation Recreation Management Act of 1992:** An amendment to the Federal Project Recreation Act of 1965, Public Law (P.L.) 89-72, that provides up to 50 percent Federal cost sharing for the planning, construction, and operation and maintenance of recreation facilities with non-Federal public entities. It also provides 75 percent Federal cost sharing with non-Federal partners for fish and wildlife enhancement and up to 50 percent of the operation and maintenance of such facilities. Non-Federal public entities that have agreed to manage developed facilities and lands at Reclamation projects are to work with local Reclamation offices to identify proposed projects for funding. Congressional funds are appropriated annually and distributed for selected sites.
- **Public conduct on Reclamation lands and projects (43 CFR 423):** Established on April 17, 2002, this code is meant to maintain law and order and protect persons and property on Reclamation lands and at Reclamation projects. This statute at the time of authorization honored all designated closures and special use areas on Reclamation property. At New Melones Lake, two separate Memoranda for Record and an Interim Management Plan were in force.
- **Procedure to process and recover the value of rights-of-use and administrative costs incurred in permitting such use (43 CFR 429):** The purpose of this code is to meet the requirements of the Independent Offices Appropriation Act (31 U.S.C. 483a) and Departmental Manual Part 346, Chapters 1.6 and 4.10, to set forth procedures for Reclamation to recover the value of rights-of-use interests granted to applicants, and for the collection of administrative costs associated with the issuing of rights-of-use over lands administered by Reclamation.
- **The Reclamation Act of 1902, as amended:** Set aside Federal money to irrigate lands in the West to promote farming and vested Reclamation with the authority to operate water projects.

- **Flood Control Act of December 22, 1944. Authorized construction of New Melones Dam, and was subsequently modified by the** Flood Control Act of 1962 (Public Law 87-874). The authorized purposes of the project included flood control, irrigation, power generation, general recreation, water quality, and fish and wildlife enhancement.
- **The Flood Control Act of 1962**. Describes the responsibilities of the Secretary of the Army and the Secretary of the Interior at the New Melones project. This act authorized Reclamation to allow and plan for recreational activities at the New Melones Lake Area.
- Bureau of Reclamation Manual Policy and Directives and Standards release numbers LND P04: Recreation Management, LND P02: Concessions Management, LND 04-01: Concessions Management by Reclamation (Directives and Standards [D&S]), LND 04-02: Concessions Management by Non-Federal Partners (D&S), and ENV P03: National Environmental Policy Act.

Authority for Federal Agencies Including Reclamation

- **The Federal Lands Recreation Enhancement Act of 2005 (FLREA)**. Provides for a nationally consistent interagency program, additional on-the-ground improvements to visitor services at recreation sites across the nation, a new national pass for use across interagency Federal recreation sites and services, and more public involvement in the program. The new authority addresses public concerns about the previous Fee-Demo program by limiting fees to sites that have a certain level of development and meet specific criteria. The FLREA will allow New Melones management to establish a comprehensive fee collection program and to retain a portion of the fees for improvements to recreational facilities and infrastructure. Details of the proposed fee collection program will be identified in the RMP/EIS.
- **36 CFR Part 71: Recreation Fees.** Specifies the criteria under which recreation fees may be charged on Federal lands. Fees must be entrance fees, daily recreation use fees, or special use permit fees. Areas with recreational facilities provided at Federal government expense are eligible to charge use fees.
- **43 CFR Part 24: Department of the Interior Fish and Wildlife Policy: State-Federal Relationships.** Establishes policy on intergovernmental cooperation for the management, use, and preservation of fish and wildlife resources.
- **The Federal Water Project Recreation Act of 1965, as amended**. Mandates that planning for any Federal water resource project must address opportunities for recreation and fish and wildlife enhancement.
- **The Land and Water Conservation Fund Act of 1964**. Directed the Secretary of the Interior to inventory, evaluate and classify outdoor recreation facilities, and formulate and maintain a comprehensive nationwide outdoor recreation plan.
- **Public Law (PL) 106-206: Commercial Filming**. Established requirement of a permit and reasonable fee for filming on lands under the supervision of the Secretary of Interior or Secretary of Agriculture.
- **Americans with Disabilities Act of 1990**. Prohibits private employers, state and local governments, employment agencies and labor unions from discriminating against persons with physical disabilities.

- **Reclamation Recreation Management Act of 1992.** This act is an amendment to the Federal Project Recreation Act of 1965, Public Law 89-72, that provides up to 50 percent Federal cost sharing for the planning, construction, and operation and maintenance of recreation facilities with non-Federal public entities. It also provides 75 percent Federal cost sharing with non-Federal partners for fish and wildlife enhancement and up to 50 percent of the operation and maintenance of such facilities.
- **Office of Management and Budget (OMB) Circular A-025, Revised 1993.** Establishes Federal policy regarding fees assessed for Government services and for sale or use of Government goods or resources. It provides information on the scope and types of activities subject to user charges and on the basis upon which user charges are to be set. Finally, it provides guidance for agency implementation of charges and the disposition of collections.

Agreements Specific to New Melones Lake

- *Cultural Resources.* A Memorandum of Agreement between Reclamation and the Advisory Council on Historic Preservation, dated December 22, 1980, outlined requirements for mitigating effects to cultural resources from construction of New Melones Dam and subsequent filling of the reservoir. One of the tenets of the agreement was that Reclamation would create and maintain an interpretive program. This program was to include "trails, signs, exhibits, and pamphlets, brochures, booklets, and displays", but has been expanded to include the visitor center located at lake headquarters as well as the current interpretive program.

The main decision document that provides guidance for recreational resources in the New Melones Lake Area is the Lake Area Master Plan of 1976. Internal guidance for recreation has come from the 1995 Draft New Melones Lake Resource Management Plan and the Draft Peoria Wildlife Management Area Environmental Assessment. Management direction relevant to the broad category of recreation is below. Individual management actions for general recreational resources are listed below.

7.1.3 Other Plans That May Be Considered

To the degree possible, Reclamation will coordinate management of recreational resources with agencies that have adjacent lands. To accomplish this, Reclamation will consider the following plans:

- **Sierra Nevada Draft RMP**. In November 2006, BLM released the draft RMP and EIS for approximately 230,000 acres of public lands administered by the Folsom Field Office. The BLM manages about 34,000 acres in Calaveras County and almost 46,000 acres in Tuolumne County, but most parcels are small, fragmented, and dispersed. There are BLM lands directly adjacent to New Melones Lake Area, and there are a number of joint management issues requiring coordination, including management of recreation and access. The BLM Folsom Field Office issues a variety of special recreation permits for commercial use, competitive use, special area use, and organized group activity and event use. The proposed Special

Recreation Management Area (SRMA) closest to the lake is the Red Hills SRMA, which is just south and east of the lake, near Don Pedro Reservoir.

- **Tuolumne and Calaveras General Plans**. Reclamation sees an opportunity to manage lands with the cooperation of Calaveras and Tuolumne counties. The Calaveras County General Plan wants to lobby for Federal and state legislation to require recreation areas to fund construction and maintenance of local facilities supporting regional recreation resources. The Tuolumne County Recreation Master Plan may allow continuity between land-based recreation at New Melones Lake Area and lands administered by the County.

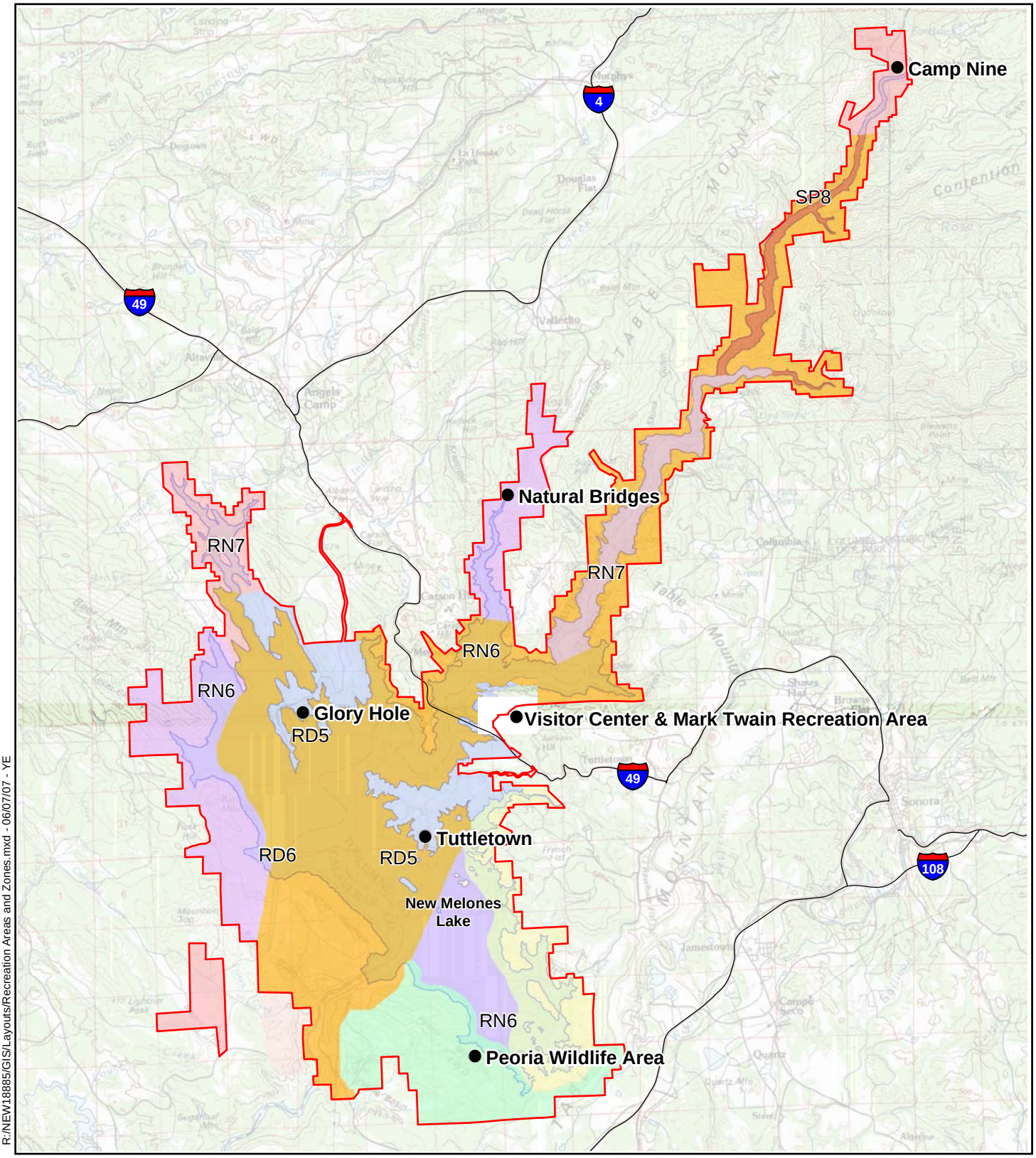
7.1.4 Current Conditions

New Melones Lake Area receives approximately 800,000 visitors a year (Reclamation 2007b). Most visitor use occurs within two designated developed recreation areas: Glory Hole and Tuttletown. Both recreation areas have been developed and managed in conformance with the Master Plan (1976). In addition to its magnificent scenery, the lake offers an array of activities, such as camping, hiking, wildlife viewing, rock climbing, mountain biking, horseback riding, fishing, boating, water skiing, wake boarding, jet skiing, sailing, swimming, kayaking, and canoeing. Figure R-11 shows recreation areas at New Melones Lake.

Within the developed recreation areas, Reclamation manages five fee campgrounds. Campsites are available for reservation through the National Recreation Reservation Service (NRRS). Camping is permitted only in the designated campgrounds; no shoreline camping is allowed. Each campground also has its own self-registration/self-pay station. The current capacity is 305 developed camping sites for the primary use season, 2 group campgrounds, 470 parking spaces year-round, 125 picnic sites, and 1 group picnic area. Each camping site contains a picnic table, fire pit, and grill. Each campground has water spigots, restroom facilities, and hot showers. Most of the camping and picnicking infrastructure on the lake is aging. Historically, recreation occurred on a seasonal basis, with significantly fewer visitors during colder months. With visitation in the non-peak seasons increasing, pressure on facilities and infrastructure is also increasing. Issues are also apparent with accommodating persons with disabilities. Only one site in the campground has been updated to meet the Americans with Disabilities Act (ADA) standards. Almost all sites are available by reservation and are otherwise available on a first come first served basis.

7.1.5 Resource Management

Recreational resources at New Melones Lake Area are managed according to internal guidance provided by various draft documents and by decisions provided in the 1976 Master Plan and relevant Reclamation guidelines. Guidance and decisions are described in Table R-48 below. Additional management policies that do not appear in draft documents or decision documents are listed in Appendix D.



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WROS INVENTORY SCALE

1	2	3	4	5	6	7	8	9	10	11
U		S		RD		RN		SP		P

U - Urban Recreation
S - Suburban Recreation
RN - Rural Natural Recreation
RD - Rural Developed Recreation
SP - Semiprimitive Recreation
P - Primitive Recreation

WROS Categories

- RD4
- RD5
- RD6
- RN6
- RN7/SP7
- SP8
- RN7

N

0 2

Miles

Recreation Areas and Zones

New Melones Lake, California
Central California Area Office

Figure R-11

Table R-48: Management Decisions and Internal Guidance for General Recreation

Decision	Source
Special events are allowed by permit such as equestrian trail trials, special hunts, or cross-country sporting events.	43 CFR 423
Recreation activities would be sufficiently varied to accommodate all age groups.	Master Plan 1976
Interim use in the future (development) areas would be limited to wildlife management and low-density recreation.	Master Plan 1976
Campsites and picnic sites for groups, including physically disabled persons, would be located within camping and day-use areas at the larger recreation areas.	Master Plan 1976
All new and modified facilities and programs would be designed to incorporate the "universal" design approach to accessibility. This approach combines the basic principle of barrier-free design with the more comprehensive view, which considers all degrees of sensory awareness, all types of locomotion, and all levels of physical and intellectual function. At a minimum, all facilities and programs would meet legally mandated accessibility standards (per the ADA of 1990 and the 1991 ADA accessibility guidelines, Section 504 of the Rehabilitation Act of 1973, as amended in 1978, and Title 24 of the California Building Code).	ADA 1990
Internal Guidance	**Source**
In undeveloped recreation areas, recreation impacts are managed to preserve sensitive resources in their natural state and to maintain scenic qualities associated with these areas.	DRMP 1995
User needs would be met for specific recreation opportunities and to provide adequate, flexible, and efficient support facilities under varying lake level conditions. This would be accomplished without compromising ecological resources and by demonstrating compatibility with the site-specific suitability of land and water environmental conditions.	DRMP 1995
Recreation area facilities would be designed to minimize water contamination and the loss of soils due to surface runoff.	DRMP 1995
Concessionaire agreements with private enterprises would be explored and, where appropriate, supported to achieve needed recreational support services, programs, and facilities and to disseminate Reclamation information.	DRMP 1995
A phone and web-based reservation system (National Recreation Reservation System) is used for campground and group picnic facility reservations.	DRMP 1995
All new and modified facilities and programs would be designed to incorporate the "universal" design approach to accessibility. This approach combines the basic principle of barrier-free design with the more comprehensive view, which considers all degrees of sensory awareness, all types of locomotion, and all levels of physical and intellectual function. At a minimum, all facilities and programs would meet legally mandated accessibility standards (per the ADA of 1990 and the 1991 ADA accessibility guidelines, Section 504 of the Rehabilitation Act of 1973, as amended in 1978, and Title 24 of the California Building Code).	DRMP 1995
An accessibility review would be conducted of all facilities at developed and undeveloped recreation areas not previously surveyed.	DRMP 1995
Facilities and programs would be modified to comply with ADA requirements.	DRMP 1995
A site's topography and natural features, the degree of structural modification, and visitors expectations related to the recreational land use would be considered when determining the applicable levels of accessibility.	DRMP 1995
Lands would be managed and coordinated with adjacent land owners/agencies to preserve, protect, and enhance visual resources at New Melones Lake.	DRMP 1995

Internal Guidance	Source
All facilities would be designed to blend in to the natural landscape through careful siting (for example, behind terrain, away from ridgelines, within vegetated areas), screening with appropriate native plant species, use of compatible architectural design with the applicable surroundings (including style, scale, texture, and colors), and avoiding the use of unpainted metallic surfaces, such as roof materials.	DRMP 1995
All Reclamation and concession signs will comply with the Reclamation sign manual.	DRMP 1995
In conjunction with management actions for ecological resources, Reclamation would initiate a program to evaluate and rehabilitate areas that have been damaged by unrestricted and unregulated off-road vehicles and other activities that may have heavily impacted natural ground cover.	DRMP 1995
Reclamation would coordinate with adjacent agencies and landowners to review and assist in the guidance of land use activities that may affect the visual quality of the study area.	DRMP 1995
Conflicts would be minimized and safety would be promoted between recreational activities and users, including implementing, monitoring, and seeking compliance with reservoir zoning and management regulations.	DRMP 1995
The number, extent, and adverse effect of stream crossings would be minimized when new roads, trails or easements are designed. New stream crossings would be designed and existing crossings would be maintained to minimize disruption to riparian vegetation, to prevent alteration of stream flow regime, and to prevent initial and chronic sources of erosion and sedimentation.	DRMP 1995
All vehicles would be restricted to designated roads, except as authorized under permit.	DRMP 1995
Roads, trails, and access easements would be designed to follow the natural topography, minimizing steep slopes and the number of stream crossings.	DRMP 1995
All public vehicles would be confined to existing roadways.	DRMP 1995
Chemical or vault toilets would be provided and maintained at existing high use areas and as a part of all new development. The toilets would be placed in high visibility areas to minimize vandalism. Permanent facilities would be located above the gross pool.	DRMP 1995
Appropriate storage, transfer, containment, and disposal facilities would be provided and maintained for liquids, such as oil, solvents, antifreeze, and paints, at Reclamation and lessee facilities, and recycling of these materials would be encouraged.	DRMP 1995
Reclamation would pursue the obligation of both Tuolumne and Calaveras Counties to provide required boating law enforcement services.	DRMP 1995
Recreation organizations are used as stewards such as providing information on Reclamation resources, volunteer activities, and habitat rehabilitation. Examples include Climbers Club, Backcountry horseman, California Deer Association etc.	Draft Peoria EA 2006
Brochures, maps, and the New Melones website are provided to inform the public of recreation opportunities and areas.	Draft Peoria EA 2006
The CDFG would be encouraged to monitor and enforce rules and regulations related to hunting and fishing.	DRMP 1995
Hunting is not allowed within the boundaries of the Tuttletown and Glory Hole Recreation Areas.	
Reclamation would adhere to the rules and regulations set forth and permitted by the CDFG. Hunting would not be allowed within 150 yards of any designated recreation area facilities, including campgrounds, day-use areas, boat ramps, and parking areas.	DRMP 1995
Appropriate signage and literature would be provided to display a buffer zone around designated recreation areas.	DRMP 1995

Internal Guidance	Source
The discharge of firearms for purposes other than permitted hunting and as required by enforcement authorities is not allowed on any lands or waters under Reclamation's jurisdiction at New Melones.	DRMP 1995

7.1.6 Trends

Recreation in the planning area is likely to increase due to a number of factors, including increasing population, displacement from other recreation areas because of a loss of opportunity or change in management, and increasing leisure time and disposable income for both the working population and retired population. It is important to note that this retired population will increase in the near future as the baby boomer generation ages. In 2004, the oldest members of the baby boomer generation were nearing 60 and the youngest turned 40. The overall California population will also have an impact on recreation as it increases from about 34 million in 2002 to an expected 40 million or more by 2012 (California State Parks 2002).

With the increasing awareness in health and fitness, people are realizing the importance of outdoor recreation in their everyday lifestyle. In 2002, 96.8 percent of Californians thought that public outdoor recreation areas and facilities were important to them and their families (California State Parks 2002), compared to only 76.3 percent expressing a similar view when the same study was performed in 1992 (California State Parks 1992).

New forms of pursuing recreation are rapidly evolving. The original New Melones Lake Master Plan could not have anticipated the changes brought forth today such as the increased size and speed of boats, the increasing demand for lake fishing, the various new types of watercraft (e.g., personal watercraft) and water uses (e.g., wind surfing), as well as new sports such as mountain biking.

Californians are also spending more time outdoors each year. In both 1997 and 2002, walking for fitness and fun was the number one recreation among Californians. In 1997, 74.3 percent reported participating, and in 2002, 91.1 percent of Californians participated (an increase of 16.8 percent). Of those who participated, the mean number of days they walked increased from 87.6 in 1997 to 102.8 in 2002 (an increase of 15.2 days). The top five recreational activities of Californians in 2002 were as follows: 1) walking for fitness and fun; 2) driving for pleasure, sightseeing, driving through natural scenery; 3) visiting historic or cultural sites, museums; 4) attending outdoor cultural events (festivals, fairs, concerts, historical reenactments, outdoor theater); and 5) beach activities (including sun bathing) and surf play (California State Parks 2002).

Recreation has increasingly become an important component of the local and regional economic base, surpassing traditional industries in the local communities surrounding the planning area. Indeed, 71.1 percent of Californians say they are spending as much or more time in outdoor activities today than five years ago. Of those who responded that they are spending less time in outdoor recreation in 2002 than five years prior, 36.4 percent said it was because of security and enforcement issues in the parks and 34.5 percent said it was because of their work schedule (California State Parks 2002).

As more and more visitors come to New Melones Lake Area, land-based recreation will continue to increase in popularity, and facilities to support those activities will be in greater need. As facilities surrounding the lake continue to age, more facilities will be considered less than adequate to support the number of visitors taking advantage of the comparatively low cost of recreating on New Melones Lake.

Relative to the rest of the state, Reclamation's user fees are below average for camping facilities. As a result, visitation rates at these facilities will likely increase. This could result in an undue burden on Reclamation, whose responsibility is to provide the appropriate management and infrastructure to the area's visiting population. As the popularity of land-based activities increases, so do the number of land-based recreation issues. Primary issues include limited facilities, such as camping sites (including issues of ADA-compatibility) and restroom facilities, in addition to trespassing, vandalism, and access issues.

New Melones Lake Area is one of the few remaining public recreation areas in California that does not charge boat launching or day use fees. Camping fees are comparable with other lakes in the region, and Special Recreation Permit fees are the only other use fees charged at New Melones Lake Area. The disparity in recreation fees at New Melones may contribute to management issues such as increased visitation and problems related to crowding, incompatible uses, and illegal activities. As more and more visitors come to New Melones Lake Area, aquatic recreation resources are stretched because the aquatic element at the lake is what attracts most of the visitors. As the popularity of water sports and overall number of boats on the lake increases, so do the number of aquatic-related issues, such as congestion problems on boat ramps, limited space for boat and trailer parking and camping, and a shortage of amenities, such as restroom facilities, which are already lacking.

As similar facilities in the region continue to implement and increase user fees, an undue burden is created for Reclamation, which is experiencing an increase in users due to reduced costs. While there are camping fees at New Melones Lake Area (consistent with other areas in California), Reclamation does not charge a day-use or boat launch fee, which is inconsistent with other lakes in California. This disparity will continue to draw visitors to New Melones and the cost of upkeep to Reclamation will grow in kind if revenues are not increased.

7.2 Recreational Opportunities

The New Melones Lake Area offers year-round recreational opportunities, some dependent on the lake itself and others that are land-based but which are enhanced by the presence of the lake and the facilities that Reclamation maintains. This section describes both aquatic and land-based opportunities as well as special events management and lists current management actions that pertain to those recreation categories.

7.2.1 Aquatic Recreation

Current Conditions

New Melones Lake Area is most popular with visitors for its aquatic recreation opportunities. There are approximately 12,500 surface acres of water (at full capacity) available for aquatic recreation. Activities such as fishing, boating, kayaking, whitewater rafting, houseboating, and water skiing all occur on the lake. With local population and visitation numbers on the rise, all of these activities would likely experience a similar increase.

New Melones Lake accounts for about 12,500 surface acres of the approximately 27,000 acres of Reclamation-administered lands in the study area and holds up to 2.4 million acre-feet of water. The lake is surrounded by approximately 100 miles of shoreline.

Fishing is the most popular water-based recreation on New Melones Lake. It occurs throughout the lake as the preferred fishing locations vary according to the type of fish species sought and also with the seasons. The CDFG issues permits, regulates fishing activities at New Melones, and ensures compliance with CDFG regulations. Since 1992, a Kids Day Fishing Derby, sponsored by Reclamation, has been held to celebrate and support National Fishing Week. As many as 75 bass tournaments are also held and range from those sponsored by local clubs with a small participation size to regional events with over one hundred participants. Reclamation issues permits for these tournaments.

Motorized boats are abundant on New Melones Lake as a means to enjoy recreation opportunities, such as waterskiing, fishing, and sightseeing. Houseboats and personal watercraft also are used on the lake. The number of houseboats allowed on the lake at a time is limited, but there is no limit to the number of other motorized boats allowed. Current capacity is 50 private houseboats on mooring balls, 38 private houseboats in houseboat slips and 23 rental houseboats. There are no speed limits on the water, except those required under the State of California Department of Boating and Waterways regulations. That is, the maximum speed is five miles an hour for motorboats within 100 feet of a bather (but not a water skier) and within 200 feet of a beach, swimming float, diving platform or life line, passenger landing being used, or a landing where boats are tied up (California Department of Boating and Waterways 2005). Reclamation maintains 17 boat ramp lanes on both the north and east shores of the lake (Haas 2003). Table R-49 provides a list of the available boat ramps, along with their elevation range.

Table R-49: Available Boat Ramps at New Melones Lake

Location	Number of Lanes	Elevation Range (feet)
Glory Hole: Lowest Ramp	2	860–900
Low Ramp	6	899–943
Medium Ramp	6	940–1,028
High Ramp	6	1,025–1,088
Angels Creek Ramp	4	975–1,088
Tuttletown Ramp: Low Ramp	7	900–962
Medium Ramp	7	962–1,036
High Ramp	7	1,031–1,088
Mark Twain unimproved	1	760+ (car top loading only)

Location	Number of Lanes	Elevation Range (feet)
Parrotts Ferry[1] unimproved	1	760+ (car top loading only)

Notes: [1]Parrotts Ferry ramp closed as of April 2006.
Source: Glory Hole Sports 2006

Motorboats also allow access for suction and dredge recreational gold mining in the flowing water of tributaries to the lake. This type of mining involves vacuuming sediment, sifting it for gold particles, and then discharging most of the sediment back into the water. This activity is permitted and regulated by CDFG.

Whitewater kayaking and rafting is also enjoyed in Camp Nine sections, subject to appropriate water levels. Flatwater paddling, such as in canoes or touring kayaks, has expanded in popularity in recent years. These activities occur almost exclusively during periods of low lake water levels. Most of the whitewater rafting consists of organized concessionaires that provide day-long, guided raft trips. However, individuals may also kayak and raft the lake/river. Depending on water levels, the whitewater trip can be up to nine miles long. In some parts of the New Melones Lake Area, water flows, controlled upstream by PG&E's hydro facilities, provide Class II to Class III rapids.

Not as popular as the activities listed above but still present on the lake are sailing and windsurfing. This may be attributed to the physiographical nature of the lake; steep hills that enclose the lake create a wind-protected environment throughout much of the year.

Swimming is a popular activity but, due to limited access and inadequate shoreline conditions (i.e., lack of beaches or grassy areas, "bathtub ring" present under all conditions except gross pool), this activity is more often enjoyed from a boat. Glory Hole provides the only designated swimming area on the lake, but no lifeguard services are offered and swimming is not allowed within 100 feet of launch ramps and public docks, including the marina docks. Table R-50 summarizes aquatic recreation opportunities, by planning area, on New Melones Lake.

Table R-50: Summary of Aquatic Recreation by Management Area

Aquatic Activity	Primary Management Areas	Description
Raft launching and take out	Camp Nine, Parrotts Ferry	Camp Nine has a raft launching structure and is the only designated launch site for rafters. Parrotts Ferry is one of the main take out sites for rafters.
Boat launch and retrieval	Parrotts Ferry, Mark Twain, Tuttletown, Glory Hole	Parrotts Ferry has a one-lane, car-top, boat ramp, and Mark Twain has a one-lane boat ramp that is in poor condition. Both are unimproved lake access points, and neither management area has docks, buoys, signage or other facilities, such as parking. Tuttletown has a three-level boat launching facility, and Glory Hole has a four-level boat launch facility.

Aquatic Activity	Primary Management Areas	Description
Water skiing	North, Middle, and South Bays, south portion of Stanislaus River Canyon	The middle portion of the lake offers relatively uncrowded conditions for water skiing, compared to more enclosed areas. South Bay contains a popular water-ski course.
Swimming	Glory Hole, Mark Twain, Tuttletown, Coyote Creek, Parrotts Ferry	The Natural Bridges day-use area is popular for swimming. Glory Hole has a swimming beach.
Boat rental	Glory Hole	Glory Hole is the only area where houseboats are available for rental. Houseboats, along with patio boats, fishing boats, water skis, personal watercraft, and boat slips, are available for rent from the marina.
Fishing	Fishing occurs in all management areas except Bowie Flat.	Though fishing occurs in most management areas, Stanislaus River Canyon, Spillway and Dam, Horseshoe Bend, and Greenhorn Creek are particularly known for their fishing.
Floatplane Landing	North, Middle, and South Bays	Floatplanes may land in these areas in accordance with Reclamation guidelines.
Radio-controlled airplanes	Dam and Spillway	A model airplane club is allowed use of an abandoned airstrip to fly radio-controlled model aircraft.

Resource Management

Aquatic recreation is managed according to internal guidance provided in the 1995 Draft RMP and according to decisions in the 1976 Master Plan as described in Table R-51 below.

Table R-51: Aquatic-Based Recreation Management Actions

Decision	Source
Special events permits are allowed at New Melones Lake Area	43 CFR 423 43 CFR 429
Designated swimming areas are buoyed off and closed to incompatible uses.	Master Plan 1976
The tops of intermittent islands or large rock outcroppings would be marked with warning buoys. No-ski zones are established at designated swimming zones, at marinas and boat launch areas, and areas where obstacles such as rock outcroppings create hazardous conditions.	Master Plan 1976 Waterways Marking Plan 2005

Internal Guidance	Source
A carrying capacity study would be conducted of houseboat use on New Melones Lake, and the total allowed number of houseboats would be revised, based on results of the WROS study.	DRMP 1995
Courtesy docks would be provided in the waters surrounding usable boat ramps to facilitate the efficient launch and take-out of boats.	DRMP 1995
Reclamation would prohibit specific uses of the water surface to reduce safety concerns.	DRMP 1995
Construction of major facilities or marinas would be prohibited within Wetland/Riparian Buffer Zones.	DRMP 1995
Fish cleaning stations would be provided at convenient locations and sound fish waste management would be promoted through a combination of fish cleaning restrictions and public education.	DRMP 1995
Floating vault toilets are available seasonally at various locations on New Melones Lake.	DRMP 1995
A water ski club has a license to construct, operate, and maintain for public use a ski course and dock within Bear Creek Cove. This non-profit organization is open to the public and conducts periodic public outreach activities.	DRMP 1995
Provide courtesy docks in the waters surrounding usable boat ramps to facilitate the efficient put-in and take-out of boats.	DRMP 1995

Water Recreation Opportunity Spectrum. The Water Recreation Opportunity Spectrum (WROS) is a landscape-level planning tool that applies to water resources. It is used as input to the resource management planning process to classify the type and location of water-related opportunities. This concept is explained in the Water Recreation Opportunity Spectrum Users' Guidebook (Aukerman et. al 2004), which describes a spectrum of six classifications, from urban to primitive, in terms of appropriate activities, settings, experiences, and benefits (Table R-52).

A summary-level WROS inventory was conducted for the New Melones Lake Resource Area in June 2003 (Haas 2003). Reclamation will update the WROS in fall of 2007 and verify that the information contained therein reflects current conditions (Appendix E). Reclamation will consider recommendations from this inventory, including recreation management direction for both area-wide and specific locations, in the planning process. By evaluating all the land and water area managed by Reclamation in the New Melones Lake Area, the area was determined to provide rural natural opportunities on approximately 50 percent of its acreage, rural developed opportunities on approximately 45 percent of its acreage, and semiprimitive recreation opportunities on approximately five percent of the total acreage. Table R-53 provides a description of eight water management units, as identified by lake managers for internal administrative purposes, and the WROS description assigned to each. All WROS classifications and associated acreages are recommendations as documented in "A Visitor Capacity Analysis, New Melones Lake Resource Area".

Table R-52: Water Recreation Opportunity Spectrum Classes in the Planning Area

WROS Class	WROS Description
Primitive	Areas characterized by a very large expanse of natural resources very far from development and settlement. Sights, sounds, or smells of human activity are rare and minor. Water resources and shorelines appear natural and show very little, if any, evidence of past human use. Examples of activities expected in such areas include hiking, hunting, non-motorized boating, and backpacking.
Semiprimitive Setting	Areas characterized by a large expanse of natural resources that are far from any city or metropolitan area. Development is minor, and sights and sounds of human activity are few. Water resources are often within large expanses of public lands with water. Examples of activities expected in such areas include hiking, non-motorized boating, and backpacking.
Rural Natural Setting	Areas characterized by predominately natural features on the landscape and the presence of development are occasional or infrequent. Water resources are bordered by natural-appearing settings. Examples of activities expected in such areas include hiking, OHV use, boating, and wildlife viewing.
Rural Developed Setting	Areas characterized by a generally natural environment but development is prevalent and common. Natural-appearing shoreline edges are common, although various water controls or other structures are also common. Examples of activities expected in such areas include OHV use, rustic camping, and horseback riding.
Suburban Setting	Areas characterized by a substantially modified natural environment where sights, sounds, and smells of development and built structures are readily evident. Water resources tend to be highly channelized, manipulated, or altered to contain large fluctuations in water flow. Examples of activities expected in such areas include waterskiing, use of swim beaches, golfing, and wakeboarding.
Urban Setting	Areas characterized by extensively developed and populated cities and metropolitan spaces where virtually the entire landscape contains human-built structures. Water resources tend to be highly channelized, manipulated, or altered to contain large fluctuations in water flow. Examples of activities expected in such areas include jet-boating, golfing, houseboating, and use of developed campgrounds.

Source: Reclamation 2004

Table R-53: Water Management Units and Associated Recreation Opportunity Spectrum Classes

Water Management Unit	WROS Description
New Melones Lake Resource Area-Wide	Rural natural (approximately 50%); rural developed (approximately 45%); semiprimitive recreation opportunities (approximately 5%).
Angels	Provides rural developed recreation opportunity and includes West of Whittle Road to Glory Hole, Angels Cove, west to Greenhorn Creek and far Reclamation Boundary, Vonich and Black Bart Cove.
Bear Creek	Provides rural developed recreation opportunity and includes French Flat, Bear Cove, Peoria Cove, Long Gulch Cove, and shoreline at base of Peoria Mountain to Iron Canyon.
Camp Nine	Provides semiprimitive recreation opportunity and includes Reclamation land and water upstream of Deep Gulch.
Mark Twain	Provides rural developed recreation opportunity and includes Headquarters and Visitor Center, Coyote Arm, Horseshoe Bend, Devils Cove, and north 300 yards above Parrotts Ferry Bridge.
Shell Road	Provided in separate recommendation. Area includes Reclamation land along Shell Road on the east and the Peoria Mountain and Basin to the south, including the dam and area downstream.
Skunk Gulch	Provides rural natural recreation opportunity and includes Parrotts Ferry boat ramp north to Deep Gulch, including south fork of Stanislaus River.
Tuttletown	Provides rural developed recreation opportunity and includes Tuttletown recreation area, Mormon Creek Arm, west to Middle Bay, and south to Bostick Mountain.
Glory Hole	Provides rural developed recreation opportunity and includes developed recreational facilities at Glory Hole, including Carson Cove, Belvedere Bar, Glory Hole Cove, and across to the south shore and Barth Mountain.

7.2.2 Land Recreation

Current Conditions

Of the approximately 27,000 acres managed by Reclamation on and surrounding New Melones Lake Area, about 15,000 acres are on land. Camping and day-use facilities are readily available on the lake, but many areas are not accessible for recreation largely due to topography. Surrounding the lake, there are about 27 miles of trails available for hiking and biking, and some of these are suitable for horseback riding.

Camping is a popular land-based recreation and is restricted to two developed recreation areas, Glory Hole and Tuttletown. Camping also is restricted to a maximum of 14 days within a 30-day period. Standard campsites are limited to eight people and walk-in campsites are limited to four people. Group campsites are also available in Tuttletown and can accommodate between 20 and 60 people. For more details on camping at New Melones Lake, see Appendix D Camping Policies.

Hunting is open on all of Reclamation's lands surrounding the lake with the exception of Tuttletown and Glory Hole, but takes place mostly within or near the Peoria Wildlife Management Area. The CDFG issues hunting licenses and regulates this activity on Reclamation lands.

Bank fishing and gold panning occur along the shoreline. Gold panning is an unregulated activity and is allowed to occur throughout the study area.

There are several caves throughout the study area and many visitors are involved in spelunking, or caving. This activity is restricted to a handful of caves, with the most frequented caves being the two Natural Bridges located within the Coyote Creek tributary.

Hiking, bicycling, and horseback riding all occur at New Melones Lake. There are approximately 25 miles of trail, which is considered to be a very small amount compared to the acreage of the planning area. Table R-54 summarizes land-based recreation opportunities, by management area, available at the New Melones Lake Area.

Table R-54: Summary of Land-Based Recreation by Management Area

Activity	Primary Management Area	Description
Biking	Glory Hole, Peoria Wildlife Area, Tuttletown	Approximately 27 miles of multiple-use trails exist in the planning area.
Camping	Tuttletown (3), Glory Hole (2)	Camping is only allowed in these two management areas.
Day Use (non-designated)	Rose Creek area of Stanislaus River Canyon, Mark Twain	Though this is not designated as a day-use area, the Rose Creek area in the northern part of this management area is informally used by whitewater rafters and motor boaters, and is subject to intensive use. Mark Twain is also used informally as a day-use area.
Day Use (designated)	Tuttletown (2), Glory Hole (4), Coyote Creek	Day use facilities include parking areas, picnic areas, and lake access.
Hiking	Peoria Wildlife Area, Glory Hole, Mark Twain, Coyote Creek	Approximately 27 miles of multiple-use trails exist in the planning area.
Horseback Riding	All areas, primarily occurs at Glory Hole	Approximately 27 miles of multiple-use trails exist in the planning area.
Hunting	Primary hunting area is Peoria Wildlife Area	Hunting is allowed at all areas except for Tuttletown and Glory Hole.
Picnicking	Glory Hole, Tuttletown, Coyote Creek, Mark Twain	Developed day use areas offer picnic areas at Glory Hole and Tuttletown, while more informal setting is found at Mark Twain and Coyote Creek.
Rock Climbing	Peoria Wildlife Area	Rock climbing occurs at the Grotto and the White Room, both located on Table Mountain.
Spelunking	Coyote Creek, Stanislaus River Canyon	Easy spelunking is offered at Natural Bridges. More advanced cave exploration occurs in the limestone caverns in the

Activity	Primary Management Area	Description
		Stanislaus River Canyon.
Visitor Center, Interpretive Services	Mark Twain, Glory Hole	Glory Hole contains an amphitheater which is used for interpretive programs, while the visitor center at Mark Twain has informative displays, interpretive programs, picnic tables, flush toilets, and drinking water[1].

[1] For more information, see Visitors Center and Interpretive Services, Section 7.3.1.

Resource Management

Land-based recreational resources are managed in accordance with internal guidance provided by the 1995 Draft RMP and by decisions in the 1976 Master Plan. Table R-55 lists management actions specific to land-based recreation.

Table R-55: Guidance and Decisions for Land-Based Recreation

Decision	Source
Recreational facilities development efforts are concentrated on redeveloping facilities in high demand areas by providing permanent restrooms with showers to replace portable facilities, installing additional potable water outlets, and adding wells and a waste treatment facility.	Master Plan 1976
Campsites and picnic sites for groups, including physically disabled persons, would be located within camping and day-use areas at the larger recreation areas.	Master Plan 1976
Interim use in the future (development) areas would be limited to wildlife management and low-density recreation.	Master Plan 1976
Frequent resting places would be developed along the longer walks, near parking lots and activity areas.	Master Plan 1976
Trails and pathways would be designed to provide maximum circulation efficiency and visitor convenience and to protect the aesthetic and ecological qualities of the area.	Master Plan 1976
Switchbacks would be avoided wherever possible.	Master Plan 1976
Directional signs would be provided at trail junctions, and trail markers would be provided as required on longer trails.	Master Plan 1976
Earthwork would be minimized, as would clearing of the natural vegetation, except where required for fire reduction.	Master Plan 1976
Drainage would be provided.	Master Plan 1976
Water bars and ditches would be used where necessary to divert periodic rainflows, which would otherwise flow down the trails, causing erosion problems.	Master Plan 1976
Bollards would be used to control unauthorized access by motor vehicles.	Master Plan 1976
Trails would generally follow a short, closed loop design, beginning and ending at approximately the same location.	Master Plan 1976
Trails would be cleared and graded to a width of six feet, with an eight-foot-high clearance.	Master Plan 1976
Sustained grade would be under 10 percent.	Master Plan 1976
On trails, the natural surface would be used.	Master Plan 1976

Decision	Source
Interpretive markers would be placed at selected sites along the trail.	Master Plan 1976
Details of the interpretive features of the project would be determined when the archaeological and historical surveys are completed.	Master Plan 1976
Within intensively used recreation areas, pathways would be constructed to concentrate foot traffic in specific areas. This would reduce trampling of the natural vegetation and would provide efficient circulation routes.	Master Plan 1976
Pathways would lead from the parking lots to picnic areas, beaches, and walk-in campsites.	Master Plan 1976
Pathways would also connect campsites to restrooms.	Master Plan 1976
Pathways would be three feet wide, with a stabilized aggregate surface, and would generally follow the natural contours of the land.	Master Plan 1976
Internal Guidance	**Source**
A diverse range of land-based recreation opportunities suited to user needs would be provided for different user groups, consistent with the existing character of the study area.	DRMP 1995
Land use activities would be limited within Wetland/Riparian Buffer Zones to a level that would cause no significant deterioration to wetland/riparian habitat values.	DRMP 1995
Design and locate all facilities to blend into the natural landscape through careful siting (e.g., behind terrain, away from ridgelines, and within vegetated areas), screening with appropriate native plant species, use of compatible architectural design with the applicable surroundings (including style, scale, texture, and colors), and avoiding the use of unpainted metallic surfaces (e.g., roof materials).	DRMP 1995
Meet user needs for specific recreation opportunities, as well as provide adequate flexible and efficient support facilities under varying lake level conditions, without compromising ecological resources and by demonstrating compatibility with the site-specific suitability of land and water environmental conditions. -Concentrate recreation facilities development efforts on redeveloping existing facilities at high demand areas by expanding existing day use areas. -Provide permanent restrooms with showers to replace portable facilities and install additional potable water outlets. -Provide flexible support facilities at all functioning (usable) boat ramp locations (e.g., portable toilets, trash receptacles, shed structures, etc.). -Design recreation area facilities to minimize water contamination and loss of soils due to surface runoff. -Expand day use opportunities at existing high demand areas by providing facilities near the water.	DRMP 1995
Hunting is not allowed within the boundaries of the Tuttletown and Glory Hole Recreation Areas.	DRMP 1995
Reclamation would adhere to the rules and regulations set forth and permitted by the CDFG. Hunting would not be allowed within 150 yards of any designated recreation area facilities, including campgrounds, day-use areas, boat ramps, and parking areas.	DRMP 1995
Appropriate signage and literature would be provided to display a buffer zone around designated recreation areas.	DRMP 1995
The discharge of firearms for purposes other than permitted hunting and as required by enforcement authorities is not allowed on any lands or waters under Reclamation's jurisdiction at New Melones.	DRMP 1995

Internal Guidance	Source
In the development of future trail systems, the use of existing trails and unpaved roads would be promoted.	DRMP 1995
Multiuse trail activities (pedestrian, equestrian and bicycle) would be encouraged in the development of new trails or the redevelopment of existing trails through consideration of trail design (width, surface, visibility) compatibility and land use suitability.	DRMP 1995
Roads, trails, and access easements would be designed to follow the natural topography, minimizing steep slopes and the number of stream crossings.	DRMP 1995
A phone and web-based reservation system (National Recreation Reservation System) is used for campground and group picnic facility reservations.	DRMP 1995
All new and modified facilities and programs would be designed to incorporate the "universal" design approach to accessibility. This approach combines the basic principle of barrier-free design with the more comprehensive view, which considers all degrees of sensory awareness, all types of locomotion, and all levels of physical and intellectual function. At a minimum, all facilities and programs would meet legally mandated accessibility standards (per the ADA of 1990 and the 1991 ADA accessibility guidelines, Section 504 of the Rehabilitation Act of 1973, as amended in 1978, and Title 24 of the California Building Code).	DRMP 1995
An accessibility review would be conducted of all facilities at developed and undeveloped recreation areas not previously surveyed.	DRMP 1995
Facilities and programs would be modified to comply with ADA requirements.	DRMP 1995
A site's topography and natural features, the degree of structural modification, and visitors expectations related to the recreational land use would be considered when determining the applicable levels of accessibility.	DRMP 1995

7.2.3 Special Uses (Events and Permits)

Current Conditions

Various events take place at New Melones Lake Area that require a permit from Reclamation. However, the permit fee is minimal and other activities such as boat launching and day-use do not have a user fee, unlike many other lakes in California. This is creating an economic stress on Reclamation as visitor numbers and corresponding facilities maintenance increases but revenue does not increase in kind.

At present, there are few activities that require permits from Reclamation. Special use permits are subject to an administrative fee, plus additional fees to recover costs incurred by Reclamation because of the event. Activities that require a special use permit are fishing tournaments, houseboat launching/retrieving, triathlons, bicycle races, swift water rescue competitions and training, horseback events, and commercial guides.

Current Management

When appropriate, Reclamation coordinates recreation management with other agencies. Current management actions or guidance for special events is given in Table R-56 below. For example, Reclamation defers to CDFG rules and regulations for hunting and fishing. The CDFG also issues licenses for such activities.

Table R-56: Management Action for Special Events

Decision	Source
Special events are allowed by permit such as equestrian trail trials, special hunts, or cross-country sporting events.	43 CFR 423

7.3 Recreational Facilities and Management Areas

Reclamation provides facilities including the visitor's center, amphitheater, day use areas, trails and paths, campgrounds, and boat ramps for visitor use. Those facilities are described below.

The planning area has been subdivided into management areas based on such criterion as type of use, degree of development, accessibility, or restrictions. Each management area and the facilities offered in that area are described in this section, along with a summary of the issues particular to each management area that Reclamation may address in the RMP/EIS.

7.3.1 Visitors Center and Interpretive Services

The visitor's center at New Melones Lake Area provides visitors with an opportunity to learn about the lake with maps, directions, and information about boating and other recreation opportunities. Visitors can also learn about the history of the area in the visitor center. Interpretive services, such as hikes and campfire programs at the amphitheater, are offered to visitors to experience the history, wildlife, and aesthetic value of New Melones Lake Area.

Current Conditions

The New Melones Lake Visitor Center is accessible from SR 49, midway between the towns of Sonora and Angels Camp in the Mark Twain Planning Area. General information, directions, and maps are available at the center. In addition, the visitor center showcases a variety of displays and exhibits, including the area's geologic past, Miwok Indian and early human history, the California Gold Rush, natural history, and the New Melones Dam and Reservoir Project. Visitors can also see displays of some of the wildlife that inhabits the New Melones Lake area.

The New Melones Lake Visitor Center hosts various events, including a fall and spring lecture series, throughout the year. In the spring, a lecture series takes place on Thursday evenings which, in the past, has focused on the area's cultural and natural history. Several times a year public stargazing programs are offered at the visitor's center.

During the fall, winter, and spring, interpretive park rangers at New Melones Lake schedule hikes to explain the area's cultural and natural history. Park rangers provide formal campfire programs and children's programs throughout the summer recreation season. A majority of these programs are held at the Glory Hole amphitheater.

Resource Management

The visitor's center and interpretive services are managed in accordance with internal guidance provided by the 1995 Draft RMP and by decisions in the 1976 Master Plan as shown in Table R-57 below.

Table R-57: Management of Visitors Center and Interpretive Services

Decision	Source
A visitor center and interpretive trails would be provided to implement this program of visitor information and interpretation.	Master Plan 1976
Detailed interpretive plans would be developed when the archaeology and historical programs are completed.	Master Plan 1976
The program has been designed to unify the widely separated recreation areas at the project, to orient visitors to the facilities and services available, and to create greater awareness and understanding of the many natural, historical, and archaeological features.	Master Plan 1976
The center of the orientation and interpretation program is the visitor center.	Master Plan 1976
Interpretation of the water resource aspects of the project would describe the role of the Corps and Reclamation in water resource development, the project purposes and operation, and the New Melones Lake integration into the Central Valley Project.	Master Plan 1976
The Administration Center is envisioned for visitor orientation, project operation interpretation, and archaeological and historical facets interpretation of the area.	Master Plan 1976
The general concepts for the area include level areas used for interpretive displays, observation decks, and an interpretive trail leading from the visitor center to various other outdoor interpretive areas, including nearby plant communities.	Master Plan 1976
Initial development would include the central information facilities, interpretive facilities, and administration and operation facilities for the recreational features for the project.	Master Plan 1976
Ultimate development would include additions to operation and visitor administration facilities, as needed.	Master Plan 1976
The visitor center would provide for an initial design day load of 1,800 persons, sightseers, and other day users.	Master Plan 1976
Plans for the visitor center reflect the prominent land forms of the site, the architectural theme established for recreation structures, and the interpretive theme for the New Melones Lake project.	Master Plan 1976
Interpretive signs would be located primarily along trails where the major purpose is hiking, but an occasional interpretive plaque would be helpful in describing a view, rock outcrop, or other natural features.	Master Plan 1976
Interpretive signs generally would not be found on interpretive trails, where numbered markers at strategic interpretive locations would refer to information on a pamphlet available at the visitor center.	Master Plan 1976

Internal Guidance	Source
A variety of multi-media will be used in the Visitor Center to provide information to visitors.	DRMP 1995
An active volunteer program will be developed to assist staff with Visitor Center staffing, trail patrol and maintenance, special events, and campground management.	DRMP 1995
Reclamation would coordinate with the Speleological Society for assistance in monitoring and controlling access to caves and to provide volunteers for interpretive programs.	DRMP 1995
Interpretive programs, for a variety of subjects related to New Melones resources, would be developed as a means of providing low-cost recreational activities, while educating the public.	DRMP 1995
Interpretive programs would be developed for the visitor center, using the cultural and natural resource displays being designated, as well as Calaveras and Tuolumne County Historical Society displays. The visitor center would serve as the meeting place for ecological resource and other resource interpretive field programs.	DRMP 1995
Selected sites would be for the education and enjoyment of the general public; priority would be given to sites within public use areas near special geologic, cultural, or natural features; special attention would be paid to public use areas being degraded through natural or human impacts.	DRMP 1995
Opportunities would be provided for natural and historic interpretation along trails and roads and at recreational facilities.	DRMP 1995
Cultural resources (prehistoric and historic properties) would be interpreted in consultation with the appropriate agencies.	DRMP 1995
Interpretive displays, trails, booklets, and scientific presentations and publications would be provided.	DRMP 1995
Visitor center exhibits would be completed.	DRMP 1995
A docent program would be developed.	DRMP 1995
Aquatic resource education would be incorporated into interpretive programs, particularly as it deals with healthy wetland, riparian, stream, and lake ecosystems.	DRMP 1995
On-site interpretation at significant/sensitive resource sites would be discouraged, unless a no adverse effect determination is assured.	DRMP 1995
Public information would be an important component of all recreational activities.	DRMP 1995
Signs, brochures, maps, and other materials would be used to increase public awareness and understanding of regulations and the availability of recreational facilities and services and to promote good outdoor manners, respect for the environment and other uses, and public safety.	DRMP 1995
Information would be disseminated at boat launch facilities on state laws and regulations, the Reservoir Management Zoning requirements, and general boating etiquette.	DRMP 1995

Internal Guidance	Source
All concessionaire contracts would include 1) explicit measures related to the notice and dissemination of public information; 2) communications equipment necessary in the event of emergencies; 3) medical emergency provisions; and 4) spill emergency response measures.	DRMP 1995
Reclamation would produce scientifically accurate and culturally sensitive displays and brochures.	DRMP 1995
Public education and involvement would be encouraged in protecting wetlands and riparian communities and wildlife habitats.	DRMP 1995

7.3.2 Management Areas

The following section outlines the current condition as it relates to recreational resources, by management areas (see Figure R-2), from north to south. Recommendations from the Visitor Capacity Analysis of 2003 are specified in each planning area, when applicable.

Camp Nine Management Area (WROS description is semiprimitive; located within the Camp Nine Water Management Unit) is in Calaveras and Tuolumne Counties and is the northernmost of the planning areas and recreation areas along the upper Stanislaus arm. Although this area is the most remote and is farthest from the campgrounds, marina, and boat launches, it experiences intensive use because it is a favorite recreation area for whitewater rafters, kayakers, and swimmers. Before the dam was completed in 1979, the Old Camp Nine Bridge was the launch site for rafters, who would travel nine miles to Parrotts Ferry Bridge, where they would take out their boats. This area was once thought of as the best run for intermediate-skill rafters in California. After the dam was constructed, it was assumed that the bridge would be inundated and many of the aquatic opportunities would be lost. However, due to drought and low water levels the bridge is often exposed, and there are some whitewater opportunities. Bridge jumping is also a popular activity, but recently a gate has been put up to restrict access to the Old Camp Nine Bridge, and signs warning against bridge jumping have been posted. Due to safety and public health concerns, the Old Camp Nine Bridge is planned for deconstruction in 2008/2009.

Access to the Camp Nine Management Area is limited, with the only practical route being Camp Nine Road, which is an unimproved road that originates near the town of Vallecito. Development is minor, consisting of an informal parking area, footbridge, hiking trails, and one vault restroom. Opportunities in this area are for more adventurous visitors. Recreation opportunities and development is minor, consisting of a hiking trail to the cultural sites at Clark Flat. Low-impact activities, such as wildlife viewing and hiking, are encouraged. Table R-58 lists management actions specific to this management area.

Issues specific to the Camp Nine Planning Area include limited access, due to the nature of the narrow and winding Camp Nine Road, and access to the main day-use area, which is restricted to a footbridge which leads to Clark Flat and a hiking trail which accesses the Stanislaus River. Vandalism is an issue due to the remoteness of the area. The area has inadequate launch facilities, and when the lake is at gross pool (lake capacity), the boating access

is inundated. Bridge jumping and bungee jumping at the new Camp Nine Bridge is creating a potential liability problem. A weir located in the inundation zone is a safety and navigation hazard. Other management issues include vandalism and looting of cultural resources due to its remoteness. Variable flows caused by release from two power plants in the immediate vicinity make for unreliable river flows.

Table R-58: Management Actions for the Camp Nine Management Area

Decision	Source
Day-use access is provided along Camp Nine Road up to Collierville Power Plant gate as well as across the New Camp Nine bridge to the Stanislaus Power Plant gate. Non-motorized access is allowed across the foot bridge to Clark's Flat. Also minimum facilities such as a vault restroom, trash receptacles, and signage, are maintained by Reclamation.	Master Plan 1976
The area provides non-motorized boat access, fishing, swimming, hiking, and picnicking.	Master Plan 1976

Stanislaus River Canyon Management Area (no WROS recommendation) is in Tuolumne and Calaveras Counties, just south of the Camp Nine Planning Area. Power boat users regularly visit the area, although the area upstream of the confluence of the upper Stanislaus fork and the south fork of the Stanislaus is a designated no-ski zone. During years of extreme drought when the lake level is low, whitewater rafters visit this area. As such, this planning area is subject to intensive use. This area is a significant cave resource area, with numerous caves on both sides of the river. Developed recreation opportunities in this planning area are limited; management is primarily focused on preserving sensitive resources. However, many of the caves are explored by spelunkers, an activity that is difficult to manage and for which little official data regarding use levels exists. To protect sensitive resources such as rare or listed animal species and cultural resources, some caves have been gated. No facilities have been developed in this area. Table R-59 lists management actions specific to this management area.

Issues specific to this area include high recreational use, potentially impacting cave resources, the riparian corridor and habitat, and the lack of facilities to support the level of use.

Table R-59: Management Actions for the Stanislaus River Canyon Management Area

Decision	Source
To preserve cave resources such as scenic qualities, fragile formations, cultural resources, and/or sensitive species recreation use is managed to minimize impacts.	Master Plan 1976
Grapevine Gulch Cave was acquired and gated to limit the number of visitors and protect the formations.	Master Plan 1976
Internal Guidance	**Source**
Public recreational access is allowed within some caves at the users own risk. However Reclamation has limited access to some caves due to known safety concerns.	Cave Management Plan

Parrotts Ferry Management Area (WROS description is rural developed; planning area is within the Mark Twain Water Management Unit) is in Tuolumne County, adjacent to Parrotts Ferry Road. The area is very steep except for two small flat areas along the road. In recent years, this area was known for having high water-related recreation opportunities and low ecological sensitivity. Before the dam was constructed, Parrotts Ferry was the take-out location for rafters who started nine miles upstream at the Old Camp Nine Bridge. The old road was heavily used as lake access for boat launching, but the road and retaining wall were deemed safety hazards and vandalism was a problem. As a result, the road was closed to public access several years ago. Recreationists use the area for fishing, boating, and suction dredge gold mining. No facility development has occurred. Table R-60 lists management actions specific to this management area.

Issues specific to this area include restricted access to the boat ramp due to hazardous conditions. Steep slopes above and below the road limit facility development and make the development of a boat launch ramp for trailered boats infeasible. High recreational use levels occur in the northern part of this planning area, potentially impacting the riparian corridor and habitat, and the area lacks facilities to support the level of use. As a result, there is also high demand for access to the upper stretches of the lake from this vicinity.

Table R-60: Management Actions for the Parrotts Ferry Management Area

Decision	Source
The old Parrotts Ferry Road on both banks of Stanislaus River is used for non-motorized recreation activities such as fishing, swimming, hand-launching of boats, and mountain biking.	Master Plan 1976

Carson Management Area (WROS description is rural developed) is in both Tuolumne and Calaveras Counties on the eastern shoreline of the lake. Low slopes in the western part of this planning area make this area particularly susceptible to variable water levels, while steep slopes on the eastern side make access to the lake from land difficult. Horseshoe Bend, on the eastern side of this planning area, is a well-known fishing cove. This area was not identified in the Master Plan (1976) and has no facility development. It is heavily transited by boaters traveling between the main body of the lake and the Stanislaus River Canyon area of the lake.

Issues specific to this area include impacts on shorelines, due to low shallow slopes on the western side, and limited access due to steep slopes on the eastern side. Other issues include cattle and motorcyclists trespassing onto Reclamation lands and crowded conditions on the lake due to heavy use as a transit area.

Mark Twain Management Area (WROS description is rural developed; located within the Mark Twain Water Management Unit) is in Tuolumne County, on the northeastern portion of New Melones Lake, adjacent to SR 49. Old Highway 49 receives high use as a boat ramp, particularly when the lake level is low. Recreation opportunities in this planning area include sheltered cove swimming and fishing. Despite its high use, there has been minimum facility development.

Reclamation's headquarters and visitor center are in this planning unit. Details regarding the visitor center are located under Section 7.3: Visitor Center and Interpretive Services. Table R-61 lists management actions specific to this management area.

Issues specific to this area include limited access. Steep slopes preclude graded beaches and the construction of a launching ramp for trailered boats.

Table R-61: Management Actions for the Mark Twain Management Area

Decision	Source
As the area is small, the Mark Twain Planning Area would be developed initially to its full potential.	Master Plan 1976
Facilities at the Mark Twain Planning Area include a visitor center, administration and maintenance complex, parking lot, trails, picnic areas, flush restrooms, and undeveloped boat launch at old Highway 49. The use of this area includes visitor information and interpretation, picnicking, boat launching, fishing, swimming, and hiking.	Master Plan 1976

Tuttletown Management Area (WROS description is rural developed recreation opportunity; it is within the Tuttletown Water Management Unit) is the largest of the public use areas on the Tuolumne County side and the second most highly developed recreation area on the lake. The area consists of approximately 1,115 acres and is accessed by Reynolds Ferry Road, off SR 49. This highly developed area is very popular for overnight camping, group camping, day-use picnicking, and boat launching. Recreational activities include hiking, biking, and fishing. Table R-62 lists management actions specific to this management area.

The Tuttletown Recreation Area has three campgrounds, Acorn, Manzanita, and Chamise, with a total of 161 campsites. There are no electrical hookups at any of the campground sites, and one free RV dump station is available to registered campers. All campsites have restrooms, showers, water taps, and barbeque/fire pits. Campsites at Tuttletown may be reserved through the National Recreation Reservation Service (NRRS). When not reserved, campsites are available on a first come, first served basis.

Acorn Campground is on the north side of the Reynolds Ferry Road. This campground sits at the highest elevation and therefore is the campground farthest from the water. This campground has limited shade and is most popular in the winter. The Heron Point Trail is accessed from the campground and connects users to the Heron Point day-use area.

Manzanita Campground is on the southeastern portion of the recreation area. Plans have been developed for compliance with the ADA, but these changes have not yet been made. This campground was established for lower access to the water; however, in 2006 one loop of this campground was inundated.

Chamise Campground is on the southwestern portion of the recreation area.

The Tuttletown Recreation Area entrance gate is closed at night and reopened in the morning to help alleviate vandalism. The area contains two group camps, Fiddleneck and Oak Knoll, which

accommodate 40-60 people and 20-50 people, respectively. Campsites at Fiddleneck are easily accessible but do not meet ADA standards; Oak Knoll offers walk-in campsites only. Fiddleneck has access to a flush toilet that does not have showers, while Oak Knoll has access to a vault toilet. Both sites require special use permits available through Reclamation.

Tuttletown has three day-use areas (Heron Point, Lupine, and Eagle Point), fish cleaning stations, one dump station, and hiking and biking trails. Three seven-lane boat ramps, for use at various reservoir levels, are at the end of the Reynolds Ferry Road.

Issues specific to this area include accessibility to the lake, most notably during times of lower water levels, resulting in congestion at the boat ramps. Underused or inappropriate use of day-use facilities. Underdeveloped facilities at campgrounds limit recreation opportunities (for example, there is no lighting available at Acorn Campground). Fish cleaning stations are inappropriately located at day-use areas instead of near boat ramps. Compared to similar facilities in the region, this recreation area has inequitable user fees resulting in an inflated amount of users compared to other areas. For example, Tuttletown provides the only free dump station in the area and it is accessible at all times. In addition, at certain times, recreation demand exceeds capacity (for example, boat launches and parking).

Table R-62: Management Actions for the Tuttletown Management Area

Decision	Source
Facilities at Tuttletown include those for camping, picnicking, fishing, boat launching, and hiking.	Master Plan 1976
Three formal campgrounds are developed in Tuttletown: Manzanita, Acorn, and Chamise. These campgrounds include group (Oak Knoll and Fiddleneck), accessible, standard, and walk-in campsites with paved parking, picnic tables, and fire rings. Campground amenities include flush and vault restrooms, coin operated showers, potable water, RV dump station, camp hosts, entrance station, bulletin boards, and self-pay stations. Individual and group campsites can be reserved through a reservation system.	Master Plan 1976
A limited number of below gross pool campsites have been developed. At times these campsites are inaccessible due to lake level.	Master Plan 1976
Three day-use areas are located in Tuttletown Recreation Area: Heron Point, Lupine, and Eagle Point. Amenities include picnic tables, barbeques, paved parking, flush restrooms, potable water, hiking and biking trails, and a fish cleaning station. Eagle point is an accessible group day-use facility which can be reserved.	Master Plan 1976
One hiking and biking trail head is located in Tuttletown Recreation Area, Heron Point. The trail begins from the Heron Point day-use area and the amenities are shared.	Master Plan 1976
A tot lot is located between Manzanita and Chamise campgrounds.	Master Plan 1976
Boat launch facilities in Tuttletown include three ramps and parking lots at different lake elevations. The amenities include courtesy docks, flush restrooms, and trash receptacles.	Master Plan 1976

French Flat Management Area (WROS description is rural developed; planning area is within the Tuttletown and Bear Creek Water Management Units) lies between the highly developed Tuttletown planning area and the more rural Bear Creek Planning Area. This area has no developed recreational facilities but is popular for inappropriate uses such as late-night parties, target shooting, and ORV use. There is no overland access to this area through Reclamation lands or private easements.

Issues specific to this area include impacts on shorelines, due to low shallow slopes, and cattle, horses, motorcyclists, and all-terrain vehicle (ATV) users trespassing onto Reclamation lands. This area is managed separately from adjacent areas due to management requirements related to issues mentioned in the preceding paragraph. In addition, illegal recreation activities on a parcel of land adjacent to this management area, owned by the Bureau of Land Management, sometimes spill over into this planning unit.

Bear Creek Management Area (the WROS description is rural developed; planning area is within the Bear Creek Water Management Unit) is in Tuolumne County on the eastern shoreline of New Melones Lake. This area is very popular with boaters because it provides a very natural setting with many coves, bays, and islands. The shoreline has no developed recreational facilities. Popular activities in this area include fishing and houseboating, and waterskiing is popular in the main body of open water. This planning area is accessible via Shell Road and Old Melones Dam Road, but the road has been gated and vehicular access is restricted.

Issues specific to this area include impacts on shorelines, due to low shallow slopes, and cattle, horses, motorcyclists, and ATV users trespassing onto Reclamation lands.

Peoria Wildlife Management Area (PWMA) (WROS recommendation is rural natural) is in Tuolumne County and was set aside as an area dedicated to wildlife habitat protection and enhancement. Management objectives focus on wildlife enhancement measures and not on recreation opportunities. However, recreational activities such as hunting and horseback riding occur here, and the area offers opportunity for grazing leases in the future.

Table Mountain Planning Area is within the PWMA, just inland from the Bear Creek Management Area. This is the most sensitive ecological area within Reclamation lands, and it offers rich and diverse recreation opportunities. This area has minor facility development, including a parking area at the trailhead and one vault toilet.

Rock climbing is the most notable recreation, predominately at two locations, the Grotto and the White Room, both situated on the west-facing side of Table Mountain. Other prominent recreation activities in this area include hiking, mountain biking, wildlife viewing, and hunting. From the trailhead, hikers can follow a trail that leads to the top of Table Mountain. In fall, winter, and spring, Reclamation park rangers offer guided hikes along this same route. From the top, visitors have panoramic views of New Melones Lake and surrounding lands. Table Mountain also provides extensive northern basalt flow vernal pool habitat. Mastiff bat, golden eagle and great horned owl sightings are also common. Hunting for such species as deer, quail, and mourning dove is a popular activity at Table Mountain. Table R-63 lists management actions specific to this management area.

Issues in this planning area include livestock and unauthorized vehicle trespassing, vandalism to fences, and target shooting. Trespassing onto private land is also a problem. Specific issues include inadequate parking for rock climbers and other users, and potential for conflicts between rock climbers and cliff habitats for raptors and bats. There is also the potential for conflicts between rock climbers, hikers, and hunters regarding use of the area.

Table R-63: Management Actions for the Peoria Wildlife Management Area

Internal Guidance	Source
The PWMA, including Table Mountain Planning Area, is used for dispersed recreation including hiking, hunting, wildlife viewing, mountain biking, horseback riding, fishing access, and climbing. The area is closed to motorized vehicles, camping, fires and target shooting.	Peoria Wildlife Management Area EA
Within PWMA, group camping is permitted by special recreation use permit in the Peoria Equestrian staging area.	Peoria Wildlife Management Area EA
The Table Mountain planning area was identified as Chaparral in the Master Plan, but is actually part of the Peoria Wildlife Management Area (PWMA). The Table Mountain planning area consists of an informal trailhead for the Table Mountain hiking trail, the Grotto and other rock climbing routes, and the PWMA.	Peoria Wildlife Management Area EA
Should further studies indicate that climbers are adversely affecting sensitive species, a climbing management plan would be developed to identify specific non-conflict areas that are suitable for rock climbing.	Peoria Wildlife Management Area EA
Rock climbing is allowed at the users own risk.	Peoria Wildlife Management Area EA
Rock climbing is permitted as long as there are no negative impacts to sensitive bat species and other flora and fauna. Climbers are not currently restricted to designated routes, nor are they required to remove rock anchors	Peoria Wildlife Management Area EA
Trails in the Table Mountain planning area are listed as connecting into trails in the Tuolumne County General Plan, Recreation component.	Peoria Wildlife Management Area EA
A radio controlled flying club has a license to use an existing paved runway and adjacent lands within PWMA. This non-profit organization is open to the public and conducts periodic public outreach activities.	Peoria Wildlife Management Area EA

Dam and Spillway Management Area (WROS recommendation is rural developed) is in Tuolumne County and consists of the area south of the dam to north of the lake spillway. This area is not subject to development for recreation opportunities.

Issues mainly stem from unauthorized mineral extraction in the area and the need for security around the dam and spillway.

Bowie Flat Management Area (no WROS recommendation) became part of the New Melones Lake Area to provide a borrow area for construction of the dam. The area is not currently managed for any special uses and has no recreational development.

Issues include lack of access to this area since it is surrounded by BLM and private lands. Options for this area include connecting it to the Westside Management Area by arranging a land swap or purchase with BLM, or disposing of the area.

West Side Management Area (WROS recommendation is rural natural) is in Calaveras County and contains an extensive collection of cultural resources, particularly in Texas Charley Gulch. This area is not subject to development for recreation opportunities.

Issues include unauthorized vehicle trespassing in the planning area.

Greenhorn Creek Management Area (WROS classification is rural developed; located within the Angels Water Management Unit) in Calaveras County is well known as a fishing cove. It offers no recreational development and there is currently no overland access in this area. Table R-64 lists management actions specific to this management area.

Issues specific to this area include accessibility to the lake due to lower water levels.

Table R-64: Management Actions for the Greenhorn Creek Management Area

Decision	
Bear Creek Planning Area (Greenhorn Creek Management Area) has no facilities but is used for dispersed recreation such as boat-in day use, swimming, and fishing, as well as hiking, hunting, and horseback riding. The area is closed to motorized vehicles, camping, fires and target shooting.	Master Plan 1976
To preserve cave resource areas in their natural state and maintain scenic qualities associated with the Coyote Creek Planning Area (Greenhorn Creek Management Area), recreation use would be kept low.	Master Plan 1976

Glory Hole Management Area (WROS description is rural developed; located within the Glory Hole Water Management Unit) is in Calaveras County in the midbasin vicinity of the New Melones Lake study area. It can be accessed from SR 49 via Whittle Ranch Road. This planning area is composed of the main portion, which includes the large peninsula extending into the lake, and is the location of the New Melones Lake Marina. Within Glory Hole Management Unit is the Angels Creek Recreation Area. This area is the most highly developed recreation area on the lake. The area provides a wide array of recreation opportunities, ranging from day-use picnicking to boat launching and take-out. This area is a major boat launch, parking, and transportation corridor for boats traveling to the main body of the lake. The only public beach on the lake is located here. The swim area has picnic tables and barbeque grills, and there is no lifeguard. Other facilities within the Glory Hole Management Area include a boat ramp, parking lot, picnic shelter, and fish cleaning station. Trails are available for hiking and mountain biking.

The Glory Hole Recreation Area has two campgrounds, Ironhorse and Big Oak, with a total of 144 campsites. Campgrounds at this recreation area may be reserved through the National Recreation Reservation Service.

Ironhorse Campground is on the west side of the Gloryhole Access Road and has full service restrooms with showers, water taps, and barbeque/fire pits. Updates have been made to one campsite to comply with ADA.

Big Oak Campground is on the east side of the Gloryhole Access Road and has restrooms, showers, water taps, and barbeque/fire pits.

Glory Hole Recreation Area gate is closed at night and opened in the morning to help alleviate vandalism. There are four day-use areas (Buckbrush, Angels Creek, Black Bart, and Osprey Point) and hiking and biking trails, in addition to the only concessionaire-operated marina on New Melones Lake (see Section 6.3: Facilities). Four boat ramps are used for high, medium, and low water levels. Three of the four boat ramps have seven lanes, while the lowest ramp has two lanes. Table R-65 list management actions for the Glory Hole Management Area.

Issues specific to this area include accessibility to the lake (due to constant water level fluctuations), fire concerns, lack of parking, and sanitation problems due to an inadequate number of restrooms. Compared to similar facilities in the region, this recreation area has inequitable user fees, resulting in an inflated number of users compared to other areas. For example, there is no boat launch fee or day-use fee, and large groups and fishing tournament participants pay minimal fees. At certain times, increased recreation demand exceeds the capacity of boat launches and parking areas.

Table R-65: Management Actions for the Glory Hole Management Area

Decision	Source
The boat ramp at Angels Creek extends to the 975-foot elevation, due to topographical constraints; below 975 feet, the launch ramp on the lower peninsula provides additional capacity.	Master Plan 1976
The boat launch ramp on the peninsula extends to the 900–foot elevation and functions as the only usable launching area during low lake levels at the Angels Arm Planning Area (Glory Hole).	Master Plan 1976
Facilities at Glory Hole include those for camping, hiking, picnicking, fishing, swimming, and boat launching. Within Glory Hole Recreation Area is a concession operated marina. A sub-planning unit called Angels Creek Recreation Area is also located within Glory Hole.	Master Plan 1976
Two formal campgrounds are developed in Glory Hole: Iron Horse and Big Oak. These campgrounds include accessible, standard, and walk-in campsites with paved parking, picnic tables, and fire rings. Campground amenities include flush restrooms, coin operated showers, potable water, RV dump station, camp hosts, entrance station, bulletin boards, and self-pay stations. Individual campsites can be reserved through a reservation system.	Master Plan 1976
Two developed day-use areas are located in Glory Hole Recreation Area: Osprey and Black Bart. Amenities include picnic tables, barbeques, paved parking, flush restrooms, and potable water.	Master Plan 1976

Decision	Source
Two hiking and biking trail heads are located in Glory Hole Recreation Area: Carson Creek and Tower Climb. Amenities include picnic tables, parking, vault restrooms, and potable water.	Master Plan 1976
Angels Creek Recreation Area is comprised of designated swim beach, Buck Brush day-use area, Angels Creek boat launch. Amenities include fish cleaning station, pave parking, picnic tables, barbeques, flush restrooms, potable water, and hiking and biking trails.	Master Plan 1976
A tot lot, amphitheater, and horseshoe pits are located at Iron Horse campground.	Master Plan 1976
Boat launch facilities in Glory Hole include three ramps and parking lots at different lake elevations and the amenities include courtesy docks, vault restroom, and trash receptacles. The boat launch facilities at Angels Creek include one ramp with parking area and the amenities include courtesy docks, flush restroom, and trash receptacles.	Master Plan 1976
New Melones Lake Marina has a lease agreement to operate the marina concession in Glory Hole Recreation Area. The marina offers slip rentals, boat and houseboat rentals, refueling, sewage pump out, routine boat maintenance, boat towing, and convenience store. The lease agreement expires in 2012.	Master Plan 1976

Coyote Creek Management Area (WROS description is rural developed; located within the Mark Twain Water Management Unit) is in Calaveras County off Parrotts Ferry Road. This historically significant area is freely accessible to the public and provides the only access to the Natural Bridges caves. Minor facility development at this site includes a parking area at the Natural Bridges trailhead and one vault toilet. The trail leads 0.7 mile to the Natural Bridges caves situated on Coyote Creek; the trail is rated as moderately difficult. The Natural Bridges day-use area is popular for hiking, spelunking, swimming (wading or floating), and picnicking. Many enjoy floating through the caves on inner tubes or inflatable mattresses. During fall, winter, and spring, Reclamation's park rangers lead interpretive hikes in this area to teach visitors about the unique geologic history. Table R-66 lists management actions specific to this management area.

Issues specific to this area include inadequate parking for hikers and the creation of social trails, which leads to erosion. Vandalism to cave features is also an issue. A third issue is lack of adequate minimum basic facilities for the public. There is no restroom at the trailhead or along the route, no potable water, insufficient parking on the old roadway, insufficient signage, and no entrance gate or ability to manage visitation.

Table R-66: Management Actions for the Coyote Creek Management Area

Decision	Source
To preserve cave resource areas in their natural state and maintain scenic qualities associated with these areas, recreation use would be kept low.	Master Plan 1976
These caves would be open to the public without restrictions and would have informational signs explaining the natural history of the cave. Only the Natural Bridges in Coyote Creek are not slated for this category.	Master Plan 1976

North Bay Management Areas (WROS recommendation rural developed) is most associated with boaters and lake users coming from the Glory Hole boat ramps and marina. Boaters transit this area on the way to other parts of the lake or may use the area for waterskiing or fishing.

Issues specific to this area include user conflicts due to high boater speeds. Enforcement of boating laws is difficult in this area due to lack of adequate patrol capacity.

Middle Bay Management Area (WROS recommendation rural developed) is most associated with lake users coming from the Tuttletown boat ramps and campgrounds. As with the North Bay Management Area, boaters transit this area or use it for waterskiing. Floatplanes also land in this area on occasion.

Issues specific to this area include user conflicts due to high boater speeds. Enforcement of boating laws is difficult in this area due to lack of adequate patrol capacity.

South Bay Management Area (WROS recommendation rural developed) is used extensively by water skiers due to the presence of a water ski park at the south end of the main body of the lake.

Issues specific to this area include user conflicts due to high boater speeds. Enforcement of boating laws is difficult in this area due to lack of adequate patrol capacity.

8. Socioeconomics and Environmental Justice

8.1 Overview

8.1.1 Introduction

The socioeconomic resource discussion includes population, housing, schools, employment, income, earnings, use fees, and Payment In Lieu of Taxes (PILT) and an examination of the potential for environmental justice issues. The population analysis identifies the number of residents in the area, the recent change in population growth, and growth forecasts. Housing includes the most currently available number of units and vacancy rates. School enrollment and capacity are important considerations in assessing the effects of potential growth. The economic data includes current conditions and trends for labor force, employment and employment rates, unemployment rates, and labor sectors. Earnings-by-industry provides a measure of the health of local business activity. Income information is provided as an annual total by county and as per capita income.

On February 11, 1994, President Clinton signed Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations. It requires Federal agencies to identify and avoid disproportionate impacts from its projects on minority or low-income communities. The most recently available data on ethnic composition and populations living in poverty in Calaveras and Tuolumne Counties and the communities nearest to New Melones Lake are presented to identify the likelihood of encountering environmental justice issues.

8.1.2 Specific Mandates and Authority

- **Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.** This EO requires that Federal Agencies make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.
- **Americans with Disabilities Act of 1990 ["ADA"], As Amended.** The ADA prohibits discrimination on the basis of disability in employment, State and local government, public accommodations, commercial facilities, transportation.

8.1.3 Other Plans That Will Be Considered

Surrounding communities have established master plans that address socioeconomic issues. These plans include:

- The Calaveras County General Plan
- The Tuolumne County General Plan
- Sonora General Plan
- Angels Camp General Plan, and;
- Community plans for Copperopolis, Murphys, and Jamestown.

All of these plans share a common objective to work with businesses, government agencies, and surrounding communities for increased economic success. Through management of the New Melones Lake Area, Reclamation also has an opportunity to work with the surrounding local governments to benefit local employment, income, and revenue and with other Federal agencies with adjacent lands to provide complementary management.

Both the Tuolumne County and Calaveras County General Plans establish a goal to maintain open space and buffer areas around the urbanizing communities. The management of the New Melones Lake Area for public use complements this objective. Another goal set forth in the Calaveras County General Plan is to lobby for Federal and state legislation that would require recreation areas to fund construction and maintenance of local facilities supporting regional recreation resources (Calaveras County 1996c), which is not currently an element in the New Melones Lake Area Master Plan.

8.1.4 Trends

Between 2000 and 2030, the population growth in Calaveras County is estimated at 72.6 percent and the population growth in Tuolumne County is expected to be 24.8 percent. The percentage of minorities in both counties has increased since 2000 and is projected to continue to increase. The area around New Melones Lake Area has been known historically for its minerals and timber industries, but these industries have been declining as sources of employment and income, as government, tourism and recreation, services, and construction have become increasingly important. Increases in tourism and recreation have generated additional employment in the leisure and hospitality sector and in construction. The trend from a mineral and timber rich employment area to a greater recreation and tourism rich employment area is expected to continue.

8.2 Socioeconomics

8.2.1 Current Conditions

Population. Table R-67 presents population figures for California, Calaveras, and Tuolumne Counties and the communities closest to New Melones Lake Area. Between 1990 and 2000, the population of all of these areas increased, and the rate of population growth was greater than the state average of 14.3 percent in Calaveras County (25.9 percent), Angels Camp (25.7 percent), and Murphys (35.9 percent). The population of Tuolumne County increased by less than the state

Table R-67: County Population Estimates 1990-2000

Location	1990	2000	Percent Change 1990-2000	2006	Percent Change 2000-2006
California[1]	29,828,473	34,098,744	14.3%	37,172,015	9.0%
Calaveras County[1]	32,470	40,890	25.9%	45,711	11.8%
Angels Camp[2]	2,409	3,004	24.7%	3,576	19.0%
Copperopolis[2]	NA	2,363	NA	NA	NA
Murphys[2]	1,517	2,061	35.9%	NA	NA
Tuolumne County[1]	48,719	54,946	12.8%	58,231	6.0%
Jamestown[2]	2,178	3,017	38.5%	NA	NA
Sonora[2]	4,153	4,423	6.5%	4,804	8.6%

Notes: NA = Not available
Sources: [1]California Department of Finance 2004a; [2]California Department of Finance 2006c; [3]US Census Bureau 1990 and 2000a

average (12.8 percent), and Sonora's population increased by substantially less (6.5 percent) than that of the other localities in the New Melones Lake Area (US Census Bureau 1990, 2000a; California Department of Finance 2004).

Between 2000 and 2006, Angels Camp experienced the greatest population percentage increase (19.0 percent), and Sonora's population also increased by 8.6 percent, which is greater than the county average of 6.0 percent (US Census Bureau 2000a; California Department of Finance 2006c). Population increases for both counties were the result of predominantly domestic net migration (California Department of Finance 2006a).

Visitors in Calaveras County seeking recreation and open space have changed the economy and land use patterns, resulting in new subdivisions, including both seasonal and permanent homes. According to the Calaveras County General Plan, in 2000, 96.2 percent of Calaveras County residents lived in the unincorporated portion of the county, and 66.1 percent of that population lived in small towns (Calaveras County 1996c). Approximately 21.5 percent of Tuolumne County is privately owned, and the population density on private land is about 104 people per square mile. The population tends to be dispersed throughout small towns of mixed use surrounded by large expanses of open space consisting of agriculture, native vegetation, and low-density development. It is Tuolumne County's policy to preserve open space between these communities. Almost 10 percent of Tuolumne County's population is in institutions, such as assisted living and long-term care. The largest portion of the institutionalized population, more than 4,000 men, is in the state prison outside of Jamestown (Tuolumne County 2005).

Chart R-1 shows projected population growth from 2000 to 2030 (approximately 20 years from the present). Chart R-1 indicates that although the 2000 population of Calaveras County is smaller than that of Tuolumne County, by 2030 it is projected to exceed Tuolumne County's population by 2,011 (Table R-67). Also, as presented in Table R-68, between 2000 and 2030, the population growth in Calaveras County (72.6 percent) is expected to exceed the state average (41.3 percent); in Tuolumne County (24.8 percent) population growth is expected to be below the state average.

Chart R-1

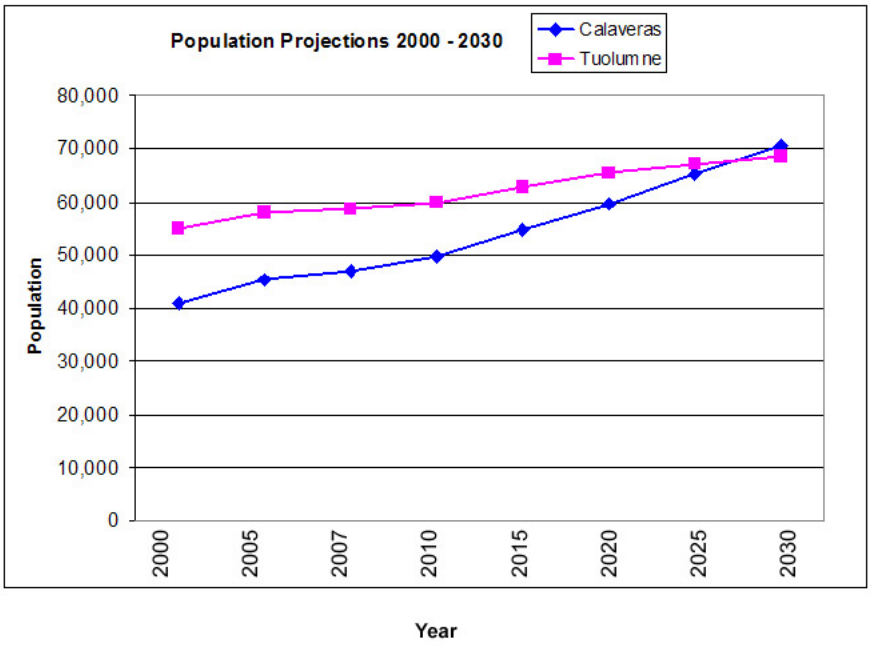


Table R-68: County Population Projections 2000 and 2030

County	2000	2030	2000-2030 Change	2000-2030 Percent Change
California	34,043,198	48,110,671	14,067,473	41.3
Calaveras	40,890	70,577	29,687	72.6
Tuolumne	54,946	68,566	13,620	24.8

Source: California Department of Finance 2004

Housing. Table R-69 presents 1990, 2000, and 2006 housing data for Calaveras and Tuolumne Counties, Angels Camp, and Sonora, as well as for California. Between 1990 and 2000, the total number of housing units and the number of occupied units in Calaveras and Tuolumne Counties and Angels Camp increased by more than the state averages of 9.2 percent total and 10.8 percent occupied. In Sonora between 1990 and 2000, the total number of housing units increased by more than occupancy, resulting in a vacancy increase of from 6.5 to 6.6 percent; both values increased by less than the state average. Between 2000 and 2006 the total number of housing units and the number of occupied units increased by a percentage similar to or above the state average. Angels Camp experienced the greatest percentage increase, with a 22.9 percent rise in the number of units and a 22.8 percent rise in the number of occupied units. Of the two cities in the New Melones area, Sonora had the lower vacancy rate at 6.6 percent, and of the two counties in the New Melones area, Tuolumne County had the lower vacancy rate at 25.9 percent. All vacancy rates shown for the New Melones area were higher than the state average of 5.9 percent in 2006 (California Department of Finance 2000, 2006c).

Table R-69: County Housing Estimates 1990, 2000, and 2006

Location	Year	Total	Occupied	Percent Vacant
California	1990	11,182,513	10,380,856	7.2
	2000	12,214,550	11,502,871	5.8
	Percent Change 1990-2000	9.2	10.8	
	2006	13,138,670	12,367,468	5.9
	Percent Change 2000-2006	7.6	7.5	
	Percent Change 1990-2006	17.5	19.1	
Calaveras County				
	1990	19,153	12,649	34.0
	2000	22,946	16,469	28.2
	Percent Change 1990-2000	19.8	30.2	
	2006	26,685	19,171	28.2
	Percent Change 2000-2006	16.3	16.4	
	Percent Change 1990-2006	39.3	51.6	
Angels Camp				
	1990	1,229	1,107	9.9
	2000	1,422	1,286	9.6
	Percent Change 1990-2000	15.7	16.2	
	2006	1,747	1,579	9.6
	Percent Change 2000-2006	22.9	22.8	
	Percent Change 1990-2006	42.1	42.6	
Tuolumne County				
	1990	25,175	17,959	28.7
	2000	28,336	21,004	25.9
	Percent Change 1990-2000	12.6	17.0	
	2006	30,071	22,298	25.9
	Percent Change 2000-2006	6.1	6.2	
	Percent Change 1990-2006	19.4	24.2	
Sonora				
	1990	2,084	1,949	6.5

Location	Year	Total	Occupied	Percent Vacant
	2000	2,197	2,051	6.6
	Percent Change 1990-2000	5.4	5.2	
	2006	2,365	2,208	6.6
	Percent Change 2000-2006	7.6	7.7	
	Percent Change 1990-2006	13.5	13.3	

Sources: California Department of Finance 2000, 2006c

As shown in Table R-70, since 2000, housing values in Calaveras and Tuolumne Counties increased by less than the state average. The median value in Tuolumne County went up by more than that in Calaveras County, resulting in similar current median values ($221,731 and $219,990). Median housing values for the state and both counties were higher than the national average of $136,625 (US Census Bureau 2000b; Reply.com 2007a, 2007b).

Table R-70: Median Housing Value

Location	Year	Median (dollars)
California	2000	$211,500
	2007	$346,606
	% Change	63.9%
Calaveras County	2000	$156,900
	2007	$219,990
	% Change	40.2%
Tuolumne County	2000	$149,800
	2007	$221,731
	% Change	48.0%

Sources: US Census Bureau 2000b; Reply.com 2007a, 2007b

The 2001-2009 Housing Element of the General Plan for unincorporated Calaveras County identifies the typical residence as a single-family structure, built in 1981. Based on 2003 and 2004 actual housing costs and 2003 income limits for a family of three or four, the availability of affordable "typical" housing is limited. In addition, in 2003, 4.4 percent of the housing in unincorporated Calaveras County was overcrowded, whereas, 2.2 percent of housing in Angels Camp was overcrowded. Approximately 65 percent of overcrowded units were owner occupied (Calaveras County 2005).

Angels Camp is the only incorporated city in Calaveras County. The typical Angels Camp residence in 2003 was a rented single-family structure built in 1968. The City estimates that an additional 282 housing units will be needed between 2001 and 2009 to accommodate growth resulting from newly created, mainly minimum wage commercial and service jobs.

Approximately 38 percent would be affordable housing for very low- and low-income families. The primary constraints to new housing development are limitations in water and wastewater infrastructure (City of Angels Camp 2006).

According to the Tuolumne County General Plan Housing Element Update, housing affordability is the primary concern of residents, particularly since the average Tuolumne County family of four at the median income level is able to afford the purchase of a $190,000 home. The median price of a home in Tuolumne County was $220,000 in 2003, and the average price was $245,000 (Tuolumne County 2003b).

Schools. In the 2005 to 2006 school year there were 29 active public schools in Calaveras County, with a total enrollment of 6,861 and student to teacher ratio of 21.1 (Education Data Partnership 2007a). Of these schools, six were in Angels Camp, two were in Copperopolis, and one was in Murphys (NCES 2007). The average class size in these schools was 25.4, which is lower than the state average of 27.3. A total of 7,733 students were enrolled in 44 public schools in Tuolumne County during the 2005 to 2006 school year (Education Data Partnership 2007b). Seventeen of these schools were in Sonora (NCES 2007). The student to teacher ratio was 18.9, and the average class size was 24.0, which was below the state average. The student to teacher ratio in each of the two New Melones Area counties was below the state average of 21.4 (Education Data Partnership 2007c). Enrollment in Calaveras County is projected to increase by 6.2 percent by 2015 to 7,290. In Tuolumne County enrollment is forecast to decline by 3.4 percent to 7,467 by 2115 (California Department of Finance 2006b).

Employment and Income. Unemployment rates are a key indicator of the health of local economies. They reflect the ability of employers to provide the numbers and types of jobs needed by the labor force and the ability of the labor force to supply the skills and availability needed by employers (Tuolumne County 2005). Table R-71 provides labor force and employment data in Calaveras and Tuolumne Counties and California. The unemployment rate in both Calaveras and Tuolumne Counties (5.9 and 3.1 percent) is above the state average (5.4 percent), despite increased economic diversity in these two counties (California Employment Development Department 2006; Calaveras County 1996c; Tuolumne County 2005).

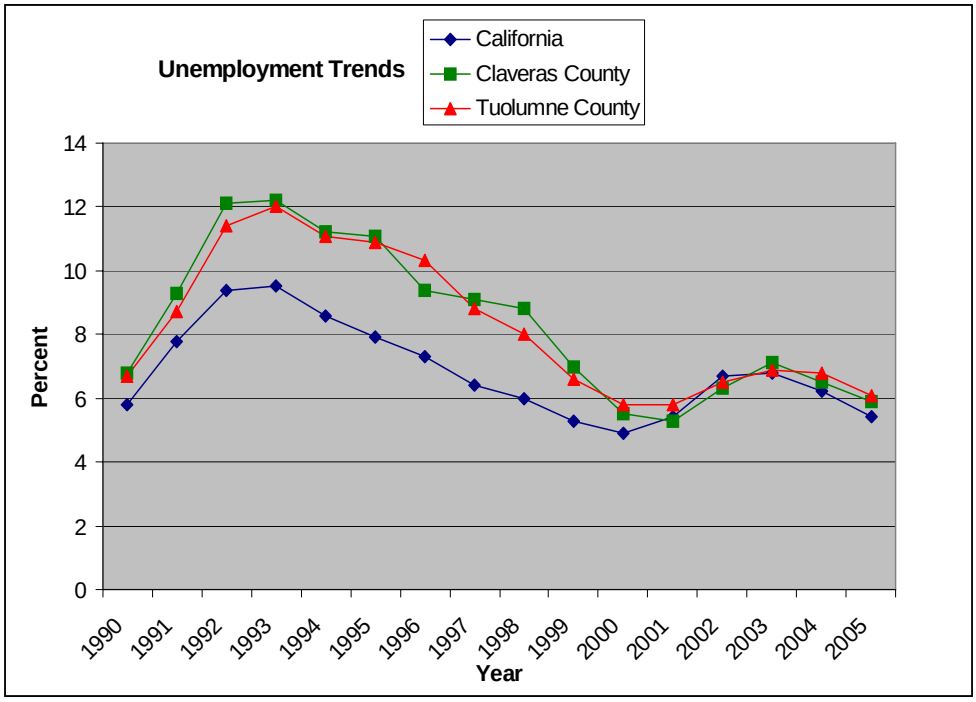
Table R-71: County Employment Statistics (2005)

County	Civilian Labor Force	Employed	Unemployed	Unemployment Rate
California	17,695,600	16,746,900	948,700	5.4%
Calaveras County	20,620	19,410	1,210	5.9%
Tuolumne County	26,080	24,480	1,600	6.1%

Source: California Employment Development Department 2006

As shown on Chart R-2, since hitting a high point in 1992 unemployment in the two study area counties and in the state has been declining in general, except during the recession in 2001 through the recovery in 2004. It is during a portion of this period that the unemployment rate in the two project area counties fell below that of the state, probably due to the differing industry mix in the project area counties, as compared with the state as a whole (California Employment Development Department 2006).

Chart R-2



Source: California Employment Development Department 2006

Calaveras and Tuolumne Counties are part of the Mother Lode region, which includes El Dorado, Amador, and Mariposa Counties. This area has been known historically for its minerals and timber industries, but these industries have been declining as sources of employment and income, as government, tourism and recreation, services, and construction have become increasingly important. Increases in tourism and recreation have generated additional employment in the leisure and hospitality sector and in construction. Newly created jobs in the leisure and hospitality sector are often entry-level, low-wage commercial and service positions, which may provide income to local families insufficient to afford adequate housing (City of Angels Camp 2004; Tuolumne County 2005). Increases in construction have helped to boost employment in the timber industry in the project area counties. In Tuolumne County, recent job losses have occurred in manufacturing, a sector that typically contributes more to the economy than growing sectors of government, services, and construction (Tuolumne County 2005).

Table R-72 provides a breakdown of the project area counties' percentage employment by sector and average sector growth between 1990 and 2000 and between 2000 and 2005. In 2005 most employment in the project area counties and the state was in the services industries (80.1 in Calaveras County, 8.4 percent in Tuolumne County, and 81.6 percent in California); however, unlike the state, where most jobs in this group are in professional and business services, hospitality and leisure is the largest private services sector in Calaveras and Tuolumne Counties (13.0 and 12.9 percent). The education and health services sector employs a similar number of Tuolumne County residents (12.1 percent). Government is the largest services sector in the project area counties and the state (80.1 in Calaveras County, 8.4 percent in Tuolumne County, and 81.6 percent in California). Between 1990 and 2000, the largest decline in employment in Calaveras County was in farm employment (-70.0 percent), which had been a historically stable

Table R-72: Employment by Sector and Growth

	California			Calaveras County			Tuolumne County		
	Percent Change 1990-2000	2005 (percent of total)	Percent Change 2000-2005	Percent Change 1990-2000	2005 (percent of total)	Percent Change 2000-2005	Percent Change 1990-2000	2005	Percent Change 2000-2005
Total, All Industries (number employed)	15.8%	15,161,100	1.8%	17.8%	9,100	12.5%	12.4%	17,870	12.0%
Total Farm	12.3%	2.5%	-8.0%	-70.0%	0.8%	133.3%	100.0%	0.5%	-50.0%
Total Nonfarm	15.9%	97.5%	2.0%	19.1%	99.3%	12.2%	11.8%	99.5%	12.8%
Total Private	16.7%	81.6%	1.7%	25.1%	72.0%	14.1%	10.1%	69.1%	10.0%
Goods Producing	-1.1%	16.1%	-7.0%	10.2%	19.1%	23.4%	-3.0%	13.1%	4.0%
Natural Resources, Mining and Construction	11.4%	6.1%	22.0%	-1.9%	14.6%	31.7%	-24.3%	7.7%	23.2%
Manufacturing	-5.4%	10.0%	-18.7%	60.0%	4.5%	2.5%	32.9%	5.4%	-15.0%
Service Providing	20.5%	81.4%	4.0%	21.1%	80.1%	9.6%	14.7%	86.4%	14.3%
Private Servicing Producing	22.8%	65.5%	4.0%	30.5%	52.7%	11.1%	14.0%	56.0%	11.6%
Trade, Transportation and Utilities	12.5%	18.6%	3.4%	8.9%	17.5%	17.8%	19.3%	16.5%	3.5%
Wholesale Trade	17.2%	4.4%	4.4%	20.0%	1.3%	0.0%	-21.1%	1.1%	33.3%
Retail Trade	8.0%	10.9%	6.0%	5.9%	12.9%	8.3%	23.3%	13.9%	-0.4%
Transportation, Warehousing, and Utilities	21.6%	3.2%	-5.8%	15.4%	3.3%	100.0%	17.6%	1.5%	35.0%
Information	47.3%	3.1%	-17.4%	7.7%	1.3%	-14.3%	15.0%	1.6%	26.1%
Financial Activities	-3.3%	6.1%	16.6%	6.9%	3.2%	-6.5%	-30.4%	3.3%	7.3%
Professional and Business Services	48.5%	14.2%	-4.1%	86.7%	6.4%	3.6%	1.1%	5.8%	16.9%

	California			Calaveras County			Tuolumne County		
	Percent Change 1990-2000	2005 (percent of total)	Percent Change 2000-2005	Percent Change 1990-2000	2005 (percent of total)	Percent Change 2000-2005	Percent Change 1990-2000	2005	Percent Change 2000-2005
Educational and Health Services	25.2%	10.5%	13.3%	31.0%	7.5%	23.6%	51.8%	12.1%	27.6%
Leisure and Hospitality	20.7%	9.7%	10.6%	35.1%	13.0%	13.5%	8.7%	12.9%	8.5%
Other Services	17.1%	3.4%	4.9%	123.5%	4.0%	-5.3%	14.5%	3.7%	6.3%
Government	11.7%	15.9%	4.1%	6.9%	27.4%	6.9%	16.1%	30.4%	19.6%
Federal Government	-24.6%	1.6%	-8.7%	0.0%	1.4%	-18.8%	-33.9%	2.0%	-2.7%
State and Local Government	19.4%	14.3%	5.8%	7.4%	25.9%	8.8%	24.5%	28.4%	21.6%
State Government	16.1%	3.1%	4.4%	-22.6%	2.2%	-16.7%	-4.3%	6.1%	-1.8%
Local Government	20.4%	11.2%	6.2%	13.5%	23.7%	11.3%	39.7%	22.3%	30.1%

Source: California Employment Development Department 2006

industry in the county, with field crops, vineyards, orchards, livestock, and poultry contributing most to total gross value of production (Calaveras County 1996c). However, this sector also experienced the greatest increase in employment between 2000 and 2005 at 133.3 percent, which was still below the 1990 level. The most substantial increases between 1990 and 2000 were in other services, professional and business services, and manufacturing. Between 2000 and 2005, the greatest losses in employment in Calaveras County were seen in the Federal and state government sectors; and transportation/warehousing/utilities was the other major growth sector, besides farming (California Employment Development Department 2006).

In contrast with Calaveras County, in Tuolumne County between 1990 and 2000 total farm employment experienced the greatest increase, and between 2000 and 2005 this sector experienced the greatest decrease in employment. Educational and health services, local government, and manufacturing also experienced substantial growth (51.8, 39.7, and 32.9 percent, respectively). Between 2000 and 2005, transportation/warehousing/utilities experienced the greatest percentage growth (California Employment Development Department 2006).

The greatest absolute increase in the number of employed in Calaveras County between 2000 and 2005 occurred in government (160 workers), leisure and hospitality (150 workers), and transportation/warehousing/utilities (140 workers). In Tuolumne County the greatest absolute increases occurred in government (890 workers), educational and health services (470 workers), leisure and hospitality (180 workers), and professional and business services (150 workers) (California Employment Development Department 2006).

Table R-73 shows the major employers in Calaveras and Tuolumne Counties. Five of the major employers in Calaveras County are in Angels Camp and one is in Murphys. Fifteen of Tuolumne County's major employers are in Sonora and two are in Jamestown. Four of the largest employers in Calaveras County are in the hospitality sector (Bear Valley Ski Area Main Office, Resort at Greenhorn Creek, Saddle Creek Lodge Resort, and Sequoia Woods Country Club), and four of Tuolumne County's largest employers are in the hospitality sector (Black Oak Casino, Dodge Ridge Ski Resort, Chicken Ranch Bingo and Casino, and Lair of the Bear).

According to employment projections, between 2002 and 2012, total nonfarm wage and salary employment in the Mother Lode region is expected to grow about 1.5 percent annually (about 9,000 jobs) between 2002 and 2012, slightly less than the statewide growth rate of 1.8 percent. Approximately 64 percent of new nonfarm wage and salary jobs are forecasted to occur in government (32 percent), leisure and hospitality (19 percent), and construction (13 percent). Construction is expected to be the fastest growing major industry sector (at an annual growth rate of 3.0 percent), and information, educational and health services, and professional and business services are also forecast to grow at a faster rate than the county average (California Employment Development Department 2007c).

Table R-73: Major Employers in Calaveras and Tuolumne Counties

Calaveras County				Tuolumne County			
Employer Name	**Location**	**Industry**	**Number of Employees**	**Employer Name**	**Location**	**Industry**	**Number of Employees**
Bear Valley Ski Area Main Office	Bear Valley	Skiing Centers and Resorts	250-499	Corrections Department	Jamestown	State Government-Correctional Institutions	1,000-4,999
Forestry and Fire Protection	San Andreas	Government-Forestry Services	250-499	Black Oak Casino	Tuolumne	Casinos	500-999
Mark Twain St. Joseph's Hospital	San Andreas	Hospitals	250-499	Sonora Regional Medical Center	Sonora	Emergency Medical and Surgery Service	500-999
Mountain Machining	Angels Camp	Machine Shops	250-499	Dodge Ridge Ski Resort	Pinecrest	Skiing Centers and Resorts	250-499
Human Resources Council	San Andreas	Social Service and Welfare Organizations	100-249	MRL Industries, Inc.	Sonora	Semiconductor-Manufacturers Equipment/Supplies (Wholesale)	250-499
Ironstone Vineyards	Murphys	Wineries	100-249	National Audubon Society	Sonora	Environmental Conservation/ Ecological Organization	250-499
Mark Twain Convalescent Hospital	San Andreas	Hospitals	100-249	Tuolumne General Hospital	Sonora	Hospitals	250-499
Rite of Passage ATCS	San Andreas	Schools	100-249	Tuolumne General Hospital SNF	Sonora	Nursing and Convalescent Homes	250-499
Big Trees Market	Arnold	Grocers- Retail	50-99	Wal-Mart	Sonora	Department Stores	250-499

Calaveras County				Tuolumne County			
Employer Name	**Location**	**Industry**	**Number of Employees**	**Employer Name**	**Location**	**Industry**	**Number of Employees**
Bret Harte High School	Altaville	Schools	50-99	Avalon Care Center	Sonora	Nursing and Convalescent Homes	100-249
Calaveras County Human Services	San Andreas	County Government-Social/Human Resources	50-99	Chicken Ranch Bingo and Casino	Jamestown	Bingo Games	100-249
Calaveras County Road Department	San Andreas	Grading Contractors	50-99	Columbia College	Sonora	Schools-Universities and Colleges Academic	100-249
Calaveras County Sheriff	San Andreas	Sheriff	50-99	Diestel Turkey Ranch	Chinese Camp	Poultry Processing Plants	100-249
Calaveras County Water	San Andreas	Water and Sewage Companies-Utility	50-99	Hetch Hetchy Water and Power	Moccasin	Water and Sewage Companies-Utility	100-249
Calaveras Lumber	Angels Camp	Lumber-Retail	50-99	Lair of the Bear	Pinecrest	Camps	100-249
Calaveras Public Works Department	San Andreas	Grading Contractors	50-99	Pak 'N Save Foods	Sonora	Grocers-Retail	100-249
Calaveras Works and Human Services	San Andreas	Government Offices-County	50-99	Pine Mountain Lake Association	Groveland	Associations	100-249
Foot Hill Village Lodge and Inn	Angels Camp	Retirement Communities and Homes	50-99	Sierra Pacific	Sonora	Lumber Manufacturers	100-249

Calaveras County				Tuolumne County			
Employer Name	**Location**	**Industry**	**Number of Employees**	**Employer Name**	**Location**	**Industry**	**Number of Employees**
Jenny Lind Elementary School	Valley Springs	Schools	50-99	Sierra Pacific Industries	Chinese Camp	Sawmills	100-249
Longs Drugs	Valley Springs	Pharmacies	50-99	Sonora School District	Sonora	Schools	100-249
Mark Twain Elementary School	Angels Camp	Schools	50-99	Sonora Union High School	Sonora	Schools	100-249
Mar-Val Food Stores	Valley Springs	Grocers-Retail	50-99	Tuolumne County Human Services Agency	Sonora	County Government-Social/Human Resources	100-249
Resort at Greenhorn Creek	Angels Camp	Resorts	50-99	Tuolumne County Sheriff	Sonora	Sheriff	100-249
Saddle Creek Lodge Resort	Copperopolis	Hotels and Motels	50-99	Tuolumne County Social Services	Sonora	County Government-Social/Human Resources	100-249
Sequoia Woods Country Club	Arnold	Restaurants	50-99	US Forestry Department	Groveland	Government-Forestry Services	100-249

Sources: California Employment Development Department 2007a, 2007b

Both counties' general plans indicated that low income levels and low-paying local jobs have resulted in residents commuting outside the area for employment and have led to a decline in the affordability of housing to local residents. In 2004, per capita personal income in Calaveras and Tuolumne Counties was $27,480 and $26,578. The state average of $35,219 was about 22 percent higher than income in Calaveras County and 24 percent higher than in Tuolumne County (BEA 2006).

Taxes and PILT. Recreation at New Melones Lake contributes to tax revenues in Calaveras and Tuolumne Counties and the communities surrounding it by drawing visitors who pay sales and use taxes and transient occupancy taxes. Those attracted to the area for recreation or employment who also purchase property would contribute to the counties' property tax revenues. USDOI provides PILT to local governments to help offset losses in property taxes due to nontaxable Federal lands. Taxes, including PILT, are the primary revenue support for local police and fire protection, roads, and other infrastructure.

The sales and use tax rate in Tuolumne and Calaveras Counties is 7.250 percent. The property tax rate in Calaveras County in the area surrounding New Melones Lake is an average of 1.0264 percent (Calaveras County 2007a). Sales tax revenue for Calaveras County during the 2005 to 2006 fiscal year totaled $2,587,619 (Calaveras County 2007c), and property tax revenues were $71,622,000 for unincorporated Calaveras County (Calaveras County 2007b). The property tax rate in Tuolumne County is roughly 1.04182 percent. Sales tax revenue in Tuolumne County for the 2005 to 2006 fiscal year was $3,156,000, and $13,839,000 in property tax revenue went to Tuolumne County's General Fund over this period (Tuolumne County 2007).

Transient occupancy taxes are one way local governments collect revenues from visitors. They are a good indicator of travel activity since almost all of these sales are made to travelers. Transient occupancy tax revenue in Tuolumne County totaled $1,271,273 and in Sonora $202,790 in 2005 (Tuolumne County Chamber of Commerce 2007). Transient occupancy taxes accounted for $288,222 in revenue in Calaveras County (Calaveras County 2007a) and $739,177 in Angels Camp for the 2005 to 2006 fiscal year (City of Angels Camp 2007).

The formula used to compute the payments is based on population, receipt sharing payments, and the amount of Federal land within an affected county. PILT payments in 2006 in Calaveras County totaled $70,775, and in Tuolumne County total PILT payments were $739,215. In Calaveras County these payments covered 140,127 acres of Federal land, 13 percent of which (18,213 acres) was Reclamation land. In Tuolumne County, Federal lands totaled 1,091,844 acres, 0.8 percent of which (8,260 acres) was Reclamation land. Approximately 0.6 percent of Federal land statewide was Reclamation land. Between 2000 and 2006, PILT payments in Calaveras County declined by 18.2 percent despite a 2.8 percent increase in Federal lands; whereas, in Tuolumne County and the state, PILT payments increased by 5.2 and 47.4 percent, respectively. Over this period the Federal acreage in Tuolumne County did not change, but the state average increased by 1.3 percent. The acreage of Reclamation lands increased in Calaveras County by 87 acres, remained unchanged in Tuolumne County, and increased by 213 acres statewide between 2000 and 2006 (US Department of the Interior (USDOI) 2007).

Environmental Justice. In order to comply with EO 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations, data was compiled concerning the ethnic composition and income and poverty levels of the two New Melones Lake Area counties. At the time of the 2000 Census, the percentage of minorities in the census tracts surrounding New Melones Lake was 11.9 percent, and the percentage of any race that was considered Hispanic was 8.3 percent (US Census Bureau 2000a). Table R-74 presents ethnicity data for Calaveras County, and Table R-75 presents ethnicity data for Tuolumne County.. The minority population constitutes approximately 14.3 percent of the population of Calaveras County. Similar to Tuolumne County, the Hispanic population forms the greatest percentage of the minority population (7.0 percent). The percentage of minorities in Calaveras County has increased since 2000 and is projected to continue to increase, as is the percentage of minorities that is made up of Hispanics (California Department of Finance 2004). Based on Census data, the percentage of minorities in the area closest to New Melones Lake is lower than the Calaveras County average.

Table R-74: Population Ethnicity Estimates for Calaveras County

Year	White	Hispanic	Asian	Pacific Islander	Black	Native American	Multi-race	% Non-White	Total
2000	35,685	2,879	367	41	360	652	906	12.7%	40,890
(percent)	(87.3%)	(7.0%)	0.9%	0.1%	0.9%	1.6%	2.2%		
2006	39,555	3,651	433	41	499	1,002	985	14.3%	46,166
(percent)	(85.7%)	(7.9%)	0.9%	0.1%	1.1%	2.2%	2.1%		
2030	55,981	7,954	1,076	41	1,226	3,042	1,257	20.7%	70,577
(percent)	(79.3%)	(11.3%)	1.5%	0.1%	1.7%	4.3%	1.8%		

Source: California Department of Finance 2004

As shown in Table R-75 ethnic minorities are estimated to make up 16.3 percent of the current population of Tuolumne County, which is a slightly higher percentage than in Calaveras County. As for Calaveras County, the Hispanic population forms the greatest percentage of the minority population (8.5 percent of the total population). The percentage of minorities has increased since 2000 and is projected to continue to increase, as is the percentage of minorities that is made up of Hispanics (California Department of Finance 2004). Based on census data, the percentage of minorities in the area closest to New Melones Lake is lower than the Tuolumne County average.

This trend toward a larger percentage minority population, with Hispanics being the largest minority, reflects the state trend; however, the proportion of minorities in the New Melones Lake Area counties is much lower than the state average, which has been above 50 percent since 2000. In 2000, approximately 52.9 percent of the state population was minority, with 32.6 percent Hispanic; and in 2006 about 57.8 percent of California's population was minority, with 36.4 percent Hispanic. By 2030 the state is projected to have a 70.5 percent minority population, and

Table R-75: Population Ethnicity Estimates for Tuolumne County

Year	White	Hispanic	Asian	Pacific Islander	Black	Native American	Multi-race	Percent Non-White	Total
2000	46,674	4,540	421	93	1,159	948	1,111	15.1%	54,946
(Percent)	(84.9%)	(8.3%)	(0.8%)	(0.2%)	2.1%	(1.7%)	(2.0%)		
2006	48,867	4,952	518	93	1,191	1,476	1,265	16.3%	58,362
(Percent)	(83.7%)	(8.5%)	(0.9%)	(0.2%)	2.0%	92.5%)	(2.2%)		
2030	54,191	6,526	863	93	1,269	3,909	1,715	21.0%	68,566
(Percent)	(79.0%)	(9.5%)	(1.3%)	(0.1%)	1.9%	(5.7%)	(2.5%)		

Source: California Department of Finance 2004

46.8 percent of the population is forecast to be Hispanic (California Department of Finance 2004).

The US Census Bureau uses a set of income thresholds that vary by family size and composition to determine which families are living in poverty. If a family's total income is less than its threshold, then that family, and every individual in it, is considered to be living in poverty. Poverty thresholds do not vary geographically, but they are updated annually for inflation using the Consumer Price Index. For individuals who do not live with family members, their own income is compared with the appropriate threshold (US Census Bureau 2004). According to the US Census Bureau, the poverty threshold in 2004 was $9,973 for an individual and $19,971 for a family of four. Table R-76 shows estimated median household income and poverty levels for Calaveras and Tuolumne counties and for the state. According to the US Census Bureau, the percentage of the populations of Calaveras and Tuolumne Counties at income levels below the poverty threshold was lower than the state average of 13.2 percent, with 9.3 and 11.6 percent, respectively. The median household income for these two counties was also below the state average (US Census Bureau 2006).

Table R-76: Median Household Income and Poverty, 2004

State/ County	Median Household Income	Number in Poverty	Percent in Poverty
California	49,894	4,681,645	13.2
Calaveras County	46,052	4,323	9.3
Tuolumne County	41,067	6,069	11.6

Source: US Census Bureau 2006

According to the 2000 Census, within the census tracts surrounding the New Melones Lake Area, the percentage of families below the poverty line averaged approximately 9.3 percent, higher than the Calaveras County average of 8.7 percent and the Tuolumne County average of 8.1 percent. The average percentage of individuals below the poverty line in the census tracts surrounding the New Melones Lake Area was 12.8 percent, which was higher than the Calaveras

County average of 11.8 percent and the Tuolumne County average of 11.4 percent (US Census Bureau 2000b).

8.2.2 Resource Management

The legislative authority guiding the management of socioeconomic resources and environmental justice populations in Reclamation projects is based on the Bureau of Reclamation Manual Policy and Directives and Standards release number ENV P03: National Environmental Policy Act and Executive Order 12898 (February 11, 1994). This manual requires Federal agencies to identify "disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations". NEPA requires the evaluation of the impacts of an action on the quality of the human environment, including the relationship of people with the natural and physical environment.

Decision and Guidance Documents

The decision documents that provide guidance for development and conservation in the New Melones Lake area include the Lake Area Master Plan of 1976 (Reclamation 1976) and the Peoria Wildlife Mitigation Environmental Assessment (Reclamation 2006b). The Lake Area Master Plan does not provide specific guidance with respect to population, housing, employment and income, revenues to local government, or environmental justice issues (socioeconomic resources). The Peoria Wildlife Management Environmental Assessment addresses environmental justice issues in the Peoria Wildlife Management Area study corridor. The Draft New Melones Lake Resource Management Plan (Reclamation 1995) provides a description of existing socioeconomic conditions but does not specifically address the role of socioeconomic resources in the plan.

Summary of Current Decisions

The Peoria Wildlife Management Environmental Assessment indicates that potential adverse effects on residents in the immediate Peoria Wildlife Management Area and potential effects on regional recreationists are considered to be minimal, so no mitigation would be required. No other management actions regarding socioeconomic resources are provided in the guidance documents.

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