6. Environmental Consequences

6.1 Introduction

Chapter 6 contains the direct and indirect effects on the human and natural environment in terms of environmental, social, and economic consequences that are projected to occur from implementing the alternatives presented in Chapter 3. It also discusses the cumulative effects that are projected to occur from implementing the alternatives, as well as describes irretrievable or irreversible commitment of resources and unavoidable adverse impacts.

Impacts are presented for 16 topics in Sections 6.2 through 6.17: air quality, noise, geological resources, hydrology and water quality, visual resources, vegetation, fish and wildlife, special status species, general land management, access and transportation, public health and safety, fire management, cultural resources, Indian Trust Assets, socioeconomic and environmental justice, and recreation. Effects on each topic are grouped into the following categories for each alternative: Physical Resources; Natural Resources; Lands, Transportation, and Access; Cultural and Social Resources; and Recreation. These categories contain discussions pertaining to the following subcategories:

- Physical Resources – effects from management actions for air quality, noise, geology, caves, hydrology and water quality, and visual resources;
- Natural Resources – effects from management actions for vegetation, fish and wildlife (including fisheries), invasive species, and special status species;
- Lands, Transportation, and Access – effects from management actions for general land management, access and transportation, public health and safety, and fire management;
- Cultural and Social Resources – effects from management actions for cultural resources, socioeconomic and environmental justice, and Indian trust assets; and
- Recreation – effects from management actions for general recreation, aquatic recreation, land-based recreation, interpretive and visitor services.

Before presentation of the effects on each of the 16 topics, the method of analysis is described. This contains a discussion of the methods and assumptions used to reach impact conclusions. For each resource topic, effects common to all alternatives are presented, followed by additional effects that would result from each individual alternative (A, B, C, and D).

Cumulative effects on the 16 topics are in Section 6.18, Cumulative Effects. Unavoidable adverse impacts are presented in Section 6.19, Unavoidable Adverse Impacts.

Irretrievable or irreversible commitment of resources is discussed in Section 6.20, Irretrievable or Irreversible Commitment of Resources.

Impact analyses and conclusions are based on interdisciplinary team knowledge of the resources and planning area, information provided by experts in Reclamation and Tetra Tech or in other agencies, and information contained in pertinent literature. The baseline used for the impact analysis is the current condition or situation, as described in Chapter 5 (Affected Environment). Analysis assumptions have also been developed to help guide the determination of effects (see Section 6.1.1, Analytical Assumptions). Because the Proposed RMP/EIS provides a broad management framework, the analysis in this chapter represents best estimates of effects, because exact locations of development or management are often unknown. Effects are quantified to the extent practical with available data. In the absence of quantitative data, best professional judgment provides the basis for the impact analysis.

The land use planning-level decisions that Reclamation will make regarding this RMP are programmatic decisions based on analysis that can only be conducted on a broad scale. Because of the broad scope, impact analysis of planning-level decisions is speculative with respect to projecting specific activities. Subsequent documents tiered to this RMP would generally contain a greater level of detail and would be subject to NEPA analysis and compliance. Subsequent tiered activity- and project-level plans are more definitive than plans found in an RMP. An activity-level plan typically describes projects in detail that will lead to on-the-ground action and traditionally focuses on single resource programs. Activity plans (such as travel management plans) are generally more site specific and less speculative than the RMP analyses. Activity plans may contain information that is as detailed or specific at a project level. A project-specific plan is typically prepared for an individual project or several related projects. Project-level plans (such as stream restoration) contain specific proposed actions, and site- or area-specific analysis is conducted.

6.1.1 Analytical Assumptions

Several assumptions were made to facilitate the estimation of the effects of the alternatives. These assumptions are made only for the purpose of analysis and do not represent potential RMP decisions. The assumptions do provide reasonably foreseeable, projected levels of development that could occur within the planning area. These assumptions should not be interpreted as constraining or redefining the management objectives and actions proposed for each alternative described in Chapter 3. Following are the general assumptions applicable to all resource categories. Any specific resource assumptions are provided in the Methods of Analysis subheading for that resource.

- Sufficient funding and Reclamation personnel would be available for implementing the final decision;
- Implementing actions from any of the RMP alternatives would comply with all valid existing rights, federal regulations, Reclamation policies, and other requirements;

- Local climate patterns of historic record and related conditions for plant growth would continue;
- The functional capability of all developments would be maintained;
- The discussion of impacts is based on the best available data. Knowledge of the planning area and professional judgment, based on observation and analysis of conditions and responses in similar areas, are used to infer environmental impacts where data are limited;
- Acreage figures and other numbers used in the analyses are approximate projections for comparative and analytic purposes only. Readers should not infer that they reflect exact measurements or precise calculations; and
- Acreages were calculated using GIS technology, and there may be slight variations in total acres between resources. These variations are negligible and will not affect analysis.

6.1.2 Types of Effects (Direct, Indirect, and Cumulative)

Direct, indirect, and cumulative effects are considered in this effects analysis, consistent with the direction in 40 CFR, Part 1502.16. Direct effects are caused by an action or implementation of an alternative and occur at the same time and place. Indirect effects result from implementing an action or alternative but are usually later in time or removed in distance and are reasonably certain to occur. Cumulative effects are defined as the direct and indirect effects of a proposed project alternative's incremental impacts when they are added to other past, present, and reasonably foreseeable actions, regardless of who carries out the action.

Effects are quantified where possible, primarily by using GIS applications. In the absence of quantitative data, best professional judgment prevailed; impacts are sometimes described using ranges of potential impacts or in qualitative terms. Only management programs with impacts are discussed. The standard definitions for terms referring to impact duration that are used in the effects analysis are as follows, unless otherwise stated:

Short-Term Effect: The effect occurs only during or immediately after implementation of the alternative. For the purposes of this RMP, short-term effects would occur during the first five years.

Long-Term Effect: The effect could occur for an extended period after implementing the alternative. The effect could last several years or more and could be beneficial or adverse. For the purposes of this RMP, long-term effects would occur beyond the first five years and perhaps over the life of the RMP.

6.1.3 Incomplete or Unavailable Information

The CEQ established implementing regulations for NEPA requiring that a federal agency identify relevant information that may be incomplete or unavailable for an evaluation of reasonably foreseeable significant adverse effects in an EIS (40 CFR, Part 1502.22). If the information is essential to a reasoned choice among alternatives, it must be included

or addressed in an EIS. Knowledge and information is and will always be incomplete, particularly with infinitely complex ecosystems considered at various scales.

The best available information, pertinent to the decisions to be made, was used in developing the RMP. Certain site-specific information was unavailable for use in developing this plan, usually because inventories have either not been conducted or are not complete. Reclamation has information to support planning level decisions, although the data is incomplete for specific areas. Ongoing data collection and analysis provide a general understanding of the resources trends that were used in developing the alternatives and assessing impacts. Reclamation will continue monitoring and taking inventory, as needed, and this information will be used to assess the effectiveness of management measures.

The RMP sets objectives for broad level management of project lands, while implementation level planning requires subsequent site specific-analysis. During the implementation phase, additional surveys and data could be required to analyze site-specific decisions made in implementation level planning.

This RMP is also based on the concept of adaptive management, so it is dynamic enough to account for changes in resource conditions (such as large-scale wildfire), new information and science, and changes in regulation and policies. The RMP may be amended to respond to these factors. No incomplete or unavailable information was deemed essential to a reasoned choice among the alternatives analyzed in this EIS.

6.2 Air Quality

6.2.1 Introduction

Background air quality conditions in the New Melones Lake Area are affected primarily by pollutant transport from the Central Valley. The air pollutants of greatest concern are ozone and suspended particulate matter. The major sources of air pollutant emissions at or near the New Melones Lake Area include boating and personal watercraft use at New Melones Lake, wildland fires, agricultural burns on private lands, vehicle traffic on paved and unpaved roads, campfires and camp stoves used in campgrounds at New Melones Lake, internal combustion engine equipment (such as portable generators) used in campgrounds at New Melones Lake, and mining and mineral development activities in areas near New Melones Lake. Local sources of air pollutant emissions typically are not the dominant contributor to local air quality conditions. The major exceptions to this involve smoke from nearby wildfires, or smoke from campfires in campground areas.

The region of influence for air quality covers Calaveras and Tuolumne Counties.

6.2.2 Methods of Analysis

6.2.2.1 Methods and Assumptions

Available information was insufficient to develop quantitative emission estimates for activities addressed by the RMP alternatives. Potential air quality effects of the

management actions under Alternatives A through D were evaluated by a qualitative consideration of how RMP policies and actions would affect sources of air pollutant emissions in the New Melones Lake Area.

6.2.3 Effects on Air Quality Common to All Alternatives

6.2.3.1 Effects from Physical Resources Management

Air quality management actions under all alternatives would focus on compliance with state and county regulations concerning naturally occurring asbestos, and compliance with state and county smoke management programs. Naturally occurring asbestos is found primarily in association with serpentine rock formations. Disturbance of soils and rock materials in these areas can release asbestos fibers into the air, creating localized health hazards. State and county regulations restrict the asbestos content of gravel used for roadway and facility construction purposes. State and county smoke management programs restrict the use of prescribed burns and agricultural burns during periods when weather conditions would limit the dispersal of smoke generated the burns. Other smoke management programs might restrict the use of wood fires in campgrounds during episodes of high air pollution levels.

Geologic resource management actions under all alternatives would limit mining and material excavation in the New Melones Lake Area, and thus would limit fugitive dust and equipment exhaust emissions associated with mining and excavation activities. Water resource management actions under all alternatives include actions to minimize soil erosion and to minimize development activities on serpentine areas. Those actions would minimize generation of fugitive dust, including dust containing hazardous asbestos particles.

6.2.3.2 Effects from Natural Resources Management

Natural resource management programs and actions common to all alternatives would have no air quality effects. Vegetation management programs to protect native plant communities would be consistent with other programs and actions to minimize disturbance of serpentine areas, and thus reduce the generation of fugitive dust that could contain hazardous asbestos fibers.

6.2.3.3 Effects from Lands, Transportation, and Access Management

There were no identified effects common to all alternatives from lands management. Actions to prevent unauthorized OHV use would minimize the potential for fugitive dust and OHV engine emissions on Reclamation lands in the New Melones Lake Area.

6.2.3.4 Effects from Cultural and Social Resources Management

There were no identified effects common to all alternatives from cultural and social resources management.

6.2.3.5 Effects from Recreation Management

There were no identified effects common to all alternatives from recreation management.

6.2.4 Effects on Air Quality under Alternative A

6.2.4.1 Effects from Physical Resources Management

Air quality effects from physical resource management programs and actions under Alternative A would be the same as those discussed in Effects Common to All Alternatives from Physical Resources Management.

6.2.4.2 Effects from Natural Resources Management

Vehicle traffic from visitors to the New Melones Lake Area generates air pollutant and greenhouse gas emissions. Alternative A includes programs and actions to maintain existing facilities, but does not include actions for construction of new, large facilities. Consequently, Alternative A would have limited air quality effects from construction activities. Emissions from visitor traffic would be expected to remain relatively stable, since federal and state vehicle emission control requirements are likely to offset increases in visitor traffic volumes associated with regional population growth.

6.2.4.3 Effects from Lands, Transportation, and Access Management

Air quality effects from natural resource management programs and actions under Alternative A would be the same as those discussed in Effects Common to All Alternatives from Lands, Transportation, and Access Management.

Fire management actions under Alternative A would allow the use of prescribed burns. While the extent of prescribed fire use under Alternative A remains uncertain, the use of prescribed fire would likely be less under Alternative A than under Alternatives B, C, and D. Alternative A would be a continuation of existing effects on air quality from pollutant and greenhouse gas emissions associated with prescribed fire use.

6.2.4.4 Effects from Cultural and Social Resources Management

There were no identified effects from cultural and social resources management under Alternative A.

6.2.4.5 Effects from Recreation Management

Boating activities and campground activities (campfires, camp stove use, portable generator use, etc.) would generate air pollutant and greenhouse gas emissions in the New Melones Lake Area. Recreation management programs and actions under Alternative A would not construct any new large recreation facilities, or change existing recreation use designations. Recreational use levels and resulting air pollutant emissions would be expected to increase in proportion to regional population growth. Alternative A would be expected to have lower recreation-related emissions of air pollutants than Alternatives B, C, or D.

6.2.5 Effects on Air Quality under Alternative B

6.2.5.1 Effects from Physical Resources Management

Air quality effects from physical resource management programs and actions under Alternative B would be the same as those discussed in Effects Common to All Alternatives from Physical Resources Management.

6.2.5.2 Effects from Natural Resources Management

Air quality effects from natural resource management programs and actions under Alternative B would be the same as those discussed in Effects Common to All Alternatives from Natural Resources Management.

6.2.5.3 Effects from Lands, Transportation, and Access Management

Alternative B includes programs and policies for construction of new roads, trails, campgrounds, parking areas, and other facilities. Alternative B would consider relocation of the Baseline Conservation Camp. Alternative B also includes programs and actions that could result in development of an OHV Park facility. Construction activities for such new facilities would be temporary sources of additional criteria pollutant and greenhouse gas emissions. Increased visitor traffic related to the availability of new facilities would be an ongoing source of additional air pollutant and greenhouse gas emissions.

Fire management programs and actions under Alternative B would allow the use of prescribed burns. While the extent of prescribed fire use or wildland fire use under Alternative B remains uncertain, there likely would be an increase in air pollutant and greenhouse gas emissions under Alternative B compared to Alternative A.

6.2.5.4 Effects from Cultural and Social Resources Management

Alternative B includes actions to construct a new archeological storage facility. Construction of this facility would result in temporary air pollutant and greenhouse gas emissions.

6.2.5.5 Effects from Recreation Management

Alternative B includes actions to construct various new recreational facilities, including an OHV park, new campgrounds, marina facilities, wave attenuators, and floating campsites. Construction activities for these facilities would result in temporary air pollutant and greenhouse gas emissions. Increased visitor levels related to the availability of these new facilities would be an ongoing source of additional air pollutant and greenhouse gas emissions.

OHV use at a new OHV Park facility would be a new source of air pollutant and greenhouse gas emissions in the New Melones Lake Area. Although use projections for such a facility are not currently available, it should be noted that OHV engines have limited emission controls and typically use gasoline fuels.

6.2.6 Effects on Air Quality under Alternative C

6.2.6.1 Effects from Physical Resources Management

Air quality effects from physical resource management programs and actions under Alternative C would be the same as those discussed in Effects Common to All Alternatives from Physical Resources Management.

6.2.6.2 Effects from Natural Resources Management

Air quality effects from natural resource management programs and actions under Alternative C would be the same as those discussed in Effects Common to All Alternatives from Natural Resources Management.

6.2.6.3 Effects from Lands, Transportation, and Access Management

Alternative C includes programs and actions to maintain existing facilities, with limited construction of new facilities. Alternative C would also consider relocation of the Baseline Conservation Camp. Consequently, Alternative C would have limited air quality effects from construction activities. As noted below, Alternative C also includes programs and actions to reduce the level of boating activity at New Melones Lake. Consequently, emissions from visitor traffic would be expected to decline somewhat in the future.

Fire management programs and actions under Alternative C would allow the use of prescribed burns. While the extent of prescribed fire use or wildland fire use under Alternative C remains uncertain, there likely would be an increase in air pollutant and greenhouse gas emissions under Alternative C compared to Alternative A.

6.2.6.4 Effects from Cultural and Social Resources Management

Effects on air quality from cultural and social resources management would be the same as those described under Alternative B.

6.2.6.5 Effects from Recreation Management

Alternative C includes management programs and actions to reduce the level of boating activity and to restrict seaplane operations at New Melones Lake. These actions could reduce overall visitor levels to the New Melones Lake Area and to reduce recreation-related air pollutant and greenhouse gas emissions compared to Alternatives A, B, and D.

6.2.7 Effects on Air Quality under Alternative D

6.2.7.1 Effects from Physical Resources Management

Air quality effects from physical resource management programs and actions under Alternative D would be the same as those discussed in Effects Common to All Alternatives from Physical Resources Management.

6.2.7.2 Effects from Natural Resources Management

Air quality effects from natural resource management programs and actions under Alternative D would be the same as those discussed in Effects Common to All Alternatives from Natural Resources Management.

6.2.7.3 Effects from Lands, Transportation, and Access Management

Alternative D includes programs and policies for construction of new roads, trails, campgrounds, parking areas, and other facilities. The extent of new construction activity generally would be somewhat less than under Alternative B. Alternative D would also consider relocation of the Baseline Conservation Camp. Construction activities for such new facilities would be temporary sources of additional criteria pollutant and greenhouse gas emissions. Increased visitor traffic related to the availability of new facilities would be an ongoing source of additional air pollutant and greenhouse gas emissions.

Fire management programs and actions under Alternative D would allow the use of prescribed burns. While the extent of prescribed fire use or wildland fire use under

Alternative D remains uncertain, there likely would be an increase in air pollutant and greenhouse gas emissions under Alternative D compared to Alternative A.

6.2.7.4 Effects from Cultural and Social Resources Management

Effects on air quality from cultural and social resources management would be the same as those described under Alternative B.

6.2.7.5 Effects from Recreation Management

Alternative D includes actions to construct various new roads, trails, and other recreational facilities, but with fewer new facilities than under Alternative B. Construction activities for these facilities would result in temporary air pollutant and greenhouse gas emissions. Increased visitor levels related to the availability of these new facilities would be an ongoing source of additional air pollutant and greenhouse gas emissions.

6.3 Noise

6.3.1 Introduction

In general, background noise levels vary with wind conditions and relative location (on the lake, along the shoreline, or inland). As discussed in the affected environment section of this document, typical background noise levels are expected to vary from 35 A-weighted decibels (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 near such sources as highway traffic, occupied campgrounds, and areas of the lake with boat and personal watercraft use.

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 interfere with recreational activities and experiences. Boats and personal watercraft with underwater engine exhaust, and at full throttle, generally produce noise levels of 75 to 85 dBA at a distance of 50 feet (15 meters) (Lanpheer 2000).

The level of noise heard depends on the distance of the noise source, in relation to others, and is based on noise attenuation. There are many factors that effect sound transmission over distance. Absorption, reflection, presence of vegetation, and whether sound is travelling over land or water play a part in how sound attenuates, or gets less loud, as a function of distance. As a general rule, if you double the distance from the source, the overall noise level will decrease by 6 dBA.

6.3.2 Methods of Analysis

6.3.2.1 Methods and Assumptions

Potential effects of the management actions under the alternatives on noise were evaluated by examining the typical noise generation of noise sources occurring within the New Melones Lake Area, and the existing regulations and public health and safety guidance regarding noise exposure.

Factors considered in determining whether an alternative would have a significant impact include the extent or degree to which its implementation would cause or result in the following:

- Generate new sources of substantial noise,
- Increase the intensity or duration of noise levels to sensitive receptors, or
- Result in exposure of more people to high levels of noise.

Noise impact criteria are based partly on land use compatibility guidelines, and partly on factors related to the duration and magnitude of noise level changes. Annoyance effects are the primary consideration for most noise impact assessments. Because the reaction to noise level changes involves both physiological and psychological factors, the magnitude of a noise change can be as important as the resulting overall noise level. A readily noticeable increase in noise levels often would be considered a significant effect by local residents, even if the overall noise level were still within land use compatibility guidelines. On the other hand, noise level increases that are not noticeable to most people are not considered a significant change, even if the overall noise level is somewhat above land use compatibility guidelines.

Most people cannot distinguish between noise levels that differ by less than 1.5 to 2 dBA. A 3 dBA increase in noise levels represents a 23 percent increase in apparent loudness, while a 10 dBA increase represents a doubling of apparent loudness. It takes a doubling of noise sources (number of portable generators, hourly traffic volume, etc.) to generate a noise level increase of 3 dBA.

6.3.3 Effects on Noise Common to All Alternatives

6.3.3.1 Effects from Physical Resources Management

Management actions, under all alternatives, to reduce mining activities would directly affect noise levels by limiting noise producing activities, which would likely reduce the amount of overall man-made noise associated with the New Melones Lake Area. Effects on noise levels from restrictions of mining activities in the New Melones Lake Area would help to protect the natural setting of the area, and not increase noise levels above baseline levels that result from geologic resource management in the area.

Management actions, under all alternatives, to reduce erosion potential would directly affect noise levels by confining all public vehicles to existing roadways, and enforcing the ban on Off Highway Vehicles (OHV), which would likely reduce the amount of overall man-made noise that is associated with the New Melones Lake Area. Effects on noise levels from restrictions of OHV use in the New Melones Lake Area would help to protect the natural setting of the area, and not increase noise levels above baseline levels that result from hydrology and water quality management in the area.

6.3.3.2 Effects from Natural Resources Management

There were no identified effects on noise, common to all alternatives, from natural resources management.

6.3.3.3 Effects from Lands, Transportation, and Access Management

There were no identified effects on noise, common to all alternatives, from lands, transportation, and access management.

6.3.3.4 Effects from Cultural and Social Resources Management

There were no identified effects on noise, common to all alternatives, from cultural and social resources management.

6.3.3.5 Effects from Recreation Management

There were no identified effects on noise, common to all alternatives, from recreation management.

6.3.4 Effects on Noise under Alternative A

6.3.4.1 Effects from Physical Resources Management

Under Alternative A, visitors would voluntarily comply with boat noise regulations and visitor noise regulations. Visitors are currently asked to voluntarily comply with noise regulations both in campgrounds and on the lake, however many noise complaints are still filed from boating activities on the lake as well as from campground activities. Over time, noise complaints would continue without any change in management of noise regulations, and could possibly increase from increased visitor use.

6.3.4.2 Effects from Natural Resources Management

There were no identified effects on noise from natural resources management under Alternative A.

6.3.4.3 Effects from Lands, Transportation, and Access Management

Continued enforcement of off-road vehicle policy would limit the amount of prohibited vehicle noise in recreation areas.

6.3.4.4 Effects from Cultural and Social Resources Management

There were no identified effects on noise from cultural and social resources management under Alternative A.

6.3.4.5 Effects from Recreation Management

No wake zones, established under management actions for aquatic recreation, would decrease the amount of boat noise that is allowed in areas adjacent to the shore. Noise from motorized boats and personal watercraft increases with engine load and vessel speed. Boats and personal watercraft would have to operate at slow speeds to comply with the requirements of no wake zones. Reduced operating speed would result in lower noise levels in the no wake zones, and adjacent shoreline areas.

6.3.5 Effects on Noise under Alternative B

6.3.5.1 Effects from Physical Resources Management

Effects on noise from physical resources management would be similar to those described under Alternative A.

6.3.5.2 Effects from Natural Resources Management

There were no identified effects on noise from natural resources management under Alternative B.

6.3.5.3 Effects from Lands, Transportation, and Access Management

Alternative B proposes construction of an OHV park, which would increase noise levels from the short-term period of construction, and the use of the park. OHV use is currently prohibited in the New Melones Lake Area, and allowing use of these vehicles would create a new noise source in the area, increasing noise levels to higher than baseline levels.

In addition to noise from construction of an OHV park, construction of any type of roads and other facilities proposed under Alternative B would have effects on baseline noise levels during construction. Vehicle traffic on new or improved roads would add a localized noise source along the roadway corridor. However, unless the new or improved roads resulted in a substantial increase in traffic volumes, or a significant increase in traffic speeds, resulting traffic noise levels would be unlikely to affect visitor enjoyment of the New Melones Lake Area.

6.3.5.4 Effects from Cultural and Social Resources Management

Alternative B includes actions to construct a new archaeological storage facility. During construction, which would be limited to daytime hours, there would be effects on noise levels in the area.

6.3.5.5 Effects from Recreation Management

Alternative B proposes multiple actions to construct various facilities and recreational services such as wave attenuators, additional marinas, floating campsites, overnight lodging facilities, and mountain biking courses. Construction of all of these facilities would have effects on noise levels in the area during periods of construction, which would be limited to daytime hours. Construction of smaller projects would be of shorter duration, would result in less of an increase in noise levels, and would have a lesser effect than larger projects, such as the construction of new OHV courses, mountain biking courses, or construction of new recreational facilities in day-use areas. Increased visitor levels related to the availability of these new facilities would be an ongoing source of additional noise.

The development of additional water-sports courses, such as jet ski courses and high speed boat racing courses, as well as increased watercraft use, would increase noise levels from aquatic recreational activities that are not currently zoned for in the New Melones Lake Area. Boats and personal watercraft with underwater engine exhaust and at full throttle generally produce noise levels of 75 to 85 dBA at a distance of 50 feet (15 meters) (Lanpheer 2000). Boats and watercraft used on high speed racing courses may produce higher noise levels. In addition, boats and personal watercraft used in sanctioned racing events are exempt from the noise limits established in California Harbors and Navigation Code, section 654. According to the EPA, (Lanpheer 2000) intermittent noise from boat traffic that exceeds 75 dBA can cause annoyance to shoreline residents and

recreational users. Many of the complaints to the New Melones Lake Area staff come from noise due to boating activities on the lake.

6.3.6 Effects on Noise under Alternative C

6.3.6.1 Effects from Physical Resources Management

Under Alternative C, management actions for reducing erosion would directly affect noise levels by reducing the number of overall vehicles allowed in certain areas of the New Melones Lake Area, including on roadways in Semi-Primitive Areas, by reducing vehicle operation on unimproved roadways. A reduction in the overall number of vehicles would decrease the amount of noise associated with public vehicle use in the New Melones Lake Area.

Effects on noise from noise management regulations under Alternative C would be greater than under Alternative A, as Alternative C calls for enforceable noise management regulations for boating activities and other recreational activities. Seeking mandatory compliance with noise regulations would make visitors less likely to deviate from posted noise regulations, as they would become enforceable by law. This mandatory compliance would likely result in a decrease in overall noise levels from recreational activities, such as boating activities on the lake, as well as after-hours campground noise.

6.3.6.2 Effects from Natural Resources Management

There were no identified effects on noise from physical resources management under Alternative C.

6.3.6.3 Effects from Lands, Transportation, and Access Management

Alternative C includes programs and actions to maintain existing facilities, with limited construction of new facilities. Alternative C would also consider relocation of the Baseline Conservation Camp. Consequently, Alternative C would have limited effects on noise from construction activities.

Restricting access to New Melones Lake Area for seaplane and other aircraft overflight activities would result in decreased noise levels in the area, and would reduce the amount of recreational noise that is experienced by visitors in the area.

6.3.6.4 Effects from Cultural and Social Resources Management

Effects on noise from cultural and social resources management would be the same as those described under Alternative B.

6.3.6.5 Effects from Recreation Management

No wake zones proposed under Alternative C would have the same effects on noise as under Alternative A. Noise would be reduced additionally under Alternative C from designating Environmental Sensitive Areas, which would include restricting noise and overnight use. Other management actions under Alternative C that restrict watercraft use in certain areas, and propose a decrease in the level of watercraft use, would decrease the amount of overall noise that is created from water-based recreation activities. This decrease in noise levels would reduce the potential for annoyance and displeasure of the land-based recreational visitors at the New Melones Lake Area.

6.3.7 Effects on Noise under Alternative D

6.3.7.1 Effects from Physical Resources Management

Effects on noise from physical resources management would be the same as those described under Alternative A.

6.3.7.2 Effects from Natural Resources Management

There were no identified effects on noise from natural resources management under Alternative D.

6.3.7.3 Effects from Lands, Transportation, and Access Management

Under Alternative D, effects on noise from construction of new facilities would be similar to those described under Alternative B, but somewhat less since fewer new facilities are proposed under Alternative D than under Alternative B.

6.3.7.4 Effects from Cultural and Social Resources Management

Effects on noise from cultural and social resources management would be the same as those described under Alternative B.

6.3.7.5 Effects from Recreation Management

Under Alternative D, effects on noise from construction of recreational facilities and increased visitor use related to the availability of new facilities would be similar to those described under Alternative B, but somewhat less since fewer new facilities are proposed under Alternative D than under Alternative B.

Effects from noise resulting from water-based recreation activities would be similar to those described under Alternative C; however, noise levels would be decreased somewhat less than under Alternative C, because Alternative D includes fewer restrictions on these activities than Alternative C. Noise reduction from designating Environmentally Sensitive Areas would be less than under Alternative C because fewer areas would be given this designation under Alternative D.

6.4 Geologic Resources

6.4.1 Introduction

This section is a discussion of the potential impacts of the alternatives on the geology, soils, and unique geologic resources, including caves, in the New Melones Lake Area. Unique geologic resources and caves are affected by large-scale surface disturbance, such as mining, erosion, off-road vehicle uses, excavation, and vandalism. Damage and vandalism by visitors are usually concentrated near roads, trails, and the accessible shoreline. Impacts to soils are also due to disturbance, or conversion of productive soils (prime farmlands) to nonproductive uses. Impacts to biological crusts can result from disturbance, compaction, burial under sediments, and intense fire.

6.4.2 Methods of Analysis

6.4.2.1 Methods and Assumptions

The difference in effects of the management actions, among the alternatives, to geologic resources are determined by assessing the relative degree to which the actions would result in: disturbance of or damage to unique geologic features or caves; disturbance of soils, increase in the potential for erosion of soils, or cause areas with productive soils to be converted to nonproductive use; or decrease in the amount of habitat associated with special soils (e.g., serpentine soils, biological crusts).

Physical disturbance (e.g., road building, mining activities) of the geologic feature or soil are considered direct impacts. Indirect impacts are associated with actions that would increase the likelihood or ultimately result in disturbance (e.g., new roads would increase access to, and potential for vandalism of geologic features, or chemical treatment of weeds on slopes could result in increased erosion).

The assessment of impacts to minerals resources involves the consideration of how management actions to protect other resources may restrict the availability of land to mining or drilling, the limitations to mining operations, and the mitigations and reclamation procedures that may be required. The effects of the management actions among the alternatives are discussed in terms of the amount of land closed or open to mining, and limitations to operations that would increase operational costs.

Specific effects on geologic and soil resources are not always readily identifiable, because some effects on geology are difficult to separate from effects on other resources that geologic and soil resources support. Thus, the effects on geology are often discussed, either implicitly or explicitly, in the effects section of other resources, such as scenic quality (visual resources), or the preservation of vegetation endemic to serpentine soils. Effects are quantified where possible; in the absence of quantitative data, best professional judgment was used.

The following assumptions regarding the resource base and management practices were considered in the analysis:

- Potential for effects would be greatest from direct, large-scale disturbance activities;
- Vandalism can destroy a feature or reduce its resource value (e.g., scientific value, visual resources); and
- Education of the public increases support for protection of geologic resources, but also increases visitation.

6.4.3 Effects on Geological Resources Common to All Alternatives

6.4.3.1 Effects from Physical Resources Management

Mining restrictions would directly protect geologic resources and soils from disturbance in localized areas. The closure and reclamation of old mines, and the participation of

Reclamation in review of mining and reclamation plans within the New Melones watershed would further reduce ongoing disturbance to soils and erosion.

Inclusion of erosion prevention measures in the design and operation of facilities and roads, avoidance of activities in areas vulnerable to erosion, confining public vehicle use to existing roadways, stabilizing unpaved roads, and incorporating stormwater runoff control features into areas with impermeable surfaces would indirectly provide for more stable soils, while protection of vegetation in serpentine areas would indirectly prevent disturbance of serpentine soils.

6.4.3.2 Effects from Natural Resources Management

Vegetation and fish and wildlife management actions, implemented under all alternatives, to protect, improve, restore, and enhance native and sensitive vegetation, would protect soils by reducing soil compaction and increasing soil stability. The areas with serpentine soils would be avoided whenever practicable to avoid compaction and erosion. Public education efforts would be undertaken to raise awareness of the sensitivity of these soils and the associated plant communities to further reduce the amount of disturbance.

6.4.3.3 Effects from Lands, Transportation, and Access Management

Use and construction of roads and trails, as well as motorized vehicle use, would result in increased soil compaction and erosion. Authorized motorized vehicle use in the New Melones Lake Area is limited to established roads, which limits direct effects on soils. Areas closed to vehicular travel would have the fewest effects on soils. Indirect effects from livestock grazing include soil compaction. In riparian areas, livestock grazing erodes banks.

Wildland fire would cause a range of effects to soils, including removal of vegetation and subsequent increase in erosion. Wildland fires might burn with enough heat to kill soil organisms and biological crusts.

Access to caves in the Camp Nine, Coyote Creek, and Stanislaus River Canyon Management Areas would be managed to minimize disturbance of sensitive cave microclimates and resources. The access control would reduce the amount of disturbance within caves, and the potential for damage by vandalism. These actions, as well as closing unsafe or potentially hazardous old mine shafts and caves, would reduce the potential for injury and death among visitors.

Coordination with other agencies and entities to develop mitigation measures regarding access, preservation, and recreation, would increase the protection of areas with unique geologic features, caves, and special soils. In addition coordination would be sought for monitoring of ongoing and reclaimed mining operations.

6.4.3.4 Effects from Cultural and Social Resources Management

Where unique geologic features, soils, and caves are part of, or are included in, the area of limited access for cultural resources, the access limitations would protect these resources as well.

Increasing public awareness of selected cultural sites would potentially increase effects to nearby unique geologic features, caves, and soils, since more recreational users would increase the likelihood for disturbance. The education of the public, through materials discussing the ongoing degradation of these sites, could reduce the amount of human impact. The minimization of publicity and access to sensitive cave locations (e.g., requiring permits for research activities), would reduce the number of visitors and indirectly reduce the effects resulting from disturbance and vandalism.

6.4.3.5 Effects from Recreation Management

Recreational users affect soils directly by disturbance of unstable soils and soil compaction. These affects lead indirectly to increased erosion and reduced quality of biological crusts. Groups of horses may also create soil disturbance in areas where they are tethered. Riparian areas are popular with recreationists, and are particularly sensitive to these changes, as the banks and soils may be directly disturbed as well as indirectly suffer from actions that reduce vegetation. Reclamation would implement management actions to minimize effects on soils from recreation, such as restricting activities in areas with instable soils and riparian areas, and designating trails to concentrate effects in certain locations. These actions indirectly prevent lands from unauthorized uses and associated disturbance.

Under all of the alternatives, spelunking would continue to be allowed as a recreation activity at New Melones. Protection plans would be implemented for caves with significant resource value (e.g., scientific value, fragile formations, cultural importance, or sensitive species), or with potential hazards.

The design of recreation facilities would include measures to minimize erosion due to surface water runoff.

Interpretive activities would help to increase appreciation for unique geologic features, caves, and sensitive serpentine soils, and would potentially minimize effects in the long term.

6.4.4 Effects on Geological Resources under Alternative A

6.4.4.1 Effects from Physical Resources Management

Effects from physical resources management under Alternative A would be the same as those described in Effects Common to All Alternatives from Physical Resources Management.

6.4.4.2 Effects from Natural Resources Management

Effects from natural resources management under Alternative A would be the same as those described in Effects Common to All Alternatives from Natural Resources Management.

6.4.4.3 Effects from Lands, Transportation, and Access Management

Effects from lands, transportation, and access management would be the same as those described for all alternatives in Effects Common to All Alternatives from Lands, Transportation, and Access Management.

6.4.4.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative A would be the same as those described in Effects Common to All Alternatives from Cultural and Social Resources Management.

6.4.4.5 Effects from Recreation Management

Access to caves would be managed per federal law and health and safety requirements to reduce the impact to the public from injury and exposure to hazards.

6.4.5 Effects on Geological Resources under Alternative B

6.4.5.1 Effects from Physical Resources Management

Effects from physical resources management under Alternative B would be the same as those described in Effects Common to All Alternatives from Physical Resources Management.

6.4.5.2 Effects from Natural Resources Management

Under Alternatives B, C, and D, the design of fuel breaks and firebreaks would take soil stabilization into consideration, indirectly decreasing the potential for subsequent erosion. This would reduce the amount erosion would increase in burn areas after the fire.

6.4.5.3 Effects from Lands, Transportation, and Access Management

In addition to the effects discussed in Effects Common to All Alternatives from Lands, Transportation, and Access Management, Alternatives B, C, and D would include requirements that the design of fuel breaks and firebreaks would take soil stabilization into consideration indirectly decreasing the potential for subsequent erosion. Also burned areas would be rehabilitated to stabilize soils and reduce erosion.

6.4.5.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative B would be the same as those described in Effects Common to All Alternatives from Cultural and Social Resources Management.

6.4.5.5 Effects from Recreation Management

Access to caves would be expanded over that allowed under Alternatives A and C, but would still be managed per federal law and health and safety requirements.

Under Alternative B, concessions and facilities at New Melones would potentially increase. Additional concessions and facilities would foster increases in recreation and effects associated with this, such as those described in Effects Common to All Alternatives from Recreation Management.

6.4.6 Effects on Geological Resources under Alternative C

6.4.6.1 Effects from Physical Resources Management

Effects from physical resources management under Alternative C would be the same as those described in Effects Common to All Alternatives from Physical Resources Management.

6.4.6.2 Effects from Natural Resources Management

Implementing the fire management plan would have effects similar to those described under Alternative B. However, Alternative C would be the most effective in re-establishing native vegetation by requiring rehabilitation of all burn areas, protecting sensitive sites from damage by heavy equipment, retaining vegetation within fuel breaks, and using buffer zones to protect riparian and wetland areas.

6.4.6.3 Effects from Lands, Transportation, and Access Management

In addition to the effects discussed in Effects Common to All Alternatives from Lands, Transportation, and Access Management, Alternatives B, C, and D would include requirements that the design of fuel breaks and firebreaks would take soil stabilization into consideration indirectly decreasing the potential for subsequent erosion. Also burned areas would be rehabilitated to stabilize soils and reduce erosion.

Alternative C would also require that fire suppression strategies take into account areas of soil instability to reduce potential for erosion.

6.4.6.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative C would be the same as those described in Effects Common to All Alternatives from Cultural and Social Resources Management.

6.4.6.5 Effects from Recreation Management

Access to caves would be controlled to reduce disturbance and vandalism. The restrictions would be greater than those under Alternatives A, B, and D. As part of the protection of sensitive bat species, climbing would be managed near these species habitat. This would indirectly reduce the amount of access and visitation to any caves that house these bat species.

As part of the Interpretive Services Master Plan, the ecological importance of caves would be emphasized, and access to certain caves would be allowed at low-water as part of the program.

There would be some increase in concessions and facilities under Alternative C. Effects would be similar to those described under Alternative B, but effects would be reduced because Alternative C would focus on low-impact, conservation-oriented activities and fewer developments would be proposed.

6.4.7 Effects on Geological Resources under Alternative D

6.4.7.1 Effects from Physical Resources Management

Effects from physical resources management under Alternative D would be the same as those described in Effects Common to All Alternatives from Physical Resources Management.

6.4.7.2 Effects from Natural Resources Management

Implementing the fire management plan would have effects similar to those described for under Alternative B. Alternative D would be more effective than Alternative B in

maintaining and reestablishing native vegetation because Reclamation would revegetate moderate to large areas that have been affected by fire, and would retain mature oaks during fire management activities.

6.4.7.3 Effects from Lands, Transportation, and Access Management

In addition to the effects discussed in Effects Common to All Alternatives from Lands, Transportation, and Access Management, Alternatives B, C, and D would include requirements that the design of fuel breaks and firebreaks would take soil stabilization into consideration indirectly decreasing the potential for subsequent erosion. Also burned areas would be rehabilitated to stabilize soils and reduce erosion.

6.4.7.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative D would be the same as those described in Effects Common to All Alternatives from Cultural and Social Resources Management.

6.4.7.5 Effects from Recreation Management

Access to caves would be expanded over that allowed in Alternatives A and C, but would still be managed per federal law and health and safety requirements.

Under Alternative D, concessions and facilities at New Melones would potentially increase, causing effects similar to those described for Alternative B, Recreation. Effects would be less under Alternative D because fewer developments would be proposed, but greater than under Alternative C.

6.5 Water Resources (Hydrology and Water Quality)

6.5.1 Introduction

This section describes potential effects on water resources and water quality in the New Melones Lake Area, from management actions and other resource uses. This analysis focuses on direct and indirect effects from management actions and other resource uses that would improve or worsen water resources and water quality.

6.5.2 Methods of Analysis

6.5.2.1 Methods and Assumptions

Effects on water resources and water quality are determined by analyzing how management actions and other resource can change groundwater, drainage patterns, flooding, and pollutant or contaminant levels. Effects are determined to be adverse if actions degrade water resources and water quality in the New Melones Lake Area.

The analysis is based on the following assumptions:

- Proposed activities that could not be mitigated would not be authorized;
- BMPs and SOPs would be implemented when necessary to protect water resources and water quality;

- Proposed actions would comply with applicable laws and regulations governing water quality and water resources; and
- Reclamation retaining water rights, protecting riparian zones and wetlands, and ensuring adequate sewage facilities to ensure no water pollution from visitors occurs, have been identified by adjacent, affected communities as important values on public lands (Bureau of Reclamation 2007d).

6.5.3 Effects on Water Resources Common to All Alternatives

6.5.3.1 Effects from Physical Resources Management

Reclamation would continue to review and comment on all proposed mining plans and reclamation plans that may affect the New Melones watershed. By informing mining operations about water contamination concerns from mining activity, Reclamation would continue to minimize the degradation of water quality. There would be no new effects.

Reclamation would continue to update minimum basic facilities; coordinate watershed management; coordinate water quality monitoring; review and comment on environmental documents for projects within the watershed; design, operate, and maintain recreation area facilities to minimize water contamination, minimize the loss of soils due to surface runoff, maximize water conservation; and minimize the number, extent, and adverse effect of stream crossings. This would continue to minimize contaminants reaching water bodies by, minimizing surface disturbances. There would continue be no new effects.

With respect to the Sanitation topic in Hydrology and Water Quality management actions, Reclamation would continue to manage waste at New Melones. This includes, requiring waste treatment systems to comply with applicable waste discharge requirements, and prohibiting dumping of any kind on Reclamation lands and water. Properly managing waste would continue to minimize contaminants reaching water bodies. There would be no new effects.

With respect to the Erosion topic in Hydrology and Water Quality management actions, Reclamation would continue to minimize erosion. This includes, for example, locating and designing roads, trails, and access easements to follow the natural topography and promoting stream bank and reservoir shoreline stability. This would continue to minimize water turbidity by minimizing erosion. There would be no new effects.

With respect to the Contaminants topic in Hydrology and Water Quality management actions, Reclamation would continue to manage contaminants. This includes, complying with applicable hazard waste and materials regulations, and minimizing development and disturbance on serpentine outcrops to control movement of asbestos fibers into water bodies. This would continue to minimize water quality degradation by managing contaminants. There would be no new effects.

With respect to the Wetlands topic in Hydrology and Water Quality management actions, Reclamation would continue to manage contaminants and preserve water resources. This includes, avoiding wetland communities when practical and ensuring no net loss of

wetlands. This would continue to minimize contaminants from reaching water bodies by minimizing surface disturbances, and preserving wetlands from being converted in to other uses or habitats. There would be no new effects.

6.5.3.2 Effects from Natural Resources Management

Reclamation would continue to limit disturbance and intensive visitor use along perennial stream corridors and reservoir coves that maintain prime spawning, rearing, and adult residence area fisheries. Also, Reclamation would minimize disturbance of habitat in perennial streams that support native fish. Minimizing disturbances would minimize the potential for erosion to occur, thereby minimizing the potential for sediment to create turbid water. There would be no new effects.

6.5.3.3 Effects from Lands, Transportation, and Access Management

Reclamation would continue to encourage and support cooperative planning within the Stanislaus watershed, continue to review and participate in the development of regional plans on adjacent lands, and continue to coordinate with applicable agencies and entities. These coordination actions would continue to manage activities capable of contributing contaminants to water bodies, and continue to manage activities capable of altering the availability of water. There would be no new effects.

Reclamation would continue to enforce regulations related to trespass onto, or the unauthorized use of, the land and water under Reclamation's jurisdiction; implement a program to periodically patrol areas where unpermitted grazing or water access occurs, as well as areas where off-road vehicles are known to be used; pursue cooperation aimed at preventing unauthorized use and trespass by continuing to implement a program of public information, education, and contact; and resolve land ownership and jurisdictional uncertainties with other agencies when discrepancies are identified. These activities would continue to minimize unauthorized uses that result in, turbid water from erosion and water quality degradation from livestock waste deposition. There would be no new effects.

Reclamation would continue to update minimum basic facilities, such as parking and sanitation facilities. Providing facilities and receptacles for waste would continue to keep wastes from entering water bodies and degrading water quality. There would be no new effects.

6.5.3.4 Effects from Cultural and Social Resources Management

There were no identified effects on water resources from cultural and social resources management.

6.5.3.5 Effects from Recreation Management

Reclamation would continue to design roads, trails, and access easements to follow the natural topography, provide and maintain land and water-based toilets, and provide and maintain appropriate storage, transfer, containment, and disposal facilities for liquids, such as oil, solvents, antifreeze, and paints, at Reclamation and lessee facilities. Recycling of these materials would continue to be encouraged. This would continue to minimize water turbidity by minimizing surface disturbances, and minimize water quality degradation by properly managing hazardous liquids. There would be no new effects.

Reclamation would continue to limit disturbance and intensive visitor use along perennial stream corridors and reservoir coves that maintain prime spawning, rearing, and adult residence area fisheries. Also, Reclamation would minimize disturbance of habitat in perennial streams that support native fish. Minimizing disturbances would minimize the potential for erosion to occur, thereby minimizing the potential for sediment to create turbid water. There would be no new effects.

Reclamation would continue to design recreation area facilities to minimize water contamination and loss of soils due to surface runoff. This would, minimize water turbidity by minimizing erosion. There would be no new effects.

Reclamation would continue to design roads, trails, and access easements to follow the natural topography, minimizing steep slopes, and limiting the number of stream crossings. This would continue to minimize surface disturbances, which can be sources of sediments that create turbid water. There would be no new effects.

Reclamation would continue to interpret the natural, cultural, and recreation resources at New Melones, and stress the importance of water resource management and conservation activities to Reclamation, its water users, and other agencies. Also, Reclamation would continue to encourage recreational user groups and neighbors to assist with the stewardship and management of project lands. These actions would continue to inform the public about the importance of water quality and water resources, and promote the protection of water quality and water resources. There would be no new effects.

6.5.4 Effects on Water Resources under Alternative A

6.5.4.1 Effects from Physical Resources Management

Effects from physical resources management under Alternative A are the same as those described in Effects Common to All Alternatives from Physical Resources Management.

6.5.4.2 Effects from Natural Resources Management

Reclamation would continue to implement wildlife management requirements included in the Baseline Conservation Camp lease by having the lessee implement an annual operating plan that includes erosion control projects, and maintaining and constructing water impoundments. This would occur in the PWMA. Controlling erosion would continue to keep sediment out of water bodies, and constructing water impoundments would continue to provide water resources for wildlife. There would be no new effects.

Reclamation would continue to implement an integrated pest management plan that describes appropriate techniques for invasive species control (i.e., quagga and zebra mussels, yellow star thistle, New Zealand mud snail). These techniques include pesticide and herbicide application, grazing, fire, mechanical techniques, and biological control. This action would continue to use pesticides and herbicides capable of contaminating water. There would be no new effects.

6.5.4.3 Effects from Lands, Transportation, and Access Management

Reclamation would continue efforts to eliminate unpermitted grazing, and water access on lands under its jurisdiction. This would continue to minimize erosion, which can

create turbid water, and the deposition of livestock waste, which can degrade water quality. There would be no new effects.

Reclamation would continue to enforce its OHV policy and regulation, which states that all Reclamation lands are closed to off-road vehicles, except for those areas specifically designated for such use (43 CFR, Part 420). This would continue to minimize erosion, which can create turbid water. There would be no effects.

All grazing leases for New Melones lands are now expired and have not been renewed. Continuance of grazing could be allowed with the development of approved grazing plans. It is assumed the grazing plan would not allow grazing activities to directly or indirectly degrade surface water and groundwater quality, and would not allow grazing activities to alter the quantity of water resources to levels harmful to Reclamation flora and fauna. There would be no new effects.

Reclamation would not make use of appropriate fire and nonfire fuel treatments to meet watershed management goals and objectives. It is assumed, however, the goals and objectives are met by other means. Therefore, there would no new effects on meeting watershed management goals and objectives.

6.5.4.4 Effects from Cultural and Social Resources Management

There were no identified effects on water resources from cultural and social resources management.

6.5.4.5 Effects from Recreation Management

With respect to the Commercial Services and Concessions topic in General Recreation, Reclamation would continue to maintain identified facilities, continue to provide identified services, and continue to prohibit identified activities. This includes, continuing to provide the marina concession services in its present location and the RC flying facility in the PWMA, Peoria Flat subarea. There would be no change in facilities, structures, or activities capable of altering water quality or water resources. There would be no new effects.

Reclamation would continue to maintain existing floating vault toilets at various locations on New Melones Lake, when lake level and weather conditions permit. Providing facilities for waste would continue to keep wastes from entering water bodies and degrading water quality. There would be no new effects.

6.5.5 Effects on Water Resources under Alternative B

6.5.5.1 Effects from Physical Resources Management

Effects from physical resources management under Alternative B are the same as those described in Effects Common to All Alternatives from Physical Resources Management.

6.5.5.2 Effects from Natural Resources Management

Effects on water quality and water resources from Baseline Conservation Camp actions in the PWMA would be the same as under Alternative A.

Effects on water quality and water resources from integrated pest management would be the same as under Alternative A.

6.5.5.3 Effects from Lands, Transportation, and Access Management

Reclamation would continue efforts to eliminate unpermitted grazing and water access on lands under its jurisdiction. In appropriate areas, and with an approved permit and grazing plan, Reclamation may allow grazing and stock watering as a means to control invasive plant species and to reduce fire danger. Reclamation would implement industry-recommended, standard BMPs to protect water quality. It is assumed the grazing plan would not allow grazing activities to directly or indirectly degrade surface water and groundwater quality, and would not allow grazing activities to alter the quantity of water resources to levels harmful to Reclamation flora and fauna. Consequently, effects on water quality and water resources from eliminating unpermitted grazing and allowing grazing in appropriate areas would be the same as under Alternative A.

Reclamation would continue to enforce its OHV policy and regulation, which states that all Reclamation lands are closed to off-road vehicles, except for those areas specifically designated for such use (43 CFR, Part 420). Also, Reclamation would enter into a managing partner or concession agreement to construct facilities and operate an OHV park. Locations to be considered may include PWMA, Westside, Bowie Flat, Greenhorn Creek, French Flat, and Bear Creek Management Areas. It is assumed the OHV park would not allow OHV activities to directly or indirectly degrade surface water and groundwater quality, and would not allow OHV activities to alter the quantity of water resources to levels harmful to Reclamation flora and fauna. Consequently, effects on water quality and water resources from off-road vehicles would be the same as under Alternative A.

Reclamation would meet watershed management goals and objectives through the appropriate use of fire and nonfire fuel treatments. In prescriptions for burns, fire lines would be constructed on contour, or stabilized with water bars or other appropriate techniques to control erosion, protect water quality, and prevent rolling fire brands. Reclamation would prevent runoff from directly entering water bodies. These actions would allow Reclamation to use additional tools (fire and nonfire fuel treatments) to meet watershed management goals and objectives. Implementing these tools would add to the number of options at Reclamation's disposal to accomplish watershed management goals and objectives.

6.5.5.4 Effects from Cultural and Social Resources Management

There were no identified effects on water resources from cultural and social resources management.

6.5.5.5 Effects from Recreation Management

With respect to the Commercial Services and Concessions topic in General Recreation, Reclamation would construct additional facilities, provide additional services, and allow additional activities under Alternatives B, C, and D. Examples are constructing a wave attenuator in the current marina location to minimize storm damage, constructing lodging facilities, developing a new RV park within Tuttletown or Glory Hole (or both), and

developing a mountain bike course. Some of the facilities, services, and activities would be in undeveloped areas, and would increase the amount of impervious surface. This would change erosion and drainage patterns, resulting in changes in water turbidity and groundwater infiltration. As the incidental use of developing areas increases, the potential degradation of water quality would increase. Conversely, providing facilities and receptacles for proper disposal of waste would preserve water quality. Alternative B would have more new facilities, services, and activities than Alternatives C and D, and therefore the greatest effects would be expected under this alternative. Because the specific locations and feasibility of some of the proposed facilities, services, and activities have not been identified, the potential effects on water quality and water resources could vary in intensity.

Reclamation would install additional floating vault toilets at various locations on New Melones Lake, when lake level and weather conditions permit. Providing additional facilities for waste would increase the potential for keeping wastes from entering water bodies and degrading water quality.

6.5.6 Effects on Water Resources under Alternative C

6.5.6.1 Effects from Physical Resources Management

Effects from physical resources management under Alternative C are the same as those described in Effects Common to All Alternatives from Physical Resources Management.

6.5.6.2 Effects from Natural Resources Management

Effects on water quality and water resources from Baseline Conservation Camp actions in the PWMA would be the same as under Alternative A. Additionally, the lessee would provide at least 40 hours of dozer and operator time each year to help develop water impoundments and maintain fire roads. This would provide even greater water resources for wildlife.

Reclamation would continue to implement a portion of an integrated pest management plan that describes appropriate techniques for invasive species control (i.e. quagga and zebra mussels, yellow star thistle New Zealand mud snail). These techniques include grazing, fire, mechanical techniques, target-specific herbicides, and biological control. Under Alternative C, Reclamation would use target-specific herbicides, so the assumption is that the use of chemicals capable of contaminating water would decrease.

6.5.6.3 Effects from Lands, Transportation, and Access Management

Effects on water quality and water resources from eliminating unpermitted grazing and allowing grazing in appropriate areas would be the same as under Alternative B.

Effects on water quality and water resources from OHV use would be the same as under Alternative A.

Reclamation would carefully plan burning to consider weather and fuel conditions that would help achieve the desired results, while minimizing water quality impacts. This action would allow Reclamation to use another tool (planned burning) to meet desired results, while also minimizing water quality impacts. Implementing this tool would add to

the number of options at Reclamation's disposal to accomplish watershed management goals and objectives.

6.5.6.4 Effects from Cultural and Social Resources Management

There were no identified effects on water resources from cultural and social resources management.

6.5.6.5 Effects from Recreation Management

With respect to the Commercial Services and Concessions topic in General Recreation, Reclamation would construct additional facilities, provide additional services, and allow additional activities under Alternatives B, C, and D. Examples are relocating the marina within Glory Hole Recreation Area but with a smaller footprint and/or seasonal operation to minimize storm damage and constructing eco-friendly lodging. Some of the facilities, services, and activities would be in undeveloped areas, and would increase the amount of impervious surface. This would change, erosion and drainage patterns, resulting in changes in water turbidity and groundwater infiltration. As the incidental use of developing areas increases, the potential degradation of water quality would increase. Conversely, providing facilities and receptacles for proper disposal of waste would preserve water quality. Alternative C would have fewer new facilities, services, and activities than Alternatives B and D, and therefore effects would be less under Alternative C than under B and D. Because the specific locations and feasibility of some of the proposed facilities, services, and activities have not been identified, the potential impacts on water quality and water resources could vary in intensity.

Effects on water quality from adding floating vault toilets would be the same as under Alternative B.

6.5.7 Effects on Water Resources under Alternative D

6.5.7.1 Effects from Physical Resources Management

Effects from physical resources management under Alternative D are the same as those described in Effects Common to All Alternatives from Physical Resources Management.

6.5.7.2 Effects from Natural Resources Management

Effects on water quality and water resources from Baseline Conservation Camp actions in the PWMA would be the same as under Alternative A, until such time as the new lease is signed and in effect. Therefore, the effects on water quality and water resources may change, depending on the terms of the new lease.

Effects on water quality and water resources from integrated pest management would be the same as under Alternative A

6.5.7.3 Effects from Lands, Transportation, and Access Management

Effects on water quality and water resources from eliminating unpermitted grazing and allowing grazing in appropriate areas would be the same as under Alternative B.

The impacts on water quality and water resources from OHV use would be the same as Alternative A.

Reclamation would meet watershed management goals and objectives through the appropriate use of fire and nonfire fuel treatments. This action would allow Reclamation to use additional tools (fire and nonfire fuel treatments) to meet watershed management goals and objectives. Implementing these tools would add to the number of options at Reclamation's disposal to accomplish watershed management goals and objectives.

6.5.7.4 Effects from Cultural and Social Resources Management

There were no identified effects on water resources from cultural and social resources management.

6.5.7.5 Effects from Recreation Management

With respect to the Commercial Services and Concessions topic in General Recreation, Reclamation would construct additional facilities, provide additional services, and allow additional activities. Examples are relocating the marina within Glory Hole Recreation Area, with separate areas for private moorage and public rentals and services, constructing lodging facilities, developing a new RV park within Tuttletown or Glory Hole (or both), and developing a mountain bike course. Some of the facilities, services, and activities would be in undeveloped areas and would increase the amount of impervious surface. This would change erosion and drainage patterns, resulting in changes in water turbidity and groundwater infiltration. As the incidental use of developing areas increases, the potential degradation of water quality would increase. Conversely, providing facilities and receptacles for proper disposal of waste would preserve water quality. Alternative D would have more facilities, services, and activities than Alternative C and fewer than Alternative B. Because the specific locations and feasibility of some of the proposed facilities, services, and activities have not been identified, the potential impacts on water quality and water resources could vary in intensity.

Effects on water quality from adding floating vault toilets would be the same as under Alternative B.

6.6 Visual Resources

6.6.1 Introduction

Visual resources, including aesthetics and scenic resources, are the visible physical features on a landscape (e.g., land, water, vegetation, animals, structures, and other features). This section describes potential effects on visual resources from management actions and other resource uses. This analysis focuses on direct and indirect effects from actions that would change the visual resources by either introducing intrusions into the landscape or, conversely, protecting the landscape from such visual intrusions.

6.6.2 Methods of Analysis

6.6.2.1 Methods and Assumptions

Effects on visual resources are determined through the consistency of proposed management actions with Reclamation's mission to manage, develop, and protect water and related resources in an environmentally and economically sound manner, in the

interest of the American public. Effects are determined to be adverse if actions diminish visual resources.

The analysis is based on the following assumptions:

- Those activities proposed that could not be mitigated would not be authorized;
- The greater the size and/or severity of surface disturbance, and/or degree of air quality degradation, the greater the effect there would be to scenic quality;
- All resources with management actions that permit surface disturbances or degrade air quality would have adverse effects on visual resources to some degree. Surface disturbances would introduce new visual elements onto the landscape or intensify existing visual elements, altering the attributes that characterize the existing landscape. Changes in air quality, either from smoke, dust, haze, or other pollutants, could potentially reduce or degrade scenic quality by obscuring distant views in the short-term and long-term; and
- Preserving undeveloped areas, restoring some areas, and preserving viewing of wildlife have been identified by adjacent, affected communities as important values on public lands (Bureau of Reclamation 2007d). The importance of scenic values, natural appearing landscapes, and unaltered open space are expected to increase in value to residents and visitors over the life of the RMP.

6.6.3 Effects on Visual Resources Common to All Alternatives

6.6.3.1 Effects from Physical Resources Management

Reclamation would continue to restrict mining and material excavation within the study area, and coordinate with adjacent landowners and managers to prevent degradation of Reclamation lands. This would continue to prevent mining activities from altering the natural landscape. There would be no new effects.

As needed, Reclamation would continue to manage recreation use to preserve and minimize impacts on cave resources, such as scenic qualities, fragile formations, cultural resources, and sensitive species. This would continue to minimize the degradation and destruction of visual resources associated with caves. There would be no new effects.

Actions would continue to be taken by Reclamation to minimize erosion, which can lead to sedimentation and result in water quality degradation. This would continue to preserve the scenic qualities of the landscape by promoting clear water in the lake and streams. There would be no new impacts.

Under all alternatives, Reclamation would continue to do the following:

- Educate agencies and landowners on the negative impacts on the visual quality of the study area from certain land use activities;

- Manage recreation impacts in Rural Natural Management Areas to preserve sensitive resources in their natural state, and to maintain scenic qualities associated with these areas;
- Design all facilities 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 architectural design (including style, scale, texture, and colors) compatible with the applicable surroundings, and avoiding the use of unpainted, metallic surfaces, such as roof materials;
- Ensure concession signs comply with the Reclamation sign manual;
- Comment on plans and environmental documents for new major projects within the watershed to prevent potential adverse visual effects on Reclamation lands;
- Implement and update the project-wide sign management plan; and
- Design fuel breaks and firebreaks in a manner that minimizes impacts on aesthetic, visual, and scenic resources.

These actions are designed to preserve visual resources by managing intrusions on the natural landscape, promoting the value of visual resources, and managing recreation so activities do not impair visual resources. Intrusions on the natural landscape include roads and shelters. The impairment of visual resources from recreation activities includes scarred terrain, trampled vegetation, and littering. These management actions would minimize effects from these activities and facilities. There would be no new effects compared to existing conditions.

6.6.3.2 Effects from Natural Resources Management

Reclamation would continue to protect and promote native and unique plant communities for long-term sustainability and viability. These communities include oak woodlands, native perennial grasslands, wetlands, vernal pools, and plants associated with serpentine soils. Reclamation would continue to minimize human activities that clear or convert native plant communities. This would continue to preserve the setting of the natural landscape by protecting native plant communities. There would be no new effects.

Vegetation and fish and wildlife management actions implemented under all alternatives would protect, improve, restore, and minimize disturbance of native and sensitive vegetation and wetland communities. Reclamation would also provide for public education on the ecology of native plant communities, such as oak woodland, native perennial grasslands, vernal pools, riparian areas and wetlands. These actions would continue to preserve the setting of the natural landscape by protecting native plant communities. There would be no new effects.

Reclamation would continue to limit disturbance and intensive visitor use along perennial stream corridors, and reservoir coves that maintain prime spawning, rearing, and adult residence area fisheries. Reclamation would continue to minimize disturbance of habitat in perennial streams that support native fish. These actions would continue to preserve the setting of the natural landscape by minimizing disturbances to riverine habitat. There would be no new effects.

6.6.3.3 Effects from Lands, Transportation, and Access Management

Reclamation would continue the designation of the New Melones Lake Project as a Special Use Area, pursuant to 43 CFR, Part 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. There would be no new impacts on visual resources.

Land management actions to prevent unauthorized use and trespass (from activities such as grazing and OHV use), enforce regulations related to unauthorized use and trespass, and resolve land ownership and jurisdictional uncertainties with other agencies when discrepancies are identified, would continue to preserve the setting of the natural landscape by minimizing unauthorized activities that alter the natural setting in unexpected ways. These alterations include the disposal of refuse and trampling of vegetation. There would be no new effects.

6.6.3.4 Effects from Cultural and Social Resources Management

There would be no identified effects on visual resources from cultural and social resources management.

6.6.3.5 Effects from Recreation Management

Land use activities would continue to be limited within wetland and riparian buffer zones to prevent significant deterioration of wetland habitats. Reclamation would continue to promote wildlife viewing and appropriate dispersed recreation, such as hiking, horseback riding, climbing, bicycling, hunting, and fishing throughout New Melones, but especially in the Peoria Wildlife Management Area. Also, roads, trails, and access easements would continue to be designed to follow the natural topography, minimizing steep slopes, and limiting the number of stream crossings. These actions would continue to preserve visual resources by minimizing recreation activities and infrastructure capable of impairing visual resources, and maintaining healthy landscapes in order to promote the presence of wildlife. There would be no new effects.

To preserve cave resources such as scenic qualities, fragile formations, cultural resources, and sensitive species, recreation use would continue to be managed to minimize impacts as needed. There would be no new effects on visual resources.

6.6.4 Effects on Visual Resources under Alternative A

6.6.4.1 Effects from Physical Resources Management

Effects from physical resources management under Alternative A would be the same as those described in Effects Common to All Alternatives from Physical Resources Management.

6.6.4.2 Effects from Natural Resources Management

Reclamation would continue to implement BMPs and SOPs to reduce fire danger and respond to wildland fires. This would not make use of minimal prescribed fire techniques, which can be used to promote the health of the native landscape.

Consequently, a nonnative landscape could become more prevalent. There would be no new effect.

6.6.4.3 Effects from Lands, Transportation, and Access Management

Reclamation would continue to implement project-wide BMPs to reduce fire danger and respond to wildland fires. During fire management activities, there would continue to be no effort to retain mature oaks for their wildlife benefits and scenic qualities. There would be no new effects.

6.6.4.4 Effects from Cultural and Social Resources Management

There would be no identified effects on visual resources from cultural and social resources management.

6.6.4.5 Effects from Recreation Management

With respect to the Commercial Services and Concessions topic in General Recreation, Reclamation would continue to maintain identified facilities, provide identified services, and prohibit identified activities. This includes, for example, continuing to provide the marina concession services in its present location, and the RC flying facility in the PWMA, Peoria Flat subarea. Because these services, facilities, and activities would not change, there would be no change to the natural landscape. There would be no new effects.

Reclamation would continue to maintain existing floating vault toilets, at various locations on New Melones Lake, when lake level and weather conditions permit. This action would not add highly visible structures to areas with minimal cover for shielding views. There would be no new effects.

6.6.5 Effects on Visual Resources under Alternative B

6.6.5.1 Effects from Physical Resources Management

Effects from physical resources management under Alternative B would be the same as those described in Effects Common to All Alternatives from Physical Resources Management.

6.6.5.2 Effects from Natural Resources Management

Reclamation would implement the Fire Management Plan for the New Melones Management Area (Appendix D), which includes using prescribed burning. This would promote the vigor of the native landscape that relies on fire to promote natural processes, and minimize the presence of nonnative flora in the landscape.

6.6.5.3 Effects from Lands, Transportation, and Access Management

Reclamation would implement the Fire Management Plan (Appendix D). During fire management activities, there would continue to be no effort to retain mature oaks for their wildlife benefits and scenic qualities. There would be no new effects.

6.6.5.4 Effects from Cultural and Social Resources Management

There would be no identified effects on visual resources from cultural and social resources management.

6.6.5.5 Effects from Recreation Management

With respect to the Commercial Services and Concessions topic in General Recreation, Reclamation would construct additional facilities, provide additional services, and allow additional activities under Alternatives B, C, and D. This includes, for example, constructing a wave attenuator in the current marina location to minimize storm damage, and developing additional RC flying facilities in locations such as Westside, Bowie Flat, Greenhorn Creek, French Flat, and Bear Creek Management Areas. Some of the facilities, services, and activities would be in undeveloped areas, resulting in loss of the natural landscape and open space, and the creation of nighttime light and glare. Alternative B would have more new facilities, services, and activities than Alternatives C and D, therefore the greatest effects would be expected under this alternative. Because the specific locations and feasibility of some of the proposed facilities, services, and activities have not been identified, the potential impacts on visual resources could vary in intensity.

Reclamation would install additional floating vault toilets at various locations on New Melones Lake when lake level and weather conditions permit. This action would add highly visible structures to areas with minimal cover for shielding views.

6.6.6 Effects on Visual Resources under Alternative C

6.6.6.1 Effects from Physical Resources Management

Effects from physical resources management under Alternative C would be the same as those described in Effects Common to All Alternatives from Physical Resources Management.

6.6.6.2 Effects from Natural Resources Management

Reclamation would implement the Fire Management Plan (Appendix D). This would include retaining mature oaks for their wildlife benefits and scenic qualities during fire management activities. This would preserve landscape diversity and would have long-term effects.

6.6.6.3 Effects from Lands, Transportation, and Access Management

Effects from lands, transportation, and access management under Alternative C would be the same as those described under natural resources management for Alternative C.

6.6.6.4 Effects from Cultural and Social Resources Management

There would be no identified effects on visual resources from cultural and social resources management.

6.6.6.5 Effects from Recreation Management

With respect to the Commercial Services and Concessions topic in General Recreation, Reclamation would construct additional facilities, provide additional services, and allow additional activities under Alternatives B, C, and D. This includes, for example, relocating the marina within Glory Hole Recreation Area, but with a smaller footprint or seasonal operation to minimize storm damage, and continuing to operate and maintain the existing RC flying facility in the PWMA, Peoria Flat subarea. Some of the facilities, services, and activities would be in undeveloped areas, resulting in the loss of the natural

landscape and open space, and the creation of nighttime light and glare. Alternative C would have fewer new facilities, services, and activities than Alternatives B and D, therefore effects would be less under Alternative C as compared to B and D. Because the specific locations and feasibility of some of the proposed facilities, services, and activities have not been identified, the potential impacts on visual resources could vary in intensity.

The impacts on the visual landscape from adding floating vault toilets would be the same as Alternative B.

6.6.7 Effects on Visual Resources under Alternative D

6.6.7.1 Effects from Physical Resources Management

Effects from physical resources management under Alternative D would be the same as those described in Effects Common to All Alternatives from Physical Resources Management.

6.6.7.2 Effects from Natural Resources Management

The impacts on the visual landscape from implementing the Fire Management Plan would be the same as Alternative C.

6.6.7.3 Effects from Lands, Transportation, and Access Management

The impacts on the visual landscape from implementing the Fire Management Plan would be the same as those under Alternative C.

6.6.7.4 Effects from Cultural and Social Resources Management

There would be no identified effects on visual resources from cultural and social resources management.

6.6.7.5 Effects from Recreation Management

With respect to the Commercial Services and Concessions topic in General Recreation, Reclamation would construct additional facilities, provide additional services, and allow additional activities under Alternatives B, C, and D. This includes, for example, relocating the marina within Glory Hole Recreation Area, with separate areas for private moorage and public rentals and services, and continuing to operate and maintain the existing RC flying facility in the PWMA, Peoria Flat subarea. Some of the facilities, services, and activities would be in undeveloped areas, resulting in the loss of the natural landscape and open space, and the creation of nighttime light and glare. Alternative D would have more facilities, services, and activities than Alternative C, and fewer than Alternative B. Because the specific locations and feasibility of some of the proposed facilities, services, and activities have not been identified, the potential impacts on visual resources could vary in intensity.

The impacts on the visual landscape from adding floating vault toilets would be the same as Alternative B.

6.7 Vegetation

6.7.1 Introduction

The effects of management actions on vegetative communities may vary widely, depending on factors such as the type of soils, topography, and plant reproductive characteristics. Surface disturbance removes existing vegetation, and can increase opportunities for noxious weeds and invasive species establishment, which reduces vegetation diversity, production, and desirable plant cover. Indirectly, this could reduce the ecological health of vegetative communities by decreasing plant vigor and making vegetation more susceptible to disease and mortality. Increasing surface disturbance could increase erosion rates, and decrease vegetative health and riparian and wetland functioning conditions. Further, surface disturbance would increase dust, which could affect vegetation health and vigor by disrupting plant respiratory and photosynthetic functions. Effects on vegetation resources also vary depending on the age and composition of vegetation communities, described in Chapter 5.

6.7.2 Methods of Analysis

6.7.2.1 Methods and Assumptions

Effects are determined by assessing which actions, if any, would change vegetation structure or composition, decrease the extent of native vegetation, allow for increased dominance of invasive weeds, or affect habitat value for wildlife. In the absence of quantitative data, best professional judgment based on scientific reasoning was used, and effects are described in qualitative terms, sometimes using ranges of potential effects.

Some effects are direct, while others are indirect, and affect vegetation through a change in another resource. Direct effects on vegetation are disrupting, trampling, or removing rooted vegetation, thereby reducing areas of native vegetation. Other direct effects on rangeland vegetation are mortality from toxic chemicals, and actions that unequivocally reduce total numbers of plant species ,or reduce, or cause the loss of total area, diversity, vigor, structure, or function of wildlife habitat.

Potential indirect effects are loss of habitat suitable for colonization by native plants due to surface disturbance, changes in hydrology or water availability, introduction of invasive weeds by various vectors or conditions that enhance the spread of weeds, and general loss of habitat due to development or surface compaction. Indirect effects are those that cannot be absolutely linked to one action, such as decreased plant vigor or health.

The following assumptions were made for the purpose of this analysis:

- All plant communities would be managed toward achieving a mix of species composition, cover, and age classes across the landscape.
- Invasive weeds would continue to be introduced and spread as a result of ongoing vehicle traffic, recreational activities, wildlife movements, and maintenance activities.

- Weeds often exploit disturbed areas and are adept at outcompeting many native species.
- Most actions that disturb soils or vegetation will increase the potential for weed infestation.
- Weed infestation will often follow transportation routes, making transmission corridors, roadsides, and trails prime habitat for weeds, and making people and vehicles prime vectors for the spread of weeds.

6.7.3 Effects on Vegetation Common to All Alternatives

6.7.3.1 Effects from Physical Resources Management

Mining restrictions would directly protect vegetation from disturbance or removal in localized areas. Riparian vegetation would be protected from disturbance or removal by minimizing stream crossings, while water quality protections would indirectly foster riparian vegetative health, as riparian plants rely on the adjacent waterways for their water source. Erosion prevention measures would provide a stable substrate for all vegetation, and protection of serpentine areas would directly prevent removal or disturbance of serpentine-dependent vegetation, a sensitive natural community.

6.7.3.2 Effects from Natural Resources Management

Vegetation and fish and wildlife management actions would be implemented under all alternatives. These would protect, improve, restore, and enhance native and sensitive vegetation while removing invasive weeds. Seeding and improving native vegetative cover would reduce soil compaction and increase infiltration, which would indirectly improve vegetation health, productivity, and diversity. Other effects include increased plant diversity, improved structure and composition of plant communities, variety in age classes, weed control, soil stability, and a more natural fire regime.

Under all alternatives, approved biological controls would be specific to target species so there would be no direct effect on non-target species. Chemical treatments would be applied according to label directions, following established guidelines, BMPs, and SOPs for application. Chemical applications would be designed to avoid effects on non-target species.

Special status species management actions would protect lands where they support special status species, and often have effects similar to those from wildlife management actions. Further, special status species management would prevent activities that would lead to listing of species. Those protections, as well as encouraging dispersed recreation, would help prevent fragmentation of native vegetative communities and disturbance to native vegetation and would lower the likelihood of weed introduction and spread.

Under all alternatives, Reclamation would continue to use the Baseline Conservation Camp lessee for erosion control projects, tree planting, and fire protection. This would help foster healthy, native vegetation, and prevent catastrophic fires that could destroy vegetation.

6.7.3.3 Effects from Lands, Transportation, and Access Management

Management of the New Melones Lake Area as a special use area would indirectly protect vegetation by establishing public use limits, special uses and other conditions, and restrictions and prohibitions on particular uses or activities. This would help to minimize direct disturbance to vegetation. Prohibiting OHV use on Reclamation lands, except in designated areas, would minimize vegetation removal and disturbance, as well as weed introduction and spread.

Use and construction of roads and trails, as well as motorized vehicle use, would result in effects on vegetation, such as reduced vegetative cover and density, as well as soil compaction, erosion, sedimentation, and increased dust. Motorized vehicle users would introduce and spread invasive weed seeds from their vehicles, shoes, clothing, and recreational equipment, such as bikes. Motorized activities in undisturbed and remote areas could distribute weed seeds into weed-free areas. These effects could decrease plant vigor and productivity, alter community plant composition, and cause plant mortality. In riparian areas, weed infestation can be sufficient to cause poor function by reducing vegetative and canopy diversity and structure, and by altering fire regimes and water retention rates. Motorized vehicle use in the New Melones Lake Area is limited to established roads, which limits direct effects on vegetation. Areas closed to vehicular travel would have the least effect on vegetation.

Wildland fire would cause a range of effects to vegetation and weeds, depending on how actively certain areas are managed. Vegetation response to fire depends on the size, location, intensity, season, timing, amount of precipitation, the preexisting plant community conditions, and the abundance of invasive weeds in the area. Fires have direct effects by changing the composition of the plant community, delaying plant succession, and removing woody vegetation and plant litter. Wildland fires might burn with enough heat to kill soil organisms and root systems, resulting in diminished plant recruitment and growth rates, particularly for fire-sensitive species.

Indirectly, wildland fires create an opportunity for the establishment or spread of invasive weeds. This is because fires remove aboveground vegetation, leaving burned areas more susceptible to invasion. Some species of invasive weeds respond well to post-fire conditions and outcompete native species. In areas where invasive weeds occur or are in close proximity, wildland fire increases the likelihood of weeds spreading. Firefighters and their equipment might also introduce or spread invasive weeds. Some mechanical control activities disturb the soil surface and remove vegetation, creating an opportunity for the establishment or spread of invasive weeds.

Further, since fire retardants are composed largely of nitrogen and phosphorus fertilizers, they may encourage growth of some species, particularly weeds, at the expense of others, indirectly resulting in changes in community composition and species diversity. Differential growth may also influence herbivorous behavior; both insect and vertebrate herbivores tend to favor new, rapidly growing shoots.

However, wildfire suppression and creation of fuel breaks would prevent catastrophic destruction of native vegetation and would indirectly preserve native vegetation and

diversity in these areas over the long term. Fuels management actions would help to reestablish native vegetative communities, and provide for healthy, diverse vegetation over the long term.

Eliminating and preventing trespass and unauthorized uses on New Melones lands would protect vegetation, since unauthorized uses are more likely to damage or remove vegetation and introduce weeds. Informing the public and working with others to prevent unauthorized use would add to the effectiveness of this action.

Rights-of-way remove vegetation on the footprint of authorized facilities. Most of the footprints are localized and cover a small area, but rights-of-way tend to be linear and may stretch for miles. If disturbed areas are not properly reseeded with native vegetation, weeds could be introduced and spread over a large area. Anyone intending to alter vegetation near rights-of-way would be required to coordinate with Reclamation beforehand, which would help reduce weed spread and effects on vegetation.

Livestock grazing could be permitted in the future under all alternatives. If applied properly, grazing can be used to reduce fuel loads and invasive species, and increase desired plant populations. However, grazing can disturb vegetation through direct vegetation removal, disturbance, or trampling, which would reduce vegetation health or, in the most extreme cases, kill plants. Indirect effects from livestock grazing include soil compaction and increased potential for weed invasion and spread, which could subsequently reduce vegetative health and vigor and alter the natural fire regime. In riparian areas, livestock grazing deteriorates stabilizing vegetation, erodes banks, and causes declines in water storage capacity and quality. To minimize effects, grazing plans would be required to ensure appropriate grazing management.

6.7.3.4 Effects from Cultural and Social Resources Management

In general, protections to cultural resources would prevent disturbance and fragmentation of vegetation and limit weed spread in these areas. Areas with cultural resources are generally small-scale and localized, thus limiting effects.

Promoting tourism to the New Melones Lake Area could increase effects to vegetation, since more recreational users would increase the likelihood for vegetation disturbance, as described below in Effects Common to All Alternatives from Recreation Management.

6.7.3.5 Effects from Recreation Management

Recreational users affect vegetation directly by removal and mechanical damage to plants. Indirect effects of recreation include soil compaction, erosion, sedimentation, and weed introduction and spread. Horses, in particular, have a high capacity for introducing weed seeds from manure into previously unaffected areas. Groups of horses may also create soil and vegetation disturbance in areas where they are tethered, increasing the weed potential in confined areas. Together, these effects could lead to reduced vegetative health and vigor, reduced plant cover, lower plant diversity, habitat fragmentation, and altered fire regime. Riparian areas are popular with recreationists, and are particularly sensitive to these changes, as they depend on vegetation to stabilize banks and soils, and

sufficient water supply and quality to maintain vegetation. As the number of users increases, so do the magnitude of the effects.

Under all alternatives, roads, trails, and access easements would be designed to minimize steep slopes and stream crossings. This would help to maintain stable vegetation, and would minimize the likelihood of weed spread.

Interpretive activities would help to increase appreciation for native vegetation and sensitive natural communities, and could minimize effects in the long term.

Reclamation would implement management actions to minimize effects on vegetation from recreation, such as creating recreation management areas, restricting activities in wetland and riparian areas, and designating trails to concentrate effects in certain locations. These actions indirectly prevent lands from unauthorized uses and widespread, uncontrolled damage, and thus reduce habitat fragmentation within the New Melones Lake Area. Further, Reclamation would work to directly protect vegetation, the soils that support plants, and sensitive vegetative communities.

6.7.4 Effects on Vegetation under Alternative A

6.7.4.1 Effects from Physical Resources Management

Effects from physical resources management under Alternative A would be the same as those described in Effects Common to All Alternatives from Physical Resources Management.

6.7.4.2 Effects from Natural Resources Management

Implementing BMPs and SOPs during fire management would reduce effects on plants by giving some consideration to vegetation during fire management activities. This includes designing fuel breaks to consider resource objectives for vegetation management, minimizing disturbance to high erosion areas, and maintaining adequate grass and brush clearance near roads. A fire management plan would not be implemented under Alternative A. Compared with the other alternatives, Alternative A would be the least effective in protecting and maintaining native plant communities during fire management activities.

Re-seeding degraded areas with native seed would be the most effective in re-establishing native plant communities while minimizing soil erosion. Further, severe invasions of exotic plant species would be prevented under Alternative A.

No new data on plant communities associated with serpentine soils would be collected, which could limit the effectiveness of long-term planning in those areas by using outdated and/or incomplete information.

Implementing the Interim Peoria Management Plan would largely minimize vegetation disturbance in this area by limiting vehicular and human traffic, and by closing unauthorized trails. Reclamation would actively restore affected areas and would conduct environmental interpretation activities to increase awareness and appreciation of the natural resources. In all, these activities would lower vegetation disturbance, and increase

the quantity and health of native plants, thus helping to achieve Reclamation's goal of maintaining and enhancing native and unique plant communities.

Under Alternative A, Reclamation would protect federally-listed species and their habitats. This would prevent disturbance to vegetation in these areas, which are generally small-scale and localized.

Under Alternative A, Reclamation would consider permitting grazing in certain areas. Effects would be as described in Effects Common to All Alternatives from Lands, Transportation, and Access Management.

6.7.4.3 Effects from Lands, Transportation, and Access Management

Allowing right-of-way utility crossings would have effects as described in Effects Common to All Alternatives from Lands, Transportation, and Access Management. Weed control measures in the right-of-way terms and conditions could offset some effects if fully implemented.

Using the outdated information and previous use trends in the allocation map of the Master Plan could lead to effects on vegetation because past conditions and management areas are different from current conditions.

Maintaining public vehicle closures in certain areas would minimize effects on vegetation caused by grazing and motorized vehicles, as described in Effects Common to All Alternatives from Lands, Transportation, and Access Management.

Managing the Westside and Bowie Flat Management Areas under Alternative A for conservation and maintaining existing trails and roads in place of developing new roads and trails would keep vegetation disturbance low in these areas. This would limit weed introduction and maintain a healthy native plant community in these areas.

Under Alternative A, Reclamation would maintain existing trail systems and would not optimize their connectivity. As a result, no additional vegetation would be removed to create new trails. However, this could allow for disturbance where trail users go off-trail to access other trails and management areas.

Fire management and grazing management would have effects as described in Alternative A, Effects from Natural Resources Management.

6.7.4.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative A would be the same as those described in Effects Common to All Alternatives from Cultural and Social Resources Management.

6.7.4.5 Effects from Recreation Management

Keeping existing concessions would minimize future permanent removal of vegetation compared with the other alternatives that call for increased concessions and facilities. By complying with 43 CFR, Part 423, Reclamation would not allow certain activities, such as primitive camping or RV camping in Rural Natural Management Areas. This would

minimize disturbance caused by recreation activities, such as those described in Effects Common to All Alternatives from Recreation Management. Further, prohibition of OHV use would prevent soil compaction, weed introduction or spread, and vegetation removal or trampling.

Operating and maintaining existing facilities in Rural Natural Management Areas, promoting the use of existing trails and unpaved roads, and maintaining existing trails would maintain the current level of vegetation disturbance caused by activities in these areas. Effects would be similar to those caused by recreation activities described in Effects Common to All Alternatives from Recreation Management.

Alternative A would not allow for a white-water rafting operation at Camp Nine. This would protect vegetation in this area, which has a WROS designation of Semi Primitive, and is thus one of the most undisturbed areas within the New Melones Lake Area.

Alternative A would relocate the equestrian staging area. This would introduce effects from horses in a potentially undisturbed area, causing permanent vegetation removal, soil compaction, vegetation trampling, and weed introduction and spread.

Promoting the use of existing trails and unpaved roads, as well as maintaining existing trails, in place of developing new roads and trails, would minimize additional vegetation disturbance and would concentrate effects in designated areas.

Interpretive services under Alternative A would increase visitor awareness of vegetation issues and would help prevent vegetation effects from human use, including trampling, vegetation removal, and weed introduction and spread.

6.7.5 Effects on Vegetation under Alternative B

6.7.5.1 Effects from Physical Resources Management

Effects from physical resources management under Alternative B would be the same as those described in Effects Common to All Alternatives from Physical Resources Management.

6.7.5.2 Effects from Natural Resources Management

Implementing the Fire Management Plan would provide a clear direction for fire management at New Melones, and would be the most effective way to manage fire while protecting vegetation. Measures under Alternative B that include consideration of vegetation, include designing fuel breaks, Burned Area Stabilization and Emergency Response planning, using fire to meet vegetation goals, and maintaining adequate grass and brush clearance near roadsides. If achieved, these would improve native plant community composition, structure, and diversity, such as within chaparral and oak woodland communities, reduce weeds, and protect native plant communities from a catastrophic fire that could cause long term and large scale destruction of native vegetation.

Under Alternative B, Reclamation would not require re-seeding degraded areas with native seed. This could allow for the introduction of invasive weeds, which could

outcompete native vegetation. Further, invasive species prevention would occur only where inexpensive opportunities exist. This would be the most limiting to effective invasive species control, and outbreaks would be detrimental to maintaining healthy native vegetative communities.

Using existing data on serpentine plant communities for long term planning would have effects as described under Alternative A.

If implemented, creation of a 66-acre oak tree mitigation area would further increase native plants in the New Melones Lake Area.

Under Alternative B, Reclamation would be the least restrictive of activities within the PWMA by allowing seasonal vehicular use, enhancing wildlife watching opportunities, and allowing nonequestrian camping by certain organizations. Although protections would be similar to those described under Alternative A, Alternative B would disturb some vegetation by allowing seasonal vehicular use and increased recreational opportunities, as described in Effects Common to All Alternatives from Recreation Management.

Depending on the location chosen, allowing Baseline Conservation Camp to expand its footprint could cause the greatest effects to vegetation compared with the other alternatives, by permanently removing vegetation in areas where facilities would be relocated or expanded.

Special status species protections under Alternative B would have effects as described under Alternative A.

Reclamation would consider permitting grazing in certain areas. Effects would be similar to those described in Effects Common to All Alternatives from Lands, Transportation, and Access Management.

6.7.5.3 Effects from Lands, Transportation, and Access Management

Allowing right-of-way utility crossings would have effects as described under Alternative A.

Using a new land allocation map would use up-to-date information and current trends in land use to manage the New Melones Lake Area. This would be the most effective approach, since it could help to prioritize areas for protection, restoration, and weed control.

Closing areas to public vehicles would cause effects similar to those described under Alternative A. However, by opening the PWMA and other previously closed areas to vehicles, Alternative B would cause more effects to vegetation.

New roads could be constructed under Alternative B to obtain access to land-locked Reclamation property. Similarly, a road could be constructed to the Westside Management Area. This would cause permanent vegetation removal and increase the likelihood for weed introduction and spread. Where new roads would be built, vegetation

would be permanently removed and effects would be as described in Effects Common to All Alternatives from Lands, Transportation, and Access Management.

Optimizing trail connectivity and trailhead development would permanently remove vegetation and introduce weeds where new trails are created. Further, it could compact soil and disturb native vegetation, if off-trail activities were to occur. Trails may be closed in certain areas, allowing for restoration and revegetation with native plants. However, by providing more trail connections, Alternative B could prevent off-trail disturbance by users who want to access other trails and management areas.

Fire management, grazing management, and allowing an expanded Baseline Conservation Camp footprint would have effects as described under Alternative B, Effects from Natural Resources Management.

6.7.5.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative B would be the same as those described in Effects Common to All Alternatives from Cultural and Social Resources Management.

6.7.5.5 Effects from Recreation Management

Under Alternative B, concessions and facilities at New Melones could increase. Potential changes to the current concessions and facilities that could affect vegetation include:

- Construction of additional marina(s) and associated amenities in Rural Natural Management Areas;
- Construction of overnight lodging facilities, food services, and facilities for staging large events;
- Construction and operation of a mountain bike course in Rural Developed and/or Rural Natural Management Areas;
- Issuance of permits for increased uses in Rural Natural Management Areas, such as an equestrian trail riding business and outdoor adventure schools;
- Construction of primitive campgrounds and RV campgrounds in Rural Natural Management Areas; and
- Construction and operation of an OHV park in Rural Natural Management Areas.

Such increases in land-based concessions would cause permanent removal of vegetation in certain areas. Additional concessions and facilities would foster increases in recreation and effects associated with this, such as those described in Effects Common to All Alternatives from Recreation Management. Effects would be greater in Rural Natural Management Areas, where the amount of disturbance is currently lower than in Rural Developed Management Areas. Proposed actions and effects are contingent upon the results of the Commercial Services Plan and financial feasibility evaluation.

If permitted, a white-water rafting operation could affect vegetation in areas where rafts are put in and taken out. Effects include vegetation trampling or removal, soil

compaction, and weed introduction or spread. The operation would occur in a Semi Primitive Management Area, which could cause noticeable changes to native vegetation in localized areas.

Alternative B would relocate the equestrian staging area, as well as develop additional trails. This would have effects similar to those described under Alternative A, but effects under Alternative B would be greater due to effects from trail creation, such as permanent removal of vegetation and soil compaction.

Promoting the use of existing trails and unpaved roads, as well as preparing a trail management plan that focuses on trail development and connectivity, would minimize additional disturbance to vegetation and would concentrate effects in designated areas. Alternative B would create the most trails of all alternatives, causing the greatest permanent effects to vegetation.

Interpretive services under Alternative B would be expanded compared with Alternative A. Development of an Interpretive Master Plan would effectively and efficiently educate visitors regarding native and sensitive vegetation communities in the New Melones Lake Area, and would minimize effects caused by visitation, recreation, and human uses.

6.7.6 Effects on Vegetation under Alternative C

6.7.6.1 Effects from Physical Resources Management

Effects from physical resources management under Alternative C would be the same as those described in Effects Common to All Alternatives from Physical Resources Management.

6.7.6.2 Effects from Natural Resources Management

Implementing the Fire Management Plan would have effects similar to those described under Alternative B. However, Alternative C would be the most effective in re-establishing native vegetation by requiring rehabilitation of all burn areas, protecting sensitive sites from damage by heavy equipment, retaining vegetation within fuel breaks, retaining mature oaks during fire management activities, and using buffer zones to protect riparian and wetland areas.

Native seed would be required for re-seeding under Alternative C, causing effects as described under Alternative A. Further, only target-specific herbicides would be used, and only at the appropriate times of the year. This would minimize unintended mortality of native or desirable vegetation, and would kill invasive species at the most effective time of the year. Thirdly, Alternative C would restrict activities in certain areas that are susceptible to weed invasion. Together, these actions make Alternative C the most effective in preventing and treating invasive weed outbreaks.

Developing a full baseline survey for serpentine-dependent special status plants would give Reclamation a complete and updated data set for managing vegetation. As such, it would be more accurate and effective than the current data, which would be used in Alternatives A and B.

Creation of a 66-acre oak mitigation area would have effects as described under Alternative B.

The Interim Peoria Management Plan under Alternative C would be the most restrictive to public use of the area, closing it to both vehicular traffic and camping. This alternative would be the most effective in preventing human disturbance to, or alteration of, the native vegetation within the PWMA.

Reducing the Baseline Conservation Camp footprint would have the greatest reduction of vegetation disturbance of all alternatives. This would allow native vegetation to reestablish in areas where the footprint was reduced.

Special status species actions under Alternative C would be the most protective to native and sensitive vegetation by protecting not only federally-listed species, as under Alternatives A and B, but also other sensitive wildlife habitats, which would cover a greater land area. Further, Reclamation would consider seasonal use restrictions to avoid effects on special status species, which would protect vegetation during this time.

Alternative C would consider permitting grazing in certain areas. Effects would be similar to those described in Effects Common to All Alternatives from Lands, Transportation, and Access Management, although under Alternative C BMPs would be implemented to protect water quality, which would also protect riparian vegetation from degradation resulting from grazing use.

6.7.6.3 Effects from Lands, Transportation, and Access Management

Alternative C would minimize future easements and rights-of-way over Reclamation lands. This would protect native vegetation over the long term from permanent removal, fragmentation, and invasive species introduction and spread. When projects are approved, applicable guidelines would be used to minimize effects on native vegetation.

Using a new land allocation map would have effects as described under Alternative B.

Closing areas to public vehicles would have effects as described under Alternative A.

Access to the Westside Management Area would focus on conservation, which would reduce effects to vegetation. However, allowing access via hiking and adding hiking trails in certain areas could increase vegetation removal and weed introduction and spread. Trails may be closed in certain areas, allowing for restoration and revegetation with native plants.

Optimizing trail connectivity would have effects similar to those described under Alternative B. However, under Alternative C, Reclamation would not develop new trailheads, thus minimizing permanent removal of vegetation in these areas.

Use of Bowie Flat for hiking and equestrian uses would cause some effects from recreation as described in Effects Common to All Alternatives from Recreation Management. Effects would be less than those caused by motorized vehicle use.

Fire management, grazing management, and reducing the Baseline Conservation Camp footprint would have effects as described under Alternative C, Effects from Natural Resources Management.

6.7.6.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative C would be the same as those described in Effects Common to All Alternatives from Cultural and Social Resources Management.

6.7.6.5 Effects from Recreation Management

There would be some increase in concessions and facilities under Alternative C. Effects would be similar to those described under Alternative B, but effects would be reduced because Alternative C would focus on low-impact, conservation-oriented activities and fewer developments would be proposed. Potential concessions and facilities with the greatest likelihood to cause effects on vegetation include:

- Construction of additional marina(s);
- Construction of overnight lodging; and
- Issuance of permits for increased uses, such as an equestrian trail riding business and outdoor adventure schools, in Rural Natural Management Area(s).

Alternative C would aim to minimize future development in Rural Natural Management Areas, which would help to maintain undisturbed vegetation and minimize disturbance caused by increased recreation, such as those effects described in Effects Common to All Alternatives from Recreation Management. Proposed actions and effects are contingent upon the results of the Commercial Services Plan and financial feasibility evaluation.

By not allowing a white-water rafting operation at Camp Nine, Reclamation would protect vegetation from effects as described under Alternative A.

Under Alternative C, Reclamation would not develop additional trails, and would prepare a trails management plan focusing on resource protection. These actions would have the greatest effect in protecting vegetation from disturbance from trails management compared with the other alternatives.

Interpretive services under Alternative C would have effects similar to those described under Alternative B.

6.7.7 Effects on Vegetation under Alternative D

6.7.7.1 Effects from Physical Resources Management

Effects from physical resources management under Alternative D would be the same as those described in Effects Common to All Alternatives from Physical Resources Management.

6.7.7.2 Natural Resources

Implementing the Fire Management Plan would have effects similar to those described under Alternative B. Alternative D would be more effective than Alternative B in maintaining and reestablishing native vegetation because Reclamation would revegetate moderate to large areas that have been affected by fire, and would retain mature oaks during fire management activities.

Re-seeding with native seed and preventing infestations of exotic species would have effects as described under Alternative A. Use of target-specific herbicides at the appropriate time of year would have effects as described under Alternative C.

Developing a full baseline survey of serpentine-dependent special status plants would have effects as described under Alternative C.

Creation of a 66-acre oak mitigation area would have effects as described under Alternative B.

Implementing the Interim Peoria Management Plan would have effects as described under Alternative A.

If Reclamation allows Baseline Conservation Camp to expand its footprint, effects would be as described under Alternative B.

Special status species actions would have effects as described under Alternative C.

Alternative D would consider permitting grazing in certain areas. Effects would be similar to those described in Effects Common to All Alternatives from Lands, Transportation, and Access Management, but Alternative D would consider allowing grazing of recreation areas in certain circumstances. This could increase effects on vegetation in those areas.

6.7.7.3 Effects from Lands, Transportation, and Access Management

Minimizing future easements and rights-of-way over Reclamation lands would have effects as described under Alternative C.

Using a new land allocation map would have effects as described under Alternative B.

Closing areas to public vehicles would have effects similar to those described under Alternative A, Lands, Transportation, and Access. However, Alternative D would have more effects by reopening previously closed areas, causing effects from vehicles, such as vegetation trampling and soil compaction.

Obtaining access to landlocked Reclamation property would have effects as described under Alternative B.

Allowing access to the Westside Management Area by hiking, biking, and horseback could lead to permanent removal of vegetation if new trails are created. It would also

potentially increase weed introduction and spread, or off-trail trampling of plants and soil compaction.

Optimizing trail connectivity and developing new trailheads would have effects as described under Alternative B.

Fire management, grazing management, and expanding the Baseline Conservation Camp footprint would have effects as described under Alternative D, Effects from Natural Resources Management.

6.7.7.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative D would be the same as those described in Effects Common to All Alternatives from Cultural and Social Resources Management.

6.7.7.5 Effects from Recreation Management

Under Alternative D, concessions and facilities at New Melones could increase, causing effects similar to those described under Alternative B. Effects would be less under Alternative D because fewer developments would be proposed, but greater than under Alternative C. Potential changes to the current concessions and facilities that could affect vegetation include:

- Construction of additional marina(s) and associated amenities in Rural Natural Management Areas;
- Construction of overnight lodging facilities, food services, and facilities for staging large events; and
- Issuance of permits for increased uses in Rural Natural Management Areas, such as an equestrian trail riding business, outdoor adventure schools, and primitive camping.

Such increases in land-based concessions would cause permanent removal of vegetation in certain areas. Additional concessions and facilities would foster increases in recreation and effects associated with this, such as those described in Effects Common to All Alternatives from Recreation Management. Effects would be greater in Rural Natural Management Areas, where the amount of disturbance is currently lower than in Rural Developed Management Areas. Proposed actions and effects are contingent upon the results of the Commercial Services Plan and financial feasibility evaluation.

Alternative D would consider additional development to Rural Natural Management Areas, but not to the extent proposed in Alternative B, where the WROS designation would be changed. Increased recreation and visitors would cause effects as described in Effects Common to All Alternatives from Recreation Management.

If permitted, a white-water rafting operation would have effects similar to those described under Alternative B.

Relocating the equestrian area, as well as trails management actions, would have effects similar to those described under Alternative B.

Interpretive activities would have effects as described under Alternative B.

6.8 Fish and Wildlife (Including Fisheries)

6.8.1 Introduction

This section contains the discussion on the potential effects on the fish and wildlife resources that occur within the New Melones Lake Area. Impacts on the fish and wildlife resources in the New Melones Lake Area from other management programs include the loss or alteration of native habitats, decreased food and water availability and quality, increased habitat fragmentation, changes in habitat and species composition, and disruption or alteration of species behavior, leading to reduced reproductive fitness or increased susceptibility to predation, and direct mortality. Surface-disturbing activities that alter vegetation characteristics (e.g. structure, composition, and production) can affect habitat suitability for fish and wildlife, particularly where the disturbance removes or reduces cover and food resources. Even minor changes to vegetation communities can affect resident wildlife populations.

The effects of management actions on fish and wildlife resources may vary widely, depending on a variety of factors, such as the dynamics of the habitat (e.g. community type, size, shape, complexity, seral state, and condition), season, intensity, duration, frequency, and extent of the disturbance, rate and composition of vegetation recovery, change in vegetation structure, type of soils, topography and microsites, animal species present, and the ability of fish or wildlife species to leave or recolonize a site after a disturbance.

6.8.2 Methods of Analysis

6.8.2.1 Methods and Assumptions

Fish and wildlife health within the New Melones Lake Area is directly related to the overall ecosystem health, habitat abundance, habitat fragmentation, and wildlife security provided. Most of the resource management decisions have at least an indirect affect on fish and wildlife in the project lands. Impact analysis on fish and wildlife resources includes an assessment on whether each action would result in the possible destruction, degradation or modification of habitat as well as disturbance to wildlife populations or individuals. Beneficial effects resulting from the implementation of the actions were also analyzed.

Some effects are direct, while others are indirect and affect fish and wildlife species through a change in another resource. Direct effects on fish and wildlife are considered to include disruption or disturbance, substantial impedance to the movement or migration of fish or wildlife, direct mortality such that there would be substantial loss to the population of any native fish or wildlife (for the purpose of this analysis, substantial is considered a change in a population or habitat that is detectable over natural variability

for a period of 5 years or more), or substantial loss in overall diversity of the ecosystem. Potential indirect effects could occur when the activity causes other actions that affect biological resources and include, for example, loss of suitable habitat.

The degree of the effect attributed to any one management action or series of actions is influenced by the timing and degree of the action and existing conditions. Quantification of the impacts is difficult due to the lack of monitoring data for most species. In the absence of quantifiable data, best professional judgment was used to determine the effects.

Assumptions used to analyze the effects on fish and wildlife resources include:

- Success of mitigation depends on specific protective measures, past results, and the assumption that proper implementation would take place;
- Implementation-level actions will be further assessed at an appropriate spatial and temporal scale and level of detail;
- Additional field inventories could be needed to support implementation-level decisions, which may be subject to additional NEPA analysis;
- Reclamation would continue to manage fish and wildlife habitat in coordination with the California Department of Fish and Game (CDFG);
- The health of fisheries in the New Melones Lake Area is directly related to the overall health and functional capabilities of riparian and wetland resources, which in turn are a reflection of watershed health. Any activities that affect the ecological condition of the watershed and its vegetative cover would directly or indirectly affect the aquatic environment. The degree of effect attributed to any one disturbance or series of disturbances is influenced by location within the watershed, time and degree of disturbance, and existing vegetation. As riparian systems adjust in response to the removal of vegetation or changes in hydrologic conditions, the availability of habitats required to fulfill the life history requirements of fish populations might be affected; and
- Many of the actions and subsequent effects are interrelated, and altering one aspect of the environment can alter other resources.

Effects on fish and wildlife include actions that result in habitat alteration, fragmentation, or loss; wildlife displacement; and habitat maintenance and enhancement. Habitat alteration occurs when decisions change the existing habitat character. Surface-disturbing activities, development, or other activities that degrade habitat lead to habitat alteration, fragmentation, or loss. Habitat alteration, fragmentation, and loss affect the usable ranges and routes for wildlife movement. Wildlife displacement occurs when land use activities result in the movement of wildlife into other habitats, increasing stress on individual animals and increasing competition for habitat resources. Impacts on fish and wildlife from displacement depend on the location, extent, timing, or the intensity of the disruptive activity or human presence. Occurrence of these disruptive activities in areas adjacent to fish and wildlife habitat could cause displacement of wildlife. Impacts from

displacement would be greater for wildlife species that have limited existing habitat or a low tolerance for disturbance. Habitat maintenance and enhancement can maintain or improve the condition of vegetation and levels of forage species or reduce soil loss through vegetation treatments and restrictions on surface-disturbing activities. Thus, most management actions have at least an indirect impact on fish and wildlife.

Some species of fish and wildlife are considered special status species. Only impacts on fish and wildlife that do not have special status are discussed in this section. Impacts on special status species are addressed Section 6.9.

6.8.3 Effects on Fish and Wildlife Common to All Alternatives

6.8.3.1 Effects from Physical Resources Management

Mining restrictions limiting wildlife disturbance prevent the potential loss or fragmentation of available habitat from mining activities. Cave protections would aid in preserving habitat and limiting disturbance for a variety of bat species and other wildlife that occur in these caves through limiting recreation.

Actions common to all alternatives for hydrology and water quality would limit the potential for erosion and sedimentation. This would be accomplished through designing new stream crossings and maintaining existing stream crossings to minimize disruption of riparian vegetation, continuing to restrict all public vehicles to existing roadways, continuing to enforce an OHV ban, and stabilizing and constructing water bars on all unpaved roads. Limiting erosion and sedimentation would protect the water quality in the project lands and therefore would protect the habitat of the fisheries that occur there. Actions taken to avoid erosion and soil loss would protect the vegetative resources and would result in less degradation to, and loss of habitat for terrestrial wildlife. Other actions common to all alternatives for hydrology and water quality would maintain or improve sanitation facilities and work towards preventing contaminates from being released into water bodies. As with the actions designed to limit erosion and sedimentation, these actions would protect the water quality and would prevent the degradation of fish habitat in the New Melones Lake Area.

Actions designed to protect water quality within the New Melones Lake Area would benefit wildlife that rely on these water sources. These include waterfowl, amphibians, and other species that occur in or around water bodies and riparian areas. Actions to control invasive species would also protect aquatic ecosystems.

Actions designed to protect the aesthetic, visual, and scenic resources at the New Melones Lake Area could protect habitat for species occurring in the area if vegetation and other components of habitat are protected from disturbance.

6.8.3.2 Effects from Natural Resources Management

Actions common to all alternatives for vegetation management would have the overall effect of protecting habitat for wildlife species and minimizing disturbance of wildlife populations. This would be accomplished through protecting and promoting native plant communities and minimizing the clearing or converting of native plant communities. In areas of native plant communities that have been degraded, restoration or enhancement

actions would be implemented that would improve these habitats. Numerous wildlife species rely on wetlands and riparian areas for all or part of their yearly needs (e.g. breeding, foraging, etc.). Actions designed to protect these sensitive areas would limit the potential loss of habitat for a variety of species. Wetlands also play a role in preventing sedimentation of water bodies by reducing erosion and controlling soil runoff. Therefore, protection of wetlands would benefit fish species through preventing or controlling sedimentation and could trap any contaminates from moving into water bodies.

Actions common to all alternatives directed specifically at fish and wildlife management are designed primarily to protect the habitat of the species that occur in the New Melones Lake Area. Specific actions to protect or enhance the habitat for wildlife species include: protecting, restoring, or enhancing wetlands and vernal pools and drainages, practicing oak silviculture for hard-wood dependent species, limiting disturbance along stream corridors, providing cover in shallow waters for fisheries, and providing snags and nesting areas for ospreys and cavity nesting birds. These actions would provide improved habitat for the species that use these areas.

No livestock grazing permits are currently in place on the project lands, but trespass grazing occasionally occurs. Grazing could result in degradation of habitat through loss of vegetation, which in turn can result in erosion and sedimentation, alteration of the vegetative species, and direct disturbance of wildlife species. Maintenance of boundary fences would minimize trespass grazing.

Feral species can cause habitat disturbance and directly compete with native species for various resources (food, cover, etc). Control of feral species would benefit native wildlife species by reducing or eliminating this competition.

In general, actions designed to protect special status species and their habitat in the project lands would also benefit other species of fish and wildlife. Further, special status species management would prevent activities that would lead to listing of species. Those protections, as well as encouraging dispersed recreation, would limit disturbance to fish and wildlife populations and their habitats.

6.8.3.3 Effects from Lands, Transportation, and Access Management

Unauthorized livestock grazing and OHV operation would continue to be prohibited throughout the project area. These actions are typically detrimental, both directly and indirectly, to wildlife and fish species by altering the quantity and quality of vegetation available to wildlife. Under all alternatives, actions designed to limit trespass and unauthorized use would limit the amount of disturbance to wildlife habitat and populations.

Use and construction of roads and trails could lead to direct mortality of wildlife through accidental or intentional kills by vehicles, stress-related mortality caused by human and motorized vehicle presences, and intentional harassment by humans. In addition, these actions would result in effects on potential habitats, such as reduced vegetative cover and density, fragmentation, soil compaction and increased dust. The actual area of habitat lost

to roads may be inconsequential; however, the fragmentation that results from roads and the effects on individual species may be substantial.

Motorized vehicle users would introduce and spread noxious and invasive weed seeds from their vehicles, shoes, clothing, and recreational equipment, thus degrading potential habitats. Use of motorized vehicles in undisturbed and remote areas could distribute weed seeds into weed-free areas. These effects could decrease plant vigor and productivity and alter community plant composition, affecting wildlife habitats. In addition, increased noise could disturb wildlife during biologically-sensitive periods. Localized disturbance to wildlife habitat adjacent to roads could occur in these areas. Areas closed to vehicular travel would have the fewest effects. Road closures would increase habitat connectivity, provide buffer areas from disturbance, and allow habitats to restore.

Public health and safety actions common to all alternatives would protect fish and wildlife resources in the New Melones Lake Area. Educational programs, developed to inform the public of various regulations, would increase visitor awareness of the regulations regarding fish and wildlife resources, and potentially limit the inadvertent disturbance of wildlife and habitat. Potentially hazardous areas (caves, old mine shafts, exposed steep areas, and high fire hazard areas) would be adequately closed under all alternatives. Closing these areas could limit human activity in those areas which in turn would limit disturbance to habitat and populations of wildlife in those areas. Improving law enforcement in the New Melones Lake Area could lead to fewer instances of poaching and fewer hazardous materials being introduced into the environment, thereby decreasing habitat degradation and the potential for direct mortality to individual fish or wildlife.

Wildland fire would cause a range of effects on species and habitats depending on how actively certain areas are managed. Vegetation response to fire depends on the size, location, intensity, season, timing, and amount of precipitation, the preexisting plant community conditions, and the abundance of invasive weeds in the area. Fires have direct effects by changing the composition of the plant community, delaying plant succession, removing woody vegetation and plant litter, and directly killing plant and wildlife species, particularly less mobile species. Wildland fires could burn with enough heat to kill soil organisms and root systems, resulting in diminished plant recruitment and growth rates, particularly for fire-sensitive species. This could reduce habitat value for wildlife in affected areas.

Indirectly, wildland fires create an opportunity for the establishment or spread of invasive weeds, contributing to habitat degradation, by removing aboveground vegetation, leaving burned areas more susceptible to invasive weeds. Some species of invasive weeds respond well to post-fire conditions and outcompete native species. In areas where invasive weeds occur or are in close proximity, wildland fire increases the likelihood of weed proliferation. Firefighters and their equipment might also introduce or spread invasive weeds. Some mechanical control activities disturb the soil surface and remove vegetation, creating an opportunity for the establishment or spread of invasive weeds.

Further, since fire retardants are composed largely of nitrogen and phosphorus fertilizers, they may encourage growth of some species, particularly weeds, at the expense of others, indirectly resulting in changes in community composition and species diversity. Differential growth may also influence herbivorous behavior; both insect and vertebrate herbivores tend to favor new, rapidly growing shoots.

However, wildfire suppression and creation of fuel breaks would prevent catastrophic wildfires that reduce vegetative cover across large expanses, destroying habitats and killing or permanently displacing species. Fuels management actions would help to reestablish native vegetative communities, providing for healthy, diverse habitats over the long term.

Rights-of-way remove vegetation from the footprint of the authorized facilities. Most of the footprints are localized and cover a small area, but rights-of-way tend to be linear and may stretch for miles. If disturbed areas are not properly reseeded with native vegetation, weeds could be introduced and spread over a large area. This would fragment potential or occupied wildlife habitats and potentially introduce noise and disruption in previously undisturbed areas.

Livestock grazing could be permitted in the future under all alternatives. If used appropriately, grazing can reduce fuel loads and invasive species, and increase desired plant populations to improve habitats. However, grazing can disturb habitats through direct vegetation removal, disturbance, or trampling, which would reduce vegetation health or, in the most extreme cases, kill plants. Indirect effects from livestock grazing include soil compaction and increased potential for weed invasion and spread, which could subsequently reduce vegetative health and vigor, and alter the natural fire regime. In riparian areas, livestock grazing deteriorates stabilizing vegetation, erodes banks, and causes declines in water storage capacity and quality. To minimize effects, grazing plans would be required to ensure appropriate grazing management.

6.8.3.4 Effects from Cultural and Social Resources Management

In general, protections to cultural resources would prevent disturbance and fragmentation of habitats, providing for a more healthy and resilient community. Areas with cultural resources are generally small-scale and localized, thus limiting effects.

Promoting tourism to the New Melones Lake Area could increase effects on fish and wildlife, since more recreational users would increase the likelihood for noise disturbance, vegetation trampling, harassment, and vegetation removal, as well as habitat degradation through soil compaction and introduction of invasive species.

6.8.3.5 Effects from Recreation Management

Recreation at the New Melones Lake Area would affect the fish and wildlife resources in the area. Human visitation can directly disturb wildlife by altering behavior patterns, causing direct mortality (e.g. vehicle collisions), or degrading habitat. Hunting and fishing would be managed to levels set by the CDFG. Coordination with other agencies would affect the fish and wildlife resources by providing greater protection from livestock trespass, poaching, OHV use, and contamination of habitat. Facilities in the

project area would be maintained to minimize environmental contamination. This would benefit the fish and wildlife resources by minimizing habitat degradation from contaminate spills. Under all alternatives, all public vehicles would be restricted to designated roads. This would limit the loss or alteration of vegetation and wildlife habitat, as well as limit disturbance to wildlife populations from off-road use. It would also protect the fisheries by minimizing the amount of erosion and sedimentation into water bodies.

Educational programs designed to increase visitor awareness of the fishery resources at the New Melones Lake Area could result in limiting the amount of contamination of the water, and thereby reduce the amount of contamination of fish habitat. This could prevent the introduction of aquatic invasive species, which would have an effect on the fisheries by limiting the degradation of the food supply for fish. Operating motorboats, including houseboats and overnight occupancy vessels, could affect the fisheries. Motorboat use can affect the water quality through increasing sediment suspension, introducing contaminates (such as fuel, oil, and sewage) in the water, causing shoreline erosion from wakes, destabilizing the reservoir bottom, causing direct mortality of fish through propeller strikes, and altering fish behavior. The majority of these effects occur in shallow waters (less than 10-feet deep) and along the shoreline (Asplund 2000). All alternatives allow for the continued use of motorboats on the reservoir so there would be some level of effect to the fisheries.

Recreation has the potential to disrupt the normal behavior pattern of wildlife as well and degrade the habitat from altering the vegetative or soil resources. The primary wildlife habitat effect from recreation occurs from changes to soil and vegetation characteristics. Soil characteristic changes could include loss of surface organic horizons, reduced soil porosity, altered soil chemistry, altered soil moisture and temperature, and altered soil microbiota. Vegetation characteristics can be altered by reducing plant density and cover, altering species composition, altering vertical structure, altering the spatial pattern of the vegetation, and altering individual plant characteristics (Knight and Gutzwiller 1995). To offset these potential effects from recreation, all alternatives would provide adequate signage on trails and roads, provide safe recreational opportunities compatible with the Wildlife Management Plan, and coordinate with the CDFG and local law enforcement agencies to ensure that all applicable laws and regulations relating to wildlife are being followed. Limiting the recreational activities in wetlands and riparian areas would protect these sensitive habitats and limit disturbance to wildlife species, and prevent erosion, sedimentation and vegetation loss. Construction of trails and pathways in heavily used recreation areas would protect habitat by concentrating human use to a specific area, protect vegetation, and limit the potential for erosion. Design of roads, trails and pathways would follow the natural topography and minimize placement on steep slopes and stream crossings. This would help to maintain stable vegetation and habitat for species, and minimize direct disturbance to fish and wildlife by vegetation removal, or in-stream work.

Interpretive activities would help to increase appreciation for fish and wildlife and their habitats, and could minimize effects in the long term.

Hunting occurs on all of the project lands except for the Tuttletown and Glory Hole Management Areas, with the majority of hunting in the PWMA. The primary species hunted within the New Melones Lake Area include deer, turkey, upland game, and quail. Outside of the direct effect that hunting has on the wildlife, human presence in an area could result in the disturbance of non-target species and potential habitat degradation from increased human use of the area.

Cave protections would have effects as described in Effects Common to All Alternatives from Physical Resources Management.

6.8.4 Effects on Fish and Wildlife under Alternative A

6.8.4.1 Effects from Physical Resources Management

Under Alternative A, noise would be monitored and Reclamation would seek voluntary compliance with noise regulations. Noise has the ability to disrupt wildlife behavior, such as breeding, feeding, or resting. Seeking voluntary compliance with noise regulations would aid in limiting noise levels, though not as much as mandatory compliance.

6.8.4.2 Effects from Natural Resources Management

Implementing BMPs and SOPs during fire management would reduce effects on fish and wildlife habitats by giving some consideration to vegetation during fire management activities. This includes designing fuel breaks to consider resource objectives for vegetation management, minimizing disturbance to high erosion areas, and maintaining adequate grass and brush clearance near roads. A fire management plan would not be implemented under Alternative A. Compared with the other alternatives, Alternative A would be the least effective in protecting fish and wildlife and maintaining healthy species habitats during fire management activities.

Reseeding degraded areas with native seed would be the most effective way to re-establish native plant communities while minimizing soil erosion. Further, severe invasions of exotic plant species would be prevented under Alternative A. These actions would help to improve fish and wildlife habitats.

Implementing the Interim Peoria Management Plan would protect wildlife habitat by prohibiting the use of public vehicles, restoring vegetation along unauthorized or closed roads and trails, and encourage low-impact recreation. These actions would minimize the degradation of wildlife habitat, limit disturbance to individuals from human activities and improve or enhance the existing habitat in the PWMA.

To protect fisheries, disturbance in known trout and warm water fish spawning areas would be restricted or minimized. Minimizing disturbance in these areas could result in a greater spawning success, which would increase the fish population over time, and increase the diversity of the fish resources, particularly those species sought by sport fishermen.

Alternative A would consider permitting grazing in certain areas. Effects would be as described in Effects Common to All Alternatives from Lands, Transportation, and Access Management.

6.8.4.3 Effects from Lands, Transportation, and Access Management

Allowing right-of-way utility crossings would have effects as described in Effects Common to All Alternatives from Lands, Transportation, and Access Management. Weed control measures in the right-of-way terms and conditions could offset some effects if fully implemented.

Using the outdated information and previous use trends in the allocation map of the Master Plan could lead to effects on wildlife or habitats because past conditions and management areas are different from current conditions.

Maintaining road closures in certain areas would reduce disturbance to wildlife and habitats caused by grazing, vehicles and human use, as described in Effects Common to All Alternatives from Lands, Transportation, and Access Management.

Allowing seaplane use at New Melones Lake could disturb wildlife due to noise. Seaplanes would continue to be allowed to use the New Melones Lake Area with the restriction of no landings or takeoffs within 1,000 feet of the shore. Restricting the operation of planes near shore would limit the potential for erosion or sedimentation and other disturbance to shallow water from the wake caused by such activities.

Managing the Westside and Bowie Flat Management Areas for conservation and existing trails and roads would minimize human presence and associated disturbances caused by human presence, such as those described in Effects Common to All Alternatives from Recreation Management.

Fire management and grazing management would have effects as described under Alternative A, Effects from Natural Resources Management.

6.8.4.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative A would be the same as those described in Effects Common to All Alternatives from Cultural and Social Resources Management.

6.8.4.5 Effects from Recreation Management

Keeping existing concessions would minimize future permanent removal of vegetation compared with the other alternatives that call for increased concessions and facilities. By complying with 43 CFR, Part 423, Reclamation would not allow certain activities, such as primitive camping or RV camping in Rural Natural Management Areas. This would minimize disturbance to fish and wildlife and their habitats caused by recreation activities, such as those described in Effects Common to All Alternatives from Recreation Management. Further, prohibition of OHV use would prevent noise disturbance, soil compaction, weed introduction or spread, and vegetation removal or trampling.

Aquatic recreation could affect fish resources in the New Melones Lake Area. Alternative A contains the least amount of no-wake zones. The wake from boats can cause direct disturbance to fisheries as well as speed up shoreline erosion, which may result in sedimentation and loss of vegetation. Alternative A would maintain the current number

of floating vault toilets. These toilets would encourage users not to dump waste directly into the water, thereby limiting the potential contamination of the water. Alternative A would manage aquatic recreation to minimize disturbance of warm water fish and trout spawning areas. This would protect these sensitive areas and allow for healthier fish populations. Watercraft use would be allowed to continue at current levels, and the effects on fisheries would be similar to those discussed in Effects Common to All Alternatives from Recreation Management.

Alternative A would seek to move the equestrian staging area to a new location that would allow day use and possible overnight camping. Moving the staging area would cause a loss of habitat at the new location as well as possibly increase the number of users, resulting in increased wildlife disturbance. Existing trails and fire roads would continue to be maintained under current guidelines. Future trails would be developed to use existing roads and trails as much as possible, limiting additional disturbance to habitat. Campsites and day use facilities would continue to be updated and modernized. These actions would affect fish and wildlife resources by limiting the contaminants that may be released into habitat as well as potentially increasing the number of visitors to these areas, resulting in more direct disturbance to individuals and habitat.

Continued seaplane use at New Melones Lake would have effects as described under Alternative A, Effects from Lands, Transportation, and Access Management.

6.8.5 Effects on Fish and Wildlife under Alternative B

6.8.5.1 Effects from Physical Resources Management

Seeking voluntary compliance for noise regulations would have effects as described under Alternative A.

6.8.5.2 Effects from Natural Resources Management

Implementing the Fire Management Plan would provide a clear direction for fire management at New Melones, and would be the most effective way to manage fire while protecting fish and wildlife and their habitats. Measures under Alternative B that include consideration of wildlife or habitats include designing fuel breaks to avoid sensitive habitats, Burned Area Stabilization and Emergency Response planning, using fire to meet vegetation goals, and maintaining adequate grass and brush clearance near roadsides. If achieved, these would improve habitats by improving native plant community composition, structure, and diversity, such as within chaparral and oak woodland communities; reduce weeds; and protect native plant communities from a catastrophic fire that could cause long term and large scale destruction of native vegetation and directly kill species.

Invasive species prevention and treatment would be least effective under this alternative by not requiring native seed for reseeding and by preventing invasive species infestations only when it is inexpensive to do so. This could result in incomplete treatment of infestations and unsuccessful reestablishment of native communities. This could lead to degraded potential or occupied habitats for species.

Alternative B would manage a 66-acre parcel for an oak tree mitigation area. This would increase the amount and connectivity of habitat available to oak-woodland-dependent species.

Using existing data for long term planning would have effects as described under Alternative A.

Alternative B would be the least restrictive of activities within the PWMA by allowing seasonal vehicular use, enhancing wildlife watching opportunities, and allowing nonequestrian camping by certain organizations. Although protections would be similar to those described under Alternative A, Alternative B would cause some vegetation and noise disturbance resulting from increased recreational opportunities, as described in Effects Common to All Alternatives from Recreation Management. In addition, allowing seasonal vehicular access could increase hunting pressure, illegal target shooting, and the potential for wildfire in portions of the PWMA that would be more easily accessed, which could directly and indirectly affect wildlife and their habitats.

Depending on the location chosen, allowing the Baseline Conservation Camp to expand its footprint could have the greatest effects on vegetation, compared with the other alternatives, by permanently removing vegetation in areas where facilities would be relocated or expanded.

Restricting and minimizing disturbance of fish spawning areas would have effects as described under Alternative A.

Alternative B would consider permitting grazing in certain areas. Effects would be similar to those described in Effects Common to All Alternatives from Lands, Transportation, and Access Management.

6.8.5.3 Effects from Lands, Transportation, and Access Management

Lack of restrictions of right-of-way crossings would have effects as described under Alternative A.

Using an updated version of the land use allocation map would reflect new information and current uses. This would allow for more effective management of lands within the New Melones Lake Area, and would protect and manage for wildlife and important habitats where they are known to occur.

Maintaining road closures in certain areas would have effects similar to those described under Alternative A. However, effects on wildlife would be greater under Alternative B because certain areas would be reopened to public vehicles, allowing effects as described in Effects Common to All Alternatives from Lands, Transportation, and Access Management.

New roads, to obtain access to land-locked Reclamation property, could be constructed under Alternative B. Similarly, a road would be constructed to the Westside Management Area. This would cause permanent removal of vegetation and introduce human presence and vehicles to previously undisturbed areas. Effects would be the greatest than in the

other alternatives and similar to those described in Effects Common to All Alternatives from Lands, Transportation, and Access Management. Further, recreation would increase, causing effects as described in Effects Common to All Alternatives from Recreation Management.

Allowing seaplane use would have effects as described under Alternative A.

Optimizing trail connectivity and trailhead development would permanently remove vegetation and introduce weeds. This could compact soil and disturb native vegetation, if there were off-trail activities, and would degrade potential or occupied wildlife habitat. Trails may be closed in certain areas, allowing for restoration and revegetation with native plants. However, by providing more trail connections, Alternative B could prevent off-trail disturbance by users who want to access other trails and management areas.

Increasing the use of Bowie Flat would increase effects from human use and disturbance, as described in Effects Common to All Alternatives from Recreation Management.

Fire management, grazing management, and expansion of the Baseline Conservation Camp footprint would have effects as described under Alternative B, Effects from Natural Resources Management.

Under Alternative B, Reclamation would enter into an agreement, with a managing partner or concessionaire, to construct and operate an OHV park in the PWMA, Westside, Bowie Flat, Greenhorn Creek, French Flat or Bear Creek Management Areas. If such a park is constructed there would be a loss of habitat available to wildlife, fragmentation of habitat, and disturbance to species from the increased noise and human presence in the area. The presence of OHVs in one or more of these management areas could result in increased erosion.

6.8.5.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative B would be the same as those described in Effects Common to All Alternatives from Cultural and Social Resources Management.

6.8.5.5 Effects from Recreation Management

Under Alternative B, the existing facilities would be maintained, and new facilities could be constructed in Rural Natural and Rural Developed Management Areas. If new facilities are constructed, wildlife would likely be disturbed in those areas. Additionally, if the construction takes place in previously undisturbed areas, habitat would be lost. More facilities would likely result in greater visitation to certain areas over the long-term, which would result in loss and degradation of habitat, and increased disturbance and alteration of behavior. Quantification of these effects would be dependent on the actual number and siting of the new facilities.

As Alternative B is designed to increase visitor use at the New Melones Lake Area, there would be the greatest increase of commercial services and concessions under this alternative compared to other alternatives. Examples of the actions that may affect fish and wildlife include constructing new facilities (stores, campsites, marinas and associated

buildings). Most of this construction would occur in the Glory Hole and Tuttletown areas where there is already the most development. These actions would likely increase the number of people in those areas so there would be an increased chance of human/wildlife interactions that would likely result in wildlife disturbance. Primitive camping and RV camping would be allowed in Rural Natural Management areas, resulting in a loss of habitat and degradation of remaining habitat around the areas from the construction of these facilities. It would also likely result in increased, direct disturbance to wildlife species from an increased human presence in those areas. Additional services on the water (floating campsites and restroom facilities, additional water sport courses), and allowing for a float plane school in the area, could result in degradation to fish habitat.

Alternative B would designate more areas as no-wake zones than Alternative A. This designation would protect more shoreline from potential erosion and sedimentation caused by wakes, as well as limit disturbance to the behavior of shallow water fish. Additional floating vault toilets would be installed which could limit the amount of contamination from visitors dumping waste overboard. Warm water fish and trout spawning areas would continue to have disturbance minimized as under Alternative A.

Alternative B would allow for an increased number of watercraft. This could result in greater disturbance to fish resources, particularly if it occurs in shallow water, where fish are more sensitive to disturbance.

Land-based recreation under Alternative B would also increase. The equestrian staging area in the PMWA would be relocated similar to Alternative A, but at the new site, there would be additional trails and facilities which may be operated by a concessionaire. This could result in a greater use of the area, and more effects on wildlife from loss or degradation of habitat, direct disturbance and alteration of behavior.

Promoting the use of existing trails and unpaved roads, as well as preparing a trail management plan that focuses on trail development and connectivity, would minimize additional disturbance to wildlife and potential and occupied habitats, and would concentrate effects in designated areas. Alternative B would create the most trails of all alternatives, causing the greatest permanent effects.

Limiting hunting to shotgun only could reduce the number of hunters on the project lands limiting the effects hunting has on wildlife.

6.8.6 Effects on Fish and Wildlife under Alternative C

6.8.6.1 Effects from Physical Resources Management

Seeking mandatory compliance with noise regulations would be most effective in minimizing noise disruption effects on wildlife, such as causing species to alter their behaviors or avoid certain areas.

6.8.6.2 Effects from Natural Resources Management

Implementing the Fire Management Plan would have effects as described under Alternative B. However, Alternative C would be the most effective in protecting fish and wildlife and restoring habitats by requiring rehabilitation of all burn areas, protecting

sensitive sites from damage by heavy equipment, retaining vegetation within fuel breaks, retaining mature oaks during fire management activities, and using buffer zones to protect riparian and wetland areas.

Invasive species prevention and treatment would be more effective under Alternative C by using herbicides during appropriate times, requiring reseeding with native seed, and by restricting activities in certain areas. This would reduce weeds and increase native plant cover, which would lead to improved wildlife habitats.

Managing a 66-acre parcel of land for an oak tree mitigation area would have effects as described under Alternative B.

Implementing the Interim Peoria Management Plan would have effects similar to those described under Alternative A. However, Alternative C would be more protective to wildlife and habitats by closing the area to vehicles and camping, thus eliminating disturbance from these sources.

Reducing the Baseline Conservation Camp footprint under Alternative C would have the greatest reduction of habitat and wildlife disturbance of all alternatives. This would allow native vegetation to reestablish in areas where the footprint has been reduced, and would provide more potential habitat.

Alternative C would impose greater restrictions to activities in fish spawning areas, and would include more areas than Alternatives A and B. This would provide the greatest protection to fish and aquatic wildlife of all alternatives.

Alternative C would consider permitting grazing in certain areas. Effects would be similar to those described in Effects Common to All Alternatives from Lands, Transportation, and Access Management, although under Alternative C, BMPs would be implemented to protect water quality, which would also protect riparian vegetation.

6.8.6.3 Effects from Lands, Transportation, and Access Management

Future easements and rights-of-way would be avoided and minimized under Alternative C. Further, effects would be avoided by implementing applicable guidelines. This would reduce effects described in Effects Common to All Alternatives from Lands, Transportation, and Access Management.

Using a new land allocation map would have effects as described under Alternative B.

Maintaining road closures in certain areas would have effects as described under Alternative A.

Restricting seaplane access to New Melones Lake would reduce noise disturbance to wildlife and result in fewer disturbances to the fisheries in the area than under the other alternatives.

Alternative C would allow access to the Westside Management Area by boat or hiking. This would keep effects on wildlife low, because access would be restricted, and land

uses would be low-impact and non-vehicular. Still, increased human presence would disturb wildlife as described in Effects Common to All Alternatives from Recreation Management.

Optimizing trail connectivity would have effects similar to those described under Alternative B. However, under Alternative C, Reclamation would not develop new trailheads, thus minimizing permanent removal of vegetation in these areas.

Use of Bowie Flat Management Area for hiking and equestrian uses would cause some effects from recreation as described in Effects Common to All Alternatives from Recreation Management. Effects would be less than those caused by motorized vehicle use.

Fire management, grazing management, and reduction of the Baseline Conservation Camp footprint would have effects as described under Alternative C, Effects from Natural Resources Management.

6.8.6.4 Effects from Cultural and Social Resources Management

Effects on the fish and wildlife resources from cultural and social resources management under Alternative C would be the same as those described under Effects Common to All Alternatives from Cultural and Social Resources Management.

6.8.6.5 Effects from Recreation Management

There would be some increase in concessions and facilities under Alternative C. Effects would be similar to those described under Alternative B, but effects would be reduced because Alternative C would focus on low-impact, conservation-oriented activities and fewer developments would be proposed.

Under Alternative C, Reclamation would aim to minimize future development in Rural Natural Management Areas, which would help to maintain undisturbed wildlife habitat, minimize disturbance caused by humans, and increased recreation, such as those effects described in Effects Common to All Alternatives from Recreation Management.

Effects from aquatic recreation would be similar to those described under Alternative B. Alternative C would designate more areas as no-wake zones and environmentally sensitive areas which would further limit the disturbance on fish, and limit shoreline erosion and sedimentation. Alternative C would also decrease the level of watercraft use so, overall, there would likely be less disturbance to fish and wildlife.

Under Alternative C, Reclamation would impose the greatest restrictions on fish spawning areas, which would afford the greatest protection to fish and aquatic wildlife that use these areas.

Restricting seaplane access would have effects as described under Alternative C, Effects from Lands, Transportation, and Access Management.

Land-based recreation under Alternative C would keep the equestrian staging area within the PMWA and impose limits on its use. These restrictions would limit the amount of

disturbance to wildlife species and habitats. Reclamation would not develop additional trails, and would prepare a trails management plan focusing on resource protection. These actions would have the greatest effect in protecting wildlife and habitats from disturbance compared with the other alternatives.

Campgrounds would continue to be updated and modernized, as in the other alternatives, but vehicle barriers would be installed as well. These barriers would limit the potential for unauthorized vehicle use and protect habitat from degradation.

Interpretive services under Alternative C would have effects similar to those described under Alternative B.

6.8.7 Effects on Fish and Wildlife under Alternative D

6.8.7.1 Effects from Physical Resources Management

Effects from seeking voluntary compliance with noise regulations would be the same as those described under Alternative A.

6.8.7.2 Effects from Natural Resources Management

Effects from implementing the Fire Management Plan would be the same as those described under Alternative B. However, Alternative D would consider wildlife and habitats during fire management activities. Further, Reclamation would revegetate moderate-to-large areas that have been affected by fire, and would retain mature oaks during fire management activities.

Reseeding with native seed and preventing infestations of exotic species would have effects as described under Alternative A. Use of target-specific herbicides at the appropriate time of year would have effects as described under Alternative C.

Effects from managing a 66-acre parcel of land for an oak tree mitigation area would be the same as those described under Alternative B.

Effects from implementing the Interim Peoria Management Plan would be the same as those described under Alternative A.

If Reclamation allows the Baseline Conservation Camp footprint to expand, effects would be as described under Alternative B.

Alternative D would protect and minimize disturbance to fish spawning areas, causing effects similar to those described under Alternative A. However, Alternative D would provide greater protection by minimizing disturbance in more areas.

Alternative D would consider permitting grazing in certain areas. Effects would be similar to those described in Effects Common to All Alternatives from Lands, Transportation, and Access Management, but Alternative D would consider allowing grazing of recreation areas in certain circumstances. This could increase effects on habitats in those areas.

6.8.7.3 Effects from Lands, Transportation, and Access Management

Avoiding or minimizing future easements and rights-of-way over Reclamation lands would have effects as described under Alternative C.

Using a new land allocation map would have effects as described under Alternative B.

Maintaining road closures would have effects similar to those described under Alternative A. There would be greater effects under Alternative D, since Reclamation would reopen previously closed areas, causing effects from vehicle use as described in Effects Common to All Alternatives from Lands, Transportation, and Access Management.

Creating new roads and access to land-locked Reclamation property would have effects as described under Alternative B.

Allowing seaplane access would have effects as described under Alternative A.

Alternative D would allow increased access to the Westside and Bowie Flat Management Areas similar to Alternative C. Effects from Alternative D could be greater due to additional recreational activities (biking and horseback riding) that would be allowed in these areas. This would attract more people to recreate in these areas, which would cause effects as described in Effects Common to All Alternatives from Recreation Management.

Optimizing trail connectivity and developing new trailheads would have effects as described under Alternative B.

Fire management, grazing management, and expanding the Baseline Conservation Camp footprint would have effects as described under Alternative D, Effects from Natural Resources Management.

6.8.7.4 Effects from Cultural and Social Resources Management

Effects on the fish and wildlife resources under Alternative D from cultural and social resources management would be the same as those described under Effects Common to All Alternatives from Cultural and Social Resources Management.

6.8.7.5 Effects from Recreation Management

Alternative D would allow some increase in concessions and facilities, causing effects similar to, but less than, those described under Alternative B, because Alternative D has fewer developments proposed. Effects would be greater than those under Alternatives A and C, since more developments would be proposed. Effects would be greater in Rural Natural Management Areas, where the amount of disturbance is currently lower than in Rural Developed Management Areas. Proposed actions and effects are contingent upon the results of the Commercial Services Plan and financial feasibility evaluation.

Under Alternative D, Reclamation would consider additional development to Rural Natural Management Areas, but not to the extent proposed in Alternative B, where the WROS designation would be changed. Increased recreation and visitors would cause

effects as described in Effects Common to All Alternatives from Recreation Management.

Minimizing disturbance to fish spawning areas would have effects as described under Alternative A.

Alternative D would designate the same no-wake zones as Alternative C, but would not designate the Greenhorn Creek area as environmentally sensitive. This area would still have a no-wake restriction. Effects from increasing watercraft use would have effects as described under Alternative B.

Allowing seaplane use would have effects as described under Alternative D, Effects from Lands, Transportation, and Access Management.

Land-based recreation under Alternative D would relocate the equestrian staging area to a new location in the PMWA and improve the staging area and facilities. This could result in greater usage of this area, and therefore increase the amount of disturbance to wildlife habitat and populations. Trails management actions would have effects similar to those described under Alternative B.

Campgrounds and day use facilities would be updated and modernized while installing vehicle barriers. Updating the sites could lead to increased usage, resulting in increased disturbance to wildlife. The vehicle barriers would limit the amount of habitat degradation.

Developing a climbing management plan would have effects as described under Alternative D, Effects from Natural Resources Management.

Interpretive activities would have effects as described under Alternative B.

Management of hunting activities would have effects similar to Alternative B.

6.9 Special Status Species

6.9.1 Introduction

Impacts on special status fish, wildlife, and plant resources include loss or alteration of native habitats, increased habitat fragmentation, changes in habitat and species composition, disruption of species behavior leading to reduced reproductive fitness, and direct mortality. Surface-disturbing actions that alter vegetation characteristics (e.g., structure, composition, or production) have the potential to affect habitat suitability for special status fish, wildlife, and plants, particularly where the disturbance removes or reduces cover or food resources. Even minor changes to vegetation communities have the potential to affect resident special status species populations.

The direct and indirect impacts of management actions on fish, wildlife, and plant resources may vary widely, depending on a variety of factors such as the dynamics of the habitat (e.g., community type, size, shape, complexity, seral state, and condition); season,

intensity, duration, frequency, and extent of the disturbance; rate and composition of vegetation recovery; change in vegetation structure; type of soils; topography and microsites; animal species present; and the mobility of fish or wildlife species (i.e., the ability to leave a site or recolonize a site after a disturbance).

6.9.2 Methods of Analysis

6.9.2.1 Methods and Assumptions

Special status fish, wildlife, and plant health in the New Melones Lake Area is directly related to the overall ecosystem health, habitat abundance, habitat fragmentation, and wildlife security provided, and thus, many resource management actions have an effect on special status species. Impact analysis on special status species included an assessment of whether each action would result in the possible destruction, degradation, or modification of habitat, as well as effects that could improve pollinator, wildlife, plant, and aquatic habitat. The evaluations are confined to the actions that have the most direct effects on the planning area, instead of identifying and evaluating all possible interactions and cause-effect relationships. In addition, special status species and potential special status habitat distributions over the landscape are patchy and localized, which limits potential effects from many resource management actions.

Some effects are direct, while others are indirect and affect special status species through a change in another resource. Direct effects on special status species are considered to include disruption, trampling, or removal of rooted vegetation, thereby reducing an area's potential habitat value; direct mortality of individual special status species; actions that influence special status species behaviors, such as causing them to abandon roost or nest sites; and actions that unequivocally reduce total numbers of a special status species or reduce or cause the loss of total area, diversity, vigor, structure, or function of potential or occupied habitat.

Potential indirect effects include loss of habitat suitable for colonization due to surface disturbance; introduction of invasive weeds, or conditions that enhance the spread of weeds; increased noise; changes in hydrology or water availability; habitat fragmentation; loss of pollinators or their habitats; and general loss of habitat due to development or surface compaction. Vegetation removal could indirectly alter food supplies and could affect fish and aquatic special status species through erosion and sedimentation into nearby streams and rivers. These alterations not only modify existing habitat, they also alter the use of adjacent habitats. Indirect effects include those that cannot be absolutely linked to one action, such as decreased plant vigor or health from reduced air or water quality.

The degree of effect attributed to any one management action, or series of actions, is influenced by the watershed, time and degree of action, and existing vegetation. Quantifying these effects is difficult due to the lack of monitoring data for many species. In the absence of quantitative data, best professional judgment based on scientific reasoning was used according to the following assumptions:

- Ground disturbing activities could lead to modification (positive or negative) of habitat and/or loss or gain of individuals, depending on the amount of area disturbed, the species affected, and the location of the disturbance;
- Implementation-level actions will be further assessed at an appropriate spatial and temporal scale and level of detail;
- Additional field inventories could be needed to support implementation-level decisions, which may be subject to further analysis under NEPA; and
- The health of fisheries in the New Melones Lake Area is directly related to the overall health and functional capabilities of riparian and wetland resources, which in turn are a reflection of watershed health. Any activities that affect the ecological condition of the watershed and its vegetative cover would directly or indirectly affect the aquatic environment. The degree of effect attributed to any one disturbance or series of disturbances is influenced by location within the watershed, time and degree of disturbance, and existing vegetation. As riparian systems adjust in response to the removal of vegetation or changes in hydrologic conditions, the availability of habitats required to fulfill the life history requirements of special status fish populations might be affected.

6.9.3 Effects on Special Status Species Common to All Alternatives

6.9.3.1 Effects from Physical Resources Management

Mining restrictions and working with landowners to prevent land degradation would protect habitats for special status species by minimizing habitat disturbance in localized areas. Cave protections would minimize disturbance to cave-dependent species, such as special status bats and invertebrates. These areas are localized and small-scale.

Riparian habitats would be protected from vegetation disturbance or removal by minimizing stream crossings, while water quality protections would maintain clean water, which would indirectly foster riparian vegetative health. The protections would directly affect special status fish and species that depend on aquatic habitat by maintaining habitat quality.

Promoting stream bank and shoreline stability would encourage establishment of riparian vegetation, which would increase potential habitat for riparian-dependent species, and increase riparian habitat connectivity within the New Melones Lake Area.

6.9.3.2 Effects from Natural Resources Management

Vegetation and fish and wildlife management actions would protect and improve vegetation, increase native plant communities and habitat connectivity, and reduce weeds within the New Melones Lake Area. This would provide improved habitats through increased plant diversity, improved plant community structure and composition, variety in age classes, weed control, soil stability, and a more natural fire regime. Further, these actions would create a greater area of potential habitat for special status species. Specific protections for serpentine-based species and wetland communities would benefit those special status species that rely on these habitats.

Under all alternatives, approved biological controls for invasive species would be specific to target species so there would be no direct effect on non-target species. Chemical weed treatments would be applied according to label directions and would follow established guidelines, BMPs, and SOPs for application. Chemical applications would also be designed to avoid effects on non-target species.

Special status species management actions would protect lands supporting special status species and often have effects similar to those from wildlife management actions. Further, special status species management would prevent activities that would lead to listing of species. Those protections, as well as encouraging dispersed recreation, would help prevent habitat fragmentation and disturbance to habitats, and would lower the likelihood of disturbing or harming special status species.

6.9.3.3 Effects from Lands, Transportation, and Access Management

Management of the New Melones Lake Area as a special use area would indirectly protect vegetation by establishing public use limits, special uses and other conditions, and restrictions and prohibitions on particular uses or activities. This would help to minimize direct disturbance to special status species or their habitats. Prohibiting OHV use on Reclamation lands, except in designated areas, would minimize vegetation removal and disturbance, as well as weed introduction and spread.

Use and construction of roads and trails could lead to direct mortality of special status plants and wildlife through accidental or intentional kills by vehicles, stress-related mortality caused by human and motorized vehicle presence, and intentional harassment by humans. In addition, these actions would result in effects on potential habitats, such as reduced vegetative cover and density, fragmentation, soil compaction and increased dust. The actual area of habitat lost to roads may be inconsequential, however, the fragmentation that results from roads, and the effects on individual species may be substantial.

Motorized vehicle users would introduce and spread noxious and invasive weed seeds from their vehicles, shoes, clothing, and recreational equipment, thus degrading potential habitats. Use of motorized vehicles in undisturbed and remote areas could distribute weed seeds into weed-free areas. These effects could decrease special status plant vigor and productivity and alter community plant composition. In addition, increased noise could disturb special status wildlife during biologically-sensitive periods. Localized disturbance to special status species habitat adjacent to roads could occur in these areas. Areas closed to vehicular travel would have the fewest effects. Road closures would increase habitat connectivity, provide buffer areas from disturbance, and allow habitats to restore.

Wildland fire would cause a range of effects to habitats and special status species depending on how actively certain areas are managed. Vegetation response to fire depends on the size, location, intensity, season, timing, and amount of precipitation, the preexisting plant community conditions, and the abundance of invasive weeds in the area. Fires have direct effects by changing the composition of the plant community, delaying plant succession, removing woody vegetation and plant litter, and directly killing special status species, particularly less mobile species, such as plants and small wildlife.

Wildland fires might burn with enough heat to kill soil organisms and root systems, resulting in diminished plant recruitment and growth rates, particularly for fire-sensitive species. This could reduce habitat value for special status species in affected areas.

Indirectly, wildland fires create an opportunity for the establishment or spread of invasive weeds. This is because fires remove aboveground vegetation, leaving burned areas more susceptible to invasive weeds. Some species of invasive weeds respond well to post-fire conditions and outcompete native species. In areas where invasive weeds occur or are in close proximity, wildland fire increases the likelihood of weed proliferation. Firefighters and their equipment might also introduce or spread invasive weeds. Some mechanical control activities disturb the soil surface and remove vegetation, creating an opportunity for the establishment or spread of invasive weeds.

Further, since fire retardants are composed largely of nitrogen and phosphorus fertilizers, they may encourage growth of some species, particularly weeds, at the expense of others, indirectly resulting in changes in community composition and species diversity. Differential growth may also influence herbivorous behavior; both insect and vertebrate herbivores tend to favor new, rapidly growing shoots.

However, wildfire suppression and creation of fuel breaks would prevent catastrophic wildfire that would reduce vegetation cover across large expanses, which could destroy habitats and kill or permanently displace special status species. Fuels management actions would help to reestablish native vegetative communities, thus providing for healthy, diverse habitats over the long term.

Eliminating and preventing trespass and unauthorized uses on New Melones lands would protect special status species' habitats, since unauthorized uses are more likely to damage or remove vegetation and introduce weeds. Further, unauthorized uses, such as OHV use, could disturb special status species through increased noise or harassment. Implementing controls would help to reduce disturbance to special status species and their habitats over large areas. Informing the public and working with others to prevent unauthorized uses would add to the effectiveness of this action. Together, these actions would protect special status species' habitats and minimize direct disturbance to species.

Rights-of-way remove vegetation on the footprint of the authorized facilities. Most of the footprints are localized and cover a small area, but rights-of-way tend to be linear and may stretch for miles. If disturbed areas are not properly reseeded with native vegetation, weeds could be introduced and spread over a large area. This would fragment potential or occupied special status species' habitats and potentially introduce noise and disruption in previously undisturbed areas.

Livestock grazing could be permitted in the future under all alternatives. If used properly, grazing can reduce fuel loads and invasive species, and increase desired plant populations to improve habitats. However, grazing can disturb habitats through direct vegetation removal, disturbance, or trampling, which would reduce vegetation health or, in the most extreme cases, kill special status species plants. Indirect effects from livestock grazing include soil compaction and increased potential for weed invasion and spread, which

could subsequently reduce vegetative health and vigor and alter the natural fire regime. In riparian areas, livestock grazing deteriorates stabilizing vegetation, erodes banks, and causes declines in water storage capacity and quality. To minimize effects, grazing plans would be required to ensure appropriate grazing management.

Under all alternatives, caves would be managed to minimize adverse effects on the special status species that rely on them, such as bats and invertebrates. Protecting these sensitive habitats would aid in the recovery of these species.

6.9.3.4 Effects from Cultural and Social Resources Management

In general, protections to cultural resources would prevent disturbance and fragmentation of habitats, providing for a more healthy and resilient community. Areas with cultural resources are generally small-scale and localized, thus limiting effects.

Promoting tourism to the New Melones Lake Area could increase effects to special status species, since more recreational users would increase the likelihood for noise disturbance, vegetation trampling, harassment, and vegetation removal, as well as habitat degradation through soil compaction and introduction of invasive species.

6.9.3.5 Effects from Recreation Management

Effects from recreation are likely to be widespread as activities are generally unsupervised and not well-monitored. Trails and other recreation areas concentrate effects from recreation, such as hiking, biking, and equestrian use, in certain areas, causing localized areas where habitats and species are affected by removal, noise, dust, displacement, disturbance, vegetation trampling, soil compaction, and increased potential for weed invasion and spread. Users could introduce noise or dust or could intentionally harass, disturb, or kill species. This could disturb species during biologically sensitive periods, which could indirectly affect reproduction or cause species to abandon areas containing key habitat components, important food sources, or suitable nesting areas. The stress inflicted on individual species may also deteriorate species health, which in turn could affect species reproduction and/or survivability. Areas closer to motorized vehicles, such as cars and motorboats, would experience more disturbance than those used for low-impact recreation, such as hiking and biking. However, trails and recreation areas indirectly prevent lands from unauthorized uses and widespread, uncontrolled damage and thus reduce habitat fragmentation within the New Melones Lake Area.

Under all alternatives, roads, trails, and access easements would be designed to minimize stream crossings and working on steep slopes. This would help to maintain stable vegetation and habitat for species, and minimize direct disturbance to special status species by vegetation removal or in-stream work.

Interpretive activities would help to increase appreciation for special status species and their habitats, and could minimize effects in the long term.

Reclamation would implement management actions to minimize effects on special status species from recreation, such as creating recreation management areas, managing according to the WROS, restricting activities in fish spawning areas, wetland and riparian areas, and designating trails to concentrate effects in certain locations. These actions

indirectly prevent unauthorized uses and widespread, uncontrolled damage and disturbance to special status species and their habitats, and thus reduce habitat fragmentation within the New Melones Lake Area. Further, Reclamation would work to directly protect habitats and special status species.

Conducting bat surveys would maintain accurate information on special status bat population numbers and locations within the New Melones Lake Area. This would help to effectively manage for these species when making planning decisions. Cave protections would have effects as described in Effects Common to All Alternatives from Physical Resources Management.

6.9.4 Effects on Special Status Species under Alternative A

6.9.4.1 Effects from Physical Resources Management

Seeking voluntary compliance for boat and visitor noise regulations would be less effective than requiring mandatory compliance. Noise could disturb special status wildlife, such as bats and birds – nesting birds in particular. Effects from noise would be similar to those described in Effects Common to All Alternatives from Recreation Management.

Alternative A would not expand access or interpretive activities in caves. This would minimize disturbance to cave-dependant species, such as special status bats or invertebrates.

6.9.4.2 Effects from Natural Resources Management

Implementing BMPs and SOPs during fire management would reduce effects on special status species habitats by giving some consideration to vegetation during fire management activities. This includes designing fuel breaks to consider resource objectives for vegetation management, minimizing disturbance to high erosion areas, and maintaining adequate grass and brush clearance near roads. A fire management plan would not be implemented under Alternative A. Compared with the other alternatives, Alternative A would be the least effective in protecting special status species and maintaining healthy special status species habitats during fire management activities.

Reseeding degraded areas with native seed would be the most effective way to reestablish native plant communities while minimizing soil erosion. Further, severe invasions of exotic plant species would be prevented under Alternative A. These actions would help to improve special status species habitats.

Under Alternative A, no new data on plant communities associated with serpentine soils would be collected. This could limit the effectiveness of long-term planning in those areas, particularly for serpentine-dependent special status plants.

Implementing the Interim Peoria Management Plan would largely minimize vegetation and noise disturbance in this area by limiting vehicular and human traffic, and by closing unauthorized trails. Reclamation would actively restore affected areas and would conduct environmental interpretation activities to increase awareness and appreciation of the natural resources. In all, these activities would lower habitat and noise disturbance, and

increase the number and health of native plants, thus helping to improve special status species' habitats.

Restricting and minimizing disturbance of fish spawning areas would protect special status fish and aquatic wildlife from disturbance in these areas.

Alternative A would protect federally-listed species and their habitats. This would help to prevent effects to federally-listed species within the New Melones Lake Area. Other special status species could receive protection where their habitats coincide with federally-listed species' habitats.

Conducting bird and bat inventories would maintain accurate information on special status species population numbers and locations. This would help to effectively manage for these species when making planning decisions, and could allow for species and habitat protection in the long-term.

A climbing management plan for the PWMA would be developed if effects on special status species are identified. This could allow for some effects on special status species, could mitigate effects and prevent some future effects.

Alternative A would consider permitting grazing in certain areas. Effects would be as described in Effects Common to All Alternatives from Lands, Transportation, and Access Management.

6.9.4.3 Effects from Lands, Transportation, and Access Management

Allowing right-of-way utility crossings would have effects as described in Effects Common to All Alternatives from Lands, Transportation, and Access Management. Weed control measures in the right-of-way terms and conditions could offset some effects, if fully implemented.

Using the outdated information and previous use trends in the allocation map of the Master Plan could lead to effects on special status species or their habitats because past conditions and management areas are different from current conditions.

Maintaining road closures in certain areas would reduce disturbance to special status species and their habitats caused by grazing, vehicles and human use, as described in Effects Common to All Alternatives from Lands, Transportation, and Access Management.

Allowing seaplane use at New Melones Lake could disturb special status species due to noise disturbance. Effects from noise would be similar to those described in Effects Common to All Alternatives from Recreation Management.

Managing the Westside and Bowie Flat Management Areas for conservation and existing trails and roads would minimize human presence and associated disturbances caused by human presence, such as those described in Effects Common to All Alternatives from Recreation Management.

Fire management and grazing management would have effects as described under Alternative A, Effects from Natural Resources Management.

6.9.4.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative A would be the same as those described in Effects Common to All Alternatives from Cultural and Social Resources Management.

6.9.4.5 Effects from Recreation Management

Keeping existing concessions would minimize future permanent removal of vegetation compared with the other alternatives that call for increased concessions and facilities. By complying with 43 CFR, Part 423, Reclamation would not allow certain activities, such as primitive camping or RV camping, in Rural Natural Management Areas. This would minimize disturbance to special status species and habitats caused by recreation activities, such as those described in Effects Common to All Alternatives from Recreation Management. Further, prohibition of OHV use would prevent noise disturbance, soil compaction, weed introduction or spread, and vegetation removal or trampling.

Minimizing disturbance of spawning areas would have effects as described under Alternative A, Effects from Natural Resources Management.

The current level of watercraft use would be maintained under Alternative A. This would cause disturbance to special status species where they occur in or near the water by changes in water turbidity and noise. Effects would be greater with motorized watercraft than with non-motorized watercraft.

Continued seaplane use at New Melones Lake would have effects as described under Alternative A, Effects from Lands, Transportation, and Access Management.

Management actions under Alternative A would promote the use of existing trails and unpaved roads for future trail systems. This would allow for some new trails to be developed, which would permanently remove vegetation and could disturb special status species or their habitats.

Development of a climbing management plan would have effects as described under Alternative A, Effects from Natural Resources Management.

Interpretive services under Alternative A would increase visitor awareness of special status species issues and would help prevent effects from human use, including noise, trampling of vegetation, small special status wildlife, and special status plants, vegetation removal, and weed introduction and spread.

6.9.5 Effects on Special Status Species under Alternative B

6.9.5.1 Effects from Physical Resources Management

Seeking voluntary compliance for noise regulations would have effects as described under Alternative A.

Expanding access to caves and providing additional interpretive activities in and/or near caves could disturb cave-dependent species, such as special status bats and invertebrates.

6.9.5.2 Effects from Natural Resources Management

Implementing the Fire Management Plan would provide a clear direction for fire management at New Melones and would be the most effective way to manage fire while protecting special status species and habitats. Measures under Alternative B that include consideration of special status species or habitats include designing fuel breaks to avoid sensitive habitats, Burned Area Stabilization and Emergency Response planning, using fire to meet vegetation goals, and maintaining adequate grass and brush clearance near roadsides. If achieved, these would improve special status species habitats by improving native plant community composition, structure, and diversity, such as within chaparral and oak woodland communities, reduce weeds, and protect native plant communities from a catastrophic fire that could cause long term and large scale destruction of native vegetation and directly kill special status species.

Invasive species prevention and treatment would be least effective under this alternative by not requiring native seed for reseeding and by preventing invasive species infestations only when it is inexpensive to do so. This could result in incomplete treatment of infestations and unsuccessful reestablishment of native communities. This could lead to degraded potential, or occupied, habitats for special status species.

Alternative B would manage a 66-acre parcel for an oak tree mitigation area. This would increase the amount and connectivity of habitat available to oak-woodland-dependent special status species.

Using existing data for long term planning would have effects as described under Alternative A.

Alternative B would be the least restrictive of activities within the PWMA by allowing seasonal vehicular use, enhancing wildlife watching opportunities, and allowing nonequestrian camping by certain organizations. Although protections would be similar to those described under Alternative A, Alternative B would cause some vegetation and noise disturbance resulting from increased recreational opportunities, as described in Effects Common to All Alternatives from Recreation Management. In addition, allowing seasonal vehicular access could increase hunting pressure, illegal target shooting, and the potential for wildfire in portions of the PWMA that would be more easily accessed, which could directly and indirectly affect special status species and their habitats.

Baseline Conservation Camp would have a larger footprint under Alternative B, which would cause permanent vegetation removal and would disturb a larger area of potential habitat for special status species.

Restricting and minimizing disturbance of fish spawning areas and protections for federally-listed special status species and their habitats would have effects as described under Alternative A.

Special status bird and bat inventories under Alternative B would have effects similar to those described under Alternative A. However, Alternative B would implement additional actions, such as maintaining, constructing, or modifying nesting structures, and collaborating with local organizations. These actions would help to improve special status species' habitats and would help to obtain more information on special status species at New Melones Lake for effective long-term planning.

Increased raptor interpretive activities under Alternative B could disturb those special status species that are very sensitive to human presence. This could alter species behavior and cause special status raptors to abandon roosts or nests.

Development of a climbing management plan in the PWMA would have effects as described under Alternative A.

Alternative B would consider permitting grazing in certain areas. Effects would be similar to those described in Effects Common to All Alternatives from Lands, Transportation, and Access Management.

6.9.5.3 Effects from Lands, Transportation, and Access Management

Lack of restrictions of right-of-way crossings would have effects as described under Alternative A.

Using an updated version of the land use allocation map would reflect new information and current uses. This would allow for more effective management of lands within the New Melones Lake Area, and would protect and manage for special status species and their habitats where they are known to occur.

Maintaining road closures in certain areas would have effects similar to those described under Alternative A. However, effects to special status species would be greater under Alternative B because certain areas would be reopened to public vehicles, allowing effects as described in Effects Common to All Alternatives from Lands, Transportation, and Access Management.

New roads could be constructed under Alternative B to obtain access to land-locked Reclamation property. Similarly, a road would be constructed to the Westside Management Area. This would cause permanent removal of vegetation and introduce human presence and vehicles where there were none previously. Effects would be the greatest of all alternatives and similar to those described in Effects Common to All Alternatives from Lands, Transportation, and Access Management. Further, recreation would increase, causing effects as described in Effects Common to All Alternatives from Recreation Management.

Allowing seaplane use would have effects as described under Alternative A.

Optimizing trail connectivity and trailhead development would permanently remove vegetation and introduce weeds. Further, it could compact soil and disturb native vegetation if off-trail activities were to occur. This would degrade potential or occupied habitat for special status species. Trails may be closed in certain areas, allowing for

restoration and revegetation with native plants. However, by providing more trail connections, Alternative B could prevent off-trail disturbance by users who want to access other trails and management areas.

Increasing the use of Bowie Flat Management Area would increase effects from human use and disturbance, as described in Effects Common to All Alternatives from Recreation Management.

Fire management, grazing management, and expansion of the Baseline Conservation Camp footprint would have effects as described under Alternative B, Effects from Natural Resources Management.

6.9.5.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative B would be the same as those described in Effects Common to All Alternatives from Cultural and Social Resources Management.

6.9.5.5 Effects from Recreation Management

Alternative B would allow for the greatest increase in concessions and facilities of all alternatives. Effects from these actions would be the greatest of all alternatives, by causing permanent removal of vegetation where facilities, concessions, and access roads would be constructed, increasing the potential for weed introduction and spread, and causing effects associated with an increase in recreational activities, such as noise, harassment to species, trampling of vegetation, and possible mortality of small special status wildlife and plants. Effects would be greater in Rural Natural Management Areas, where the amount of disturbance is currently lower than in Rural Developed Management Areas. Potential concessions and facilities with the greatest likelihood to cause effects on special status species include:

- Additional marina(s) and associated amenities;
- Construction of overnight lodging, food services, and new facilities for staging large events;
- Construction of a mountain bike course in a Rural Developed and/or Rural Natural Management Area;
- Seaplane training school;
- Equestrian trail riding business, outdoor adventure schools, primitive camping, and an RV campground in Rural Natural Management Area(s);
- Construction and operation of an OHV park; and
- Additional RC flying activities.

Alternative B would consider allowing more development associated with recreation in Rural Natural Management Areas to the point of changing the WROS designation to Rural Developed. This would increase disturbance caused by people and recreation, as described in Effects Common to All Alternatives from Recreation Management. Potential

actions and effects are contingent upon the results of the Commercial Services Plan and financial feasibility evaluation.

Minimizing disturbance of fish spawning areas would have effects as described under Alternative A.

Under Alternative B, Reclamation would allow an increased level of watercraft use, which would increase effects on special status species. Effects would be similar to, but greater than, those described under Alternative A.

Allowing continued seaplane use would have the same effects described under Alternative B, Effect from Lands, Transportation, and Access Management.

Promoting the use of existing trails and unpaved roads, as well as preparing a trail management plan that focuses on trail development and connectivity, would minimize additional disturbance to special status species, and their potential and occupied habitats, and would concentrate effects in designated areas. Alternative B would create the most trails of all alternatives, causing the greatest permanent effects to vegetation.

Development of a climbing management plan in the PWMA would have effects as described under Alternative A, Effects from Natural Resources Management.

Interpretive services under Alternative B would be expanded compared with Alternative A. Development of an Interpretive Master Plan would effectively and efficiently educate visitors regarding special status species and their habitats in the New Melones Lake Area, and would prevent effects as described under Alternative A.

6.9.6 Effects on Special Status Species under Alternative C

6.9.6.1 Effects from Physical Resources Management

Seeking mandatory compliance with noise regulations would be the most effective in minimizing effects to special status species from noise disruption, such as causing species to alter their behaviors or avoid certain areas.

Alternative C would provide the greatest protection to caves by controlling cave access and closing caves to interpretive activities. This would cause the least effects to cave-dependent special status species, compared to the other alternatives.

6.9.6.2 Effects from Natural Resources Management

Implementing the Fire Management Plan would have effects as described under Alternative B. However, Alternative C would be the most effective in protecting special status species and restoring habitats by requiring rehabilitation of all burn areas, protecting sensitive sites from damage by heavy equipment, retaining vegetation within fuel breaks, retaining mature oaks during fire management activities, and using buffer zones to protect riparian and wetland areas.

Invasive species prevention and treatment would be more effective under Alternative C by using herbicides at appropriate times, requiring reseeding with native seed, and by

restricting activities in certain areas. This would reduce weeds and increase native plant cover, which would lead to improved habitats for special status species.

Managing a 66-acre parcel of land for an oak tree mitigation area would have effects as described under Alternative B.

Alternative C would develop a full baseline survey for serpentine-dependent special status plants. This would allow for the most effective management for these species by having the most complete and up-to-date information available when making planning decisions.

Implementing the Interim Peoria Management Plan would have effects similar to those described under Alternative A. However, Alternative C would be more protective to special status species by closing the area to vehicles and camping, thus eliminating disturbance from these sources.

Reducing the Baseline Conservation Camp footprint would have the greatest reduction of habitat and special status species disturbance of all alternatives. This would allow native vegetation to reestablish in areas where the footprint has been reduced, and would provide more potential special status species habitat.

Alternative C would impose greater restrictions to activities in fish spawning areas, and would include more areas compared with Alternatives A and B. This would provide the greatest protection to special status fish and aquatic wildlife of all alternatives.

A greater number of special status species would be protected under Alternative C compared with Alternatives A and B, by conserving sensitive wildlife habitats and by restricting recreational uses during breeding periods. This would extend protection from federally-listed species to other sensitive species, such as state-listed species, birds of conservation concern, and CNPS-listed species. Further, Alternative C would implement the greatest protections and restrictions of all alternatives to minimize disturbance to special status raptors and bats. This alternative would be the most effective in conserving these species.

Development of a climbing management plan would be the most protective to special status species by preventing effects on special status species before they occur.

Alternative C would consider permitting grazing in certain areas. Effects would be similar to those described in Effects Common to All Alternatives from Lands, Transportation, and Access Management, although under Alternative C, BMPs would be implemented to protect water quality, which would also protect riparian vegetation.

6.9.6.3 Effects from Lands, Transportation, and Access Management

Future easements and rights-of-way would be avoided and minimized under Alternative C. Further, effects would be avoided by implementing applicable guidelines. This would reduce effects described in Effects Common to All Alternatives from Lands, Transportation, and Access Management.

Using a new land allocation map would have effects as described under Alternative B.

Maintaining road closures in certain areas would have effects as described under Alternative A.

Restricting seaplane access to New Melones Lake would reduce noise disturbance to special status species, and would minimize the effects from noise disturbance that are described in Effects Common to All Alternatives from Recreation Management.

Alternative C would allow access to the Westside Management Area by boat or hiking. This would keep effects on special status species low, because access would be restricted and land uses would be low-impact and non-vehicular. Still, increased human presence would disturb special status species as described in Effects Common to All Alternatives from Recreation Management.

Optimizing trail connectivity would have effects similar to those described under Alternative B. However, under Alternative C, Reclamation would not develop new trailheads, thus minimizing permanent removal of vegetation in these areas.

Use of Bowie Flat Management Area for hiking and equestrian uses would cause some effects from recreation as described in Effects Common to All Alternatives from Recreation Management. Effects would be less than those caused by motorized vehicle use.

Fire management, grazing management, and reduction of the Baseline Conservation Camp footprint would have effects as described under Alternative C, Effects from Natural Resources Management.

6.9.6.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative C would be the same as those described in Effects Common to All Alternatives from Cultural and Social Resources Management.

6.9.6.5 Effects from Recreation Management

There would be some increase in concessions and facilities under Alternative C. Effects would be similar to those described under Alternative B, but effects would be reduced because Alternative C would focus on low-impact, conservation-oriented activities, and fewer proposed developments. Potential concessions and facilities with the greatest likelihood to cause effects on special status species include:

- Additional marina(s),
- Construction of overnight lodging, and
- Equestrian trail riding business and outdoor adventure schools in Rural Natural Management Area(s).

Under Alternative C, Reclamation would aim to minimize future development in Rural Natural Management Areas, which would help to maintain undisturbed habitat for special

status species, and minimize disturbance caused by humans and increased recreation, such as those effects described in Effects Common to All Alternatives from Recreation Management.

Under Alternative C, Reclamation would impose the greatest restrictions on fish spawning areas, which would afford the greatest protection to special status fish and aquatic wildlife found in these areas.

Alternative C would decrease the number of watercraft allowed at New Melones Lake. Effects would be similar to, but less than, those described under Alternative A.

Restricting seaplane access would have effects as described under Alternative C, Effects from Lands, Transportation, and Access Management.

Under Alternative C, Reclamation would not develop additional trails and would prepare a trails management plan focusing on resource protection. These actions would have the greatest effect in protecting special status species from disturbance, compared with the other alternatives.

Development of a climbing management plan would have effects as described under Alternative C, Effects from Natural Resources Management.

Interpretive services under Alternative C would have effects similar to those described under Alternative B.

6.9.7 Effects on Special Status Species under Alternative D

6.9.7.1 Effects from Physical Resources Management

Effects from seeking voluntary compliance with noise regulations would be the same as those described under Alternative A.

Managing cave access and allowing interpretive activities in or near caves could cause some disturbance to cave-dependent special status species. Effects would be less than those described for Alternative B because Alternative D would not increase access to caves. Effects would be greater than Alternatives A and C, however, since interpretive activities would be allowed in caves.

6.9.7.2 Effects from Natural Resources Management

Effects from implementing the Fire Management Plan would be the same as those described under Alternative B. However, Alternative D would account for sensitive species and habitats during fire management activities, which would minimize potential effects to special status species. Further, Reclamation would revegetate moderate to large areas that have been affected by fire, and would retain mature oaks during fire management activities.

Reseeding with native seed, and preventing infestations of exotic species would have effects as described under Alternative A. Use of target-specific herbicides at the appropriate time of year would have effects as described under Alternative C.

Effects from managing a 66-acre parcel of land for an oak tree mitigation area would be the same as those described under Alternative B.

Effects from developing a full baseline survey of serpentine-dependent special status species would be the same as those described under Alternative C.

Effects from implementing the Interim Peoria Management Plan would be the same as those described under Alternative A.

If Reclamation allows the Baseline Conservation Camp footprint to expand, effects would be as described under Alternative B.

Alternative D would protect and minimize disturbance to fish spawning areas, causing effects similar to those described under Alternative A. However, Alternative D would provide greater protection by minimizing disturbance in more areas.

Effects from special status species and habitat protections would be the same as those described under Alternative C.

Management actions for special status raptor and bats would improve raptor habitats, and conduct inventories for special status bat species, which would have effects similar to those described under Alternative A.

Effects from the development of a climbing management plan would be the same as those described under Alternative A.

Alternative D would consider permitting grazing in certain areas. Effects would be similar to those described in Effects Common to All Alternatives from Lands, Transportation, and Access Management, but Alternative D would consider allowing grazing of recreation areas in certain circumstances. This could increase effects on vegetation in those areas.

6.9.7.3 Effects from Lands, Transportation, and Access Management

Avoiding or minimizing future easements and rights-of-way over Reclamation lands would have effects as described under Alternative C.

Using a new land allocation map would have effects as described under Alternative B.

Maintaining road closures would have effects similar to those described under Alternative A. There would be greater effects under Alternative D, since Reclamation would reopen previously closed areas, causing effects from vehicle use as described in Effects Common to All Alternatives from Lands, Transportation, and Access Management.

Creating new roads and access to land-locked Reclamation property would have effects as described under Alternative B.

Allowing seaplane access would have effects as described under Alternative A.

Alternative D would allow increased access to the Westside and Bowie Flat Management Areas similar to Alternative C. Effects from Alternative D could be greater due to additional recreational activities (biking and horseback riding) that would be allowed in these areas. This would attract more people to recreate in these areas, which would cause effects as described in Effects Common to All Alternatives from Recreation Management.

Optimizing trail connectivity and developing new trailheads would have effects as described under Alternative B.

Fire management, grazing management, and expanding the Baseline Conservation Camp footprint would have effects as described under Alternative D, Effects from Natural Resources Management.

6.9.7.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative D would be the same as those described in Effects Common to All Alternatives from Cultural and Social Resources Management.

6.9.7.5 Effects from Recreation Management

Alternative D would allow some increase in concessions and facilities, causing effects similar to those described under Alternative B. Effects would be less under Alternative D because fewer developments would be proposed. Effects would be greater than those under Alternatives A and C, since more developments would be proposed. Effects would be greater in Rural Natural Management Areas, where the amount of disturbance is currently lower than in Rural Developed Management Areas. Proposed actions and effects are contingent upon the results of the Commercial Services Plan and financial feasibility evaluation. Potential concessions and facilities with the greatest likelihood to cause effects on special status species include:

- Additional marina(s) and associated amenities;
- Construction of overnight lodging, food services, and new facilities for staging large events; and
- Equestrian trail riding business, outdoor adventure schools, and primitive camping in Rural Natural Management Area(s).

Under Alternative D, Reclamation would consider additional development to Rural Natural Management Areas, but not to the extent as proposed in Alternative B, where the WROS designation would be changed. Increased recreation and visitors would cause effects as described in Effects Common to All Alternatives from Recreation Management.

Minimizing disturbance to fish spawning areas would have effects as described under Alternative A.

Effects from increasing watercraft use would have effects as described under Alternative B.

Allowing seaplane use would have effects as described under Alternative D, Effects from Lands, Transportation, and Access Management.

Trails management actions would have effects similar to those described under Alternative B.

Developing a climbing management plan would have effects as described under Alternative D, Effects from Natural Resources Management.

Interpretive activities would have effects as described under Alternative B.

6.10 General Land Management

6.10.1 Introduction

General land management involves coordination, rights of use; trespass and unauthorized use; facilities, land use, and management areas; and utilities. This section describes potential impacts on general land management from Reclamation management actions and other resource uses. This analysis focuses on direct and indirect effects from actions that would improve or worsen general land management.

6.10.2 Methods of Analysis

6.10.2.1 Methods and Assumptions

Effects on general land management are determined through the consistency of proposed management actions with Reclamation's mission to manage, develop, and protect water, and related resources, in an environmentally and economically sound manner, in the interest of the American public. Effects are determined to be adverse if actions result in incompatible land uses.

The analysis is based on the following assumptions:

- Proposed activities that could not be mitigated would not be authorized;
- BMPS and SOPs would be implemented when necessary to implement changes in general land management;
- Applicable laws and regulations governing general land management would be enforced;
- No land use changes would occur that do not meet Reclamation's mission; and
- Expanding and improving the marina, adding a second marina, preserving natural areas, recognizing land use practices on surrounding lands, and addressing trespassing onto private lands surrounding the lake have been identified by adjacent, affected communities as important topics involving public lands (Bureau of Reclamation 2007d).

6.10.3 Effects on General Land Management Common to All Alternatives

6.10.3.1 Effects from Physical Resources Management

Reclamation would continue to restrict mining and material excavation within the study area, and coordinate with adjacent landowners and managers, to prevent degradation of Reclamation lands. Coordination with adjacent landowners and managers would continue to reduce potential conflicts in land use by neighboring land users. There would be no new effects.

Reclamation would continue to coordinate management of shared watersheds with neighboring landowners and agencies to protect ecological health and water quality. Coordination with adjacent landowners and managers would continue to reduce potential conflicts in land use by neighboring land users. There would be no new effects.

Trespass grazing would continue to be minimized by maintaining fence lines and posting signs. When trespass occurs, Reclamation would coordinate with local landowners and law enforcement to remove the animals. Minimizing trespass grazing would continue to minimize land use conflicts. There would be no new effects.

6.10.3.2 Effects from Natural Resources Management

There were no identified effects on general land management from natural resources management.

6.10.3.3 Effects from Lands, Transportation, and Access Management

Reclamation would continue the designation of the New Melones Lake Project as a Special Use Area, pursuant to 43 CFR, Part 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. Reclamation uses 43 CFR, Part 423 and subsequently established Special Use Area regulations to maintain law and order, and protect persons and property within the New Melones Lake Project. This would continue to ensure Reclamation-managed activities would be based on Reclamation's mission. There would be no new effects.

Land management actions pertaining to coordination and cooperative planning with applicable federal, state, and local agencies, private entities, and the public would continue to coordinate Reclamation-managed activities with adjacent and nearby land managers, thereby continuing to minimize land use conflicts. There would be no new effects.

Reclamation would continue to prohibit certain activities on federal land without a permit, per 43 CFR, Part 423, such as livestock grazing, OHV operation, and construction. This action would continue to ensure the use of Reclamation lands complies with Reclamation's mission. There would be no new effects.

Land management actions to prevent unauthorized use and trespass, enforce regulations related to unauthorized use and trespass, and resolve land ownership and jurisdictional uncertainties with other agencies when discrepancies are identified, would continue to preserve Reclamation lands for Reclamation-managed activities by minimizing the occurrence of illegal activities. There would be no new effects.

Under all alternatives, Reclamation would continue to do the following:

- Perform repairs or alterations on existing facilities necessary to comply with accessibility and public health and safety standards, such as the accessibility action plan;
- Update minimum basic facilities, such as parking and sanitation facilities, which, among other standards, needed to protect public health and safety, and protect water quality in all management areas, both Rural Developed and Rural Natural Management Areas; and
- Continue to operate and maintain current facilities and continue existing uses in all management areas. Unless otherwise specified.

This would continue to maintain facilities at standards acceptable for their designated use. There would be no new effects.

Reclamation would continue to forecast and plan for updating systems to coincide with future demands and regulatory requirements. Also, Reclamation would continue to conduct periodic review of utilities, maintain a long-term plan for maintenance, replacement, and updating of systems, and seek funding to address deferred maintenance of utilities. This would continue to maintain utilities at standards acceptable for their designated use. There would be no new effects.

Under all alternatives, Reclamation's public health and safety management would include the following:

- Providing staff levels and funding levels commensurate with recreation visitation in order to maintain the level and quality of services expected by the visitors to New Melones;
- Formulating project specific safety plans by Reclamation, or its agent, for individual operations and maintenance projects;
- Supporting primary emergency services by having rangers provide first response for medical, hazardous materials, search and rescue, and other emergencies at New Melones Lake;
- Developing appropriate educational opportunities on water, boating safety, and general boating etiquette;
- Ensuring, where necessary, adequate closure of unsafe or potentially hazardous areas (e.g., caves, old mine shafts, exposed steep areas, and high fire hazards areas) in compliance with closure procedures in 43 CFR, Part 423;

- Marking the tops of intermittent islands, large rock outcroppings, or other aquatic hazards with warning buoys per the New Melones Lake Waterway Hazard Marking Plan;
- Coordinating response to health and safety issues with local, state, and federal entities; and
- Encouraging Tuolumne and Calaveras Counties, CDFG, and BLM to monitor ongoing and reclaimed mining operations for compliance with permitting criteria.

These actions would continue to allow Reclamation lands to be used for their designated purpose by creating a safe environment for the public. There would be no new effects.

In addition, management actions for law enforcement and management controls, as well as coordination with applicable federal, state, and local agencies regarding law enforcement needs and activities, would continue to allow Reclamation lands to be used for their designated purpose by creating a safe environment for the public. There would be no new effects.

6.10.3.4 Effects from Cultural and Social Resources Management

There were no identified effects on general land management from cultural and social resources management.

6.10.3.5 Effects from Recreation Management

Under all alternatives, recreation management would include the following:

- Developing a long-term strategy that maintains and, wherever appropriate, optimizes the diversity of recreation and level of service found at New Melones Lake;
- Meeting visitor demand for specific recreation opportunities within the constraints of the existing infrastructure, while complying with existing applicable regulations, policies, laws, and funding;
- Continuing to update recreation management, where it supports Reclamation's mission, to accommodate trends in demographics and recreation interests of the potential visitor to New Melones Lake;
- Varying recreation activities to accommodate the diversity of potential visitors to New Melones Lake;
- Permitting special events when they support Reclamation's mission; and
- Exploring and, where appropriate, supporting concessionaire agreements with private enterprises to achieve needed recreational support services, programs, and facilities, and to disseminate Reclamation information.

These actions would continue to not allow conflicting land uses to occur and would not conflict with Reclamation's mission. There would be no new effects.

Under all alternatives, Reclamation would continue to do the following:

- Provide a recreation maintenance program that includes such components as potable water, sanitation, refuse management, landscape maintenance, building and facility repairs, waterway and hazard marking, and pest control;
- Restrict all public vehicles to designated roads, except as authorized under permit;
- Design roads, trails, and access easements to follow the natural topography, minimizing steep slopes and the number of stream crossings;
- Provide and maintain land and water-based toilets to minimize visitor exposure to unsanitary conditions; and
- Provide and maintain appropriate storage, transfer, containment, and disposal facilities for liquids, such as oil, solvents, antifreeze, and paints, at Reclamation and lessee facilities. Recycling of these materials would be encouraged.

These actions would continue to provide facilities in support of designated land uses. There would be no new effects.

Reclamation would continue to develop appropriate educational opportunities on water and boating safety. This would continue to allow Reclamation lands to be used for their designated purpose by creating a safe environment for the public. There would be no new effects.

Limiting land use activities within wetland and riparian buffer zones to prevent significant deterioration of wetland habitats, and promoting wildlife viewing and appropriate dispersed recreation would continue to not allow conflicting land uses to occur, and would not conflict with Reclamation's mission. There would be no new effects.

6.10.4 Effects on General Land Management under Alternative A

6.10.4.1 Effects from Physical Resources Management

Effects from physical resources management under Alternative A would be the same as those described in Effects Common to All Alternatives from Physical Resources Management.

6.10.4.2 Effects from Natural Resources Management

There were no identified effects on general land management from natural resources management.

6.10.4.3 Effects from Lands, Transportation, and Access Management

Implementing the wildlife management requirements included in the Baseline Conservation Camp lease would continue to coordinate Reclamation-managed activities with the Baseline Conservation Camp, thereby continuing to minimize land use conflicts. There would be no new effects.

Maintenance of right-of-way utility crossings would be coordinated with Reclamation before any land alterations. This action would continue to ensure the use of Reclamation lands complies with Reclamation's mission. There would be no new effects.

Reclamation would continue efforts to eliminate unpermitted grazing and water access on lands under its jurisdiction. This action would continue to ensure the use of Reclamation lands complies with Reclamation's mission. There would be no new effects.

Reclamation would continue to enforce Reclamation's OHV policy and regulation. This would continue to minimize land use conflicts. There would be no new effects.

Reclamation would continue using the existing land use allocation map in the Master Plan to manage land and water in the New Melones Lake Area. There would be no change to existing land use designations, which may result in user conflicts, given existing conditions. There would be no new effects.

Reclamation would continue to assess how lands contained within the New Melones Lake Area are being effectively used for project purposes. This would continue to inform Reclamation about the compatibility of designated and actual land uses. There would be no new effects.

6.10.4.4 Effects from Cultural and Social Resources Management

There were no identified effects on general land management from cultural and social resources management.

6.10.4.5 Effects from Recreation Management

With respect to the Commercial Services and Concessions topic in General Recreation, Reclamation would continue to maintain identified facilities, continue to provide identified services, and continue to prohibit identified activities. This includes, continuing to provide the marina concession services in its present location, and the RC flying facility in the PWMA, Peoria Flat subarea. Because these services, facilities, and activities would not change, there would be no change to the types of land use. There would be no new effects.

6.10.5 Effects on General Land Management under Alternative B

6.10.5.1 Effects from Physical Resources Management

Effects from physical resources management under Alternative B would be the same as those described in Effects Common to All Alternatives from Physical Resources Management.

6.10.5.2 Effects from Natural Resources Management

There were no identified effects on general land management from natural resources management.

6.10.5.3 Effects from Lands, Transportation, and Access Management

Implementing the wildlife management requirements included in the Baseline Conservation Camp would have the same effects as under Alternative A.

If funding becomes available, the Baseline Conservation Camp would be moved to the existing Equestrian Area, away from the Stanislaus River area of the PWMA. Reclamation would restore open areas, formerly used by Baseline Conservation Camp, to

natural habitat, leaving roads and specific facilities for future use. Reclamation would allow a larger or different footprint for Baseline Conservation Camp, if needed to accommodate updated facilities and uses. This action would continue to coordinate Reclamation-managed activities with Baseline Conservation Camp, thereby continuing to minimize land use conflicts. Also, it would consolidate Baseline Conservation Camp activities in one area, instead of being divided by the New Peoria Flat Road.

Continuing to assess how lands contained within the New Melones Lake Area are being effectively used for project purposes, and coordinating maintenance of right-of-way utility crossings before any land alterations, would have the same effects as under Alternative A.

Reclamation would continue efforts to eliminate unpermitted grazing and water access on lands under its jurisdiction. Also, in appropriate areas, and with an approved permit and grazing plan, Reclamation may allow grazing and stock watering as a means to control invasive plant species and to reduce fire danger. This action would continue to ensure the use of Reclamation lands complies with Reclamation's mission. Also, permitted and planned grazing would allow Reclamation to improve the management of its lands by using grazing activities to control invasive plant species and to reduce fire danger.

Reclamation would continue to enforce Reclamation's OHV policy and regulation, and could enter into a managing partner or concession agreement to construct facilities and operate an OHV park at PWMA, Westside, Bowie Flat, Greenhorn Creek, French Flat, and Bear Creek Management Areas. This would continue to minimize land use conflicts from unpermitted use, especially if a facility designated for OHV use is constructed. Also, Reclamation would convert land from its current use to an OHV park.

Reclamation would not use the existing land use allocation map in the Master Plan to manage land and water in the New Melones Lake Area. Reclamation would update land use allocation at New Melones Lake, as described in Table 2-1, Land Use, to reflect updated information, currently used management areas, and potential management from such sources as the WROS, carrying capacity study, and commercial services plan. This would convert land from its current use to more appropriate uses based on recreation studies and planning. It would also increase and decrease land use activities in certain areas.

If lands no longer serve project purposes, Reclamation would update management of those lands, such as disposal or transfer of those lands. This may change the designation of Reclamation lands to more appropriate uses and result in the loss of Reclamation lands to other land managers.

6.10.5.4 Effects from Cultural and Social Resources Management

There were no identified effects on general land management from cultural and social resources management.

6.10.5.5 Effects from Recreation Management

With respect to the Commercial Services and Concessions topic in General Recreation, Reclamation would construct additional facilities, provide additional services, and allow

additional activities under Alternatives B, C and D. Examples are constructing a wave attenuator in the marina location to minimize storm damage, constructing lodging facilities, developing a new RV park within Tuttletown or Glory Hole (or both), and developing a mountain bike course. Some of the facilities, services, and activities would be in undeveloped areas. Alternative B would have more new facilities, services, and activities than Alternatives C and D, and therefore the greatest effects would be expected under this alternative. Because the specific locations and feasibility of some of the proposed facilities, services, and activities have not been identified, the potential impacts on land use changes could vary in intensity. For example, land use designation may change, facilities and utilities infrastructure may increase, flora and fauna management plans may need revising, and recreation management areas may increase or decrease.

6.10.6 Effects on General Land Management under Alternative C

6.10.6.1 Effects from Physical Resources Management

Effects from physical resources management under Alternative C would be the same as those described in Effects Common to All Alternatives from Physical Resources Management.

6.10.6.2 Effects from Natural Resources Management

There were no identified effects on general land management from natural resources management.

6.10.6.3 Effects from Lands, Transportation, and Access Management

Implementing the wildlife management requirements included in the Baseline Conservation Camp would have the same effects as under Alternative A.

If funding becomes available, the Baseline Conservation Camp would be moved to the existing Equestrian Area away from the Stanislaus River area of the PWMA. Reclamation would restore open areas formerly used by Baseline Conservation Camp to natural habitat, leaving roads and specific facilities for future use. The Baseline Conservation Camp lease area would be removed from the PWMA, offsetting with equivalent or more acreage for wildlife mitigation adjacent to the PWMA in other areas. This action would continue to coordinate Reclamation-managed activities with the Baseline Conservation Camp, thereby continuing to minimize land use conflicts. Also, it would consolidate Baseline Conservation Camp activities in one area, instead of being divided by the New Peoria Flat Road.

Maintenance of right-of-way utility crossings would be coordinated with Reclamation before any land alterations. Also, Reclamation would avoid or minimize future easements and rights-of-way over Reclamation lands. As a condition of approval, new easements (e.g., roadways, electrical transmission lines, pipelines, structures, and facilities) must adhere to applicable guidelines to avoid potential operational and resource impacts. This action would continue to ensure the use of Reclamation lands complies with Reclamation's mission. Also, the condition of approval would hold new easement developers responsible for keeping Reclamation land in a condition appropriate for Reclamation's mission.

Effects from grazing management would be the same as under Alternative B.

Effects from enforcing Reclamation's off-road vehicles policy and regulation would be the same as under Alternative A.

Using an updated version of the land use allocation map would have the same effects as under Alternative B.

As under Alternative A, Reclamation would continue to assess how lands contained within the New Melones Lake Area are being effectively used for project purposes. This would continue to inform Reclamation about the compatibility of designated and actual land uses. There would be no new effects.

6.10.6.4 Effects from Cultural and Social Resources Management

There were no identified effects on general management from cultural and social resources management.

6.10.6.5 Effects from Recreation Management

With respect to the Commercial Services and Concessions topic in General Recreation, Reclamation would construct additional facilities, provide additional services, and allow additional activities under Alternatives B, C, and D. Examples include relocating the marina within the Glory Hole Recreation Area, but with a smaller footprint and/or seasonal operation to minimize storm damage, and constructing eco-friendly lodging. Some of the facilities, services, and activities would be in undeveloped areas. Alternative C would have fewer new facilities, services, and activities than Alternatives B and D, and therefore effects would be less under Alternative C as compared to B and D. Because the specific locations and feasibility of some of the proposed facilities, services, and activities have not been identified, the potential impacts on land use changes could vary in intensity. For example, land use designation may change, facilities and utilities infrastructure may increase, flora and fauna management plans may need revising, and recreation management areas may increase or decrease.

6.10.7 Effects on General Land Management under Alternative D

6.10.7.1 Effects from Physical Resources Management

Effects from physical resources management under Alternative D would be the same as those described in Effects Common to All Alternatives from Physical Resources Management.

6.10.7.2 Effects from Natural Resources Management

There were no identified effects on general land management from natural resources management.

6.10.7.3 Effects from Lands, Transportation, and Access Management

Implementing the wildlife management requirements included in the Baseline Conservation Camp would have the same effects as under Alternative A.

If funding becomes available, Baseline Conservation Camp would be moved to the existing Equestrian Area, away from the Stanislaus River area of the PWMA. Reclamation would restore open areas formerly used by Baseline Conservation Camp to natural habitat, leaving roads and specific facilities for future use. Reclamation would allow a larger or different footprint for Baseline Conservation Camp if needed to accommodate updated facilities and uses. The PWMA boundaries would be changed to exclude the Baseline Conservation Camp lease area, offsetting with equivalent or more acreage for wildlife mitigation adjacent to the PWMA in other areas. This action would continue to coordinate Reclamation-managed activities with Baseline Conservation Camp, thereby continuing to minimize land use conflicts. Also, it would consolidate Baseline Conservation Camp activities in one area, instead of being divided by the New Peoria Flat Road.

Management related to rights-of-way and easements would have the same effects as described under Alternative C.

Effects from grazing management would be the same as under Alternative B.

Effects from enforcing Reclamation's off-road vehicles policy and regulation would be the same as under Alternative A.

Using an updated version of the land use allocation map would have the same effects as under Alternative B.

As under Alternatives A and C, Reclamation would continue to assess how lands contained within the New Melones Lake Area are being effectively used for project purposes. This would continue to inform Reclamation about the compatibility of designated and actual land uses. There would be no new effects.

6.10.7.4 Effects from Cultural and Social Resources Management

There were no identified effects on general land management from cultural and social resources management.

6.10.7.5 Effects from Recreation Management

With respect to the Commercial Services and Concessions topic in General Recreation, Reclamation would construct additional facilities, provide additional services, and allow additional activities under Alternatives B, C, and D. Examples include relocating the marina within Glory Hole Recreation Area, with separate areas for private moorage and public rentals and services, constructing lodging, developing a new RV park within Tuttletown or Glory Hole (or both), and developing a mountain bike course. Some of the facilities, services, and activities would be in undeveloped areas. Alternative D would have more facilities, services, and activities than Alternative C, and fewer than Alternative B. Because the specific locations and feasibility of some of the proposed facilities, services, and activities have not been identified, the potential impacts on land use changes could vary in intensity. For example, land use designation may change, facilities and utilities infrastructure may increase, flora and fauna management plans may need revising, and recreation management areas may increase or decrease.

6.11 Access and Transportation

6.11.1 Introduction

The primary cause of effects on access and transportation at the New Melones Lake Area is from resource protection. The management actions that are implemented to protect natural resources such as wildlife, fisheries, water, public health and safety could result in permanent route restrictions or closures. The increase in land and aquatic recreation-based activities could expand the access and transportation.

6.11.2 Methods of Analysis

6.11.2.1 Methods and Assumptions

Potential effects on access and transportation from each alternative are based on interdisciplinary team knowledge of the resources and planning principles. Effects were identified using best professional judgment and were assessed according to the following assumptions:

- The demand for recreational use would continue to increase over the life of the plan;
- Recreational visits would continue to increase;
- The incidence of resource damage and conflicts among recreationists involved in mechanized, motorized, and non motorized activities would rise with the increasing use of project lands; and
- Anticipated increases would be concentrated in the activities of motorboating, fishing, swimming, hiking, mountain biking, camping and hunting.

6.11.3 Effects on Access and Transportation Common to All Alternatives

6.11.3.1 Effects from Physical Resources Management

Deterioration of the road and trail network from erosion would be minimized with the proper location and design of roads, trails and access easements to reduce impacts on steep slopes and minimize the number of stream crossings. This would minimize effects on the quality of access and transportation caused from the degradation of facilities.

The stabilization and construction of water bars on all unpaved roads and trails would minimize erosion that can lead to the deterioration of these facilities.

The confinement of all public vehicles to existing roadways, and continuing enforcement of the ban on OHVs would continue to limit motorized access to portions of the New Melones Lake Area.

Implementing a protection plan for caves with significant resource values or potential hazards would likely limit access to users.

6.11.3.2 Effects from Natural Resources Management

Measures implemented to protect vegetation, fish, wildlife, and special status species would affect transportation and access if routes were closed, or access was restricted, to protect sensitive resources. Avoiding or minimizing disturbance of native plant communities and sensitive habitats and species could affect planning of future roads and trails by influencing or prohibiting the location of routes.

6.11.3.3 Effects from Lands, Transportation, and Access Management

The confinement of all public vehicles to existing roadways and continuing enforcement of the ban on OHVs would continue to limit motorized access to portions of the New Melones Lake Area.

Reclamation would continue to restrict access to the New Melones Dam and Spillway Management Area. There would be no new effect.

Reclamation would continue to operate and maintain a system of recreation area access roads in the vicinity of the reservoir and maintain roads and parking facilities in compliance with appropriate regulations and guidelines. This would be a continuation of existing access conditions, and there would be no new effect.

6.11.3.4 Effects from Cultural and Social Resources Management

The location of new access routes could be affected by protective measures for cultural resources by limiting potential route corridors in order to avoid or minimize impacts on cultural resources.

6.11.3.5 Effects from Recreation Management

Designing new facilities and programs to incorporate universal design approach, and retrofitting existing facilities to provide access per ADA, would ensure adequate accessibility to these programs and facilities for all visitors.

6.11.4 Effects on Access and Transportation under Alternative A

6.11.4.1 Effects from Physical Resources Management

Continuing to close former roadways in Rural Developed Management Areas for public and resource protection could restrict access to portions of the New Melones Lake Area.

6.11.4.2 Effects from Natural Resources Management

Under, the Interim Management Plan for the PWMA, building trails in accordance with the trail plan would increase access to portions of the PWMA. Conversely, closing and restoring unauthorized trails could restrict access to portions of the PWMA. Vehicle access would remain closed year-round and there would be no new effect.

6.11.4.3 Effects from Lands, Transportation, and Access Management

Under Alternative A, the overlook facilities at Peoria Flat would remain closed, restricting access to this area. There would be no new effect.

Access to public vehicles would continue to be restricted by closing Old Parrotts Ferry Road, the PWMA, the Melones, French Flat, and Bear Creek Recreation Areas, and the

Westside, Bowie Flat, Greenhorn Creek, Carson Hill, Dam and Spillway, and Stanislaus River Canyon Management Areas. There would be no new effect.

The operation and maintenance of the substandard lake access routes and associated facilities in Glory Hole, Tuttletown, Mark Twain, Camp Nine, Parrotts Ferry, Stanislaus River Canyon, and Coyote Creek Management Areas would continue to provide visitor access to these areas; however, access to substandard facilities may be restricted for public health and safety purposes.

The continued operation and maintenance of fire roads and the trail system in Glory Hole, Greenhorn Creek and the Westside Management Areas would maintain the existing levels of accessibility to these areas. There would be no new effect.

Continuing to implement the existing seaplane policy would maintain the current level of seaplane access to New Melones Lake.

6.11.4.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative A would be the same as those described in Effects Common to All Alternatives from Cultural and Social Resources Management.

6.11.4.5 Effects from Recreation Management

Under Alternative A, trails management would be designed to keep visitor traffic in existing high use areas and maintain existing trails to accommodate additional use. These measures would be designed to provide for existing use patterns. Development of new routes would be limited. The size and number of existing trails may not be adequate to accommodate expected future increases in visitation to the New Melones Lake Area and existing trails could become congested, affecting the quality of trail access within the New Melones Lake Area.

6.11.5 Effects on Access and Transportation under Alternative B

6.11.5.1 Effects from Physical Resources Management

Expanding access to caves under Alternative B could encourage increased visitor access to cave resources.

Updating and improving former roadways in Rural Developed Management Areas to be used as lake access, and constructing modern boat launch and support facilities, would improve access to these areas and increase access for aquatic recreation activities.

6.11.5.2 Effects from Natural Resources Management

Building trails within the PWMA would increase access to portions of this management area. In addition, vehicle access would only be restricted from December 1 to May 1, therefore, the PWMA would be more accessible to most visitors the remainder of the year.

6.11.5.3 Effects from Lands, Transportation, and Access Management

Under Alternative B, if public safety concerns can be addressed, the overlook facilities at Peoria Flat would be reopened, which would restore visitor access to this area.

The closure of French Flat and Bear Creek Recreation Area; and the Westside, Bowie Flat, Greenhorn Creek, Carson Hill, Dam and Spillway, and Stanislaus River Canyon Management Areas to public vehicles would have the same effect as under Alternative A. However, the reopening of the Old Parrotts Ferry Road and Melones Recreation Area, and allowing public vehicle access to the PWMA from May 2 to November 30, would expand visitor access within the New Melones Lake Area.

The operation and maintenance of lake access routes and associated facilities at Glory Hole and Tuttletown and the updating and modernizing of lake access routes and associated facilities in the Mark Twain, Camp Nine, Parrotts Ferry, and Coyote Creek Management Areas would provide more improved visitor access compared to Alternative A.

Obtaining access and constructing roads within landlocked Reclamation property areas (Bowie Flat, Skunk Gulch, Grapevine Gulch and Melones Recreation Area) would expand visitor access within the New Melones Lake Area.

Continuing to implement the existing seaplane policy would have the same effects as under Alternative A. Under Alternative B, airspace could be restricted over portions of the New Melones Lake Area to protect public safety and critical infrastructure.

Under Alternative B, Reclamation could develop an access road to the Westside Management Area, which would provide motorized access to this area.

Optimizing the connectivity between the existing fire road and trail system in the Glory Hole, Greenhorn Creek and Westside Management Areas, and developing new trailheads to access Greenhorn Creek and the Westside areas would enhance access for visitors and fire management personnel compared to Alternative A.

6.11.5.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative B would be the same as those described in Effects Common to All Alternatives from Cultural and Social Resources Management.

6.11.5.5 Effects from Recreation Management

Recreation use and new recreational facilities would be the greatest under Alternative B. Increased visitation due to new recreational facilities would increase the use of roads and trails and would increased the demand for new routes.

Redevelopment of trails, new trail development, and optimizing trails connectivity would be designed to expand and improve visitor access, provide for multi-use, and to accommodate additional use. This would increase the number of trails and potential uses of trails within the New Melones Lake Area, providing additional access opportunities for visitors.

6.11.6 Effects on Access and Transportation under Alternative C

6.11.6.1 Effects from Physical Resources Management

Restricting and, in some cases, eliminating access to caves under Alternative C would reduce visitor access to cave resources.

Continuing to close former roadways in Rural Developed Management Areas for public and resource protection would have the same effects as under Alternative A. In addition, restricting or reducing vehicle use within Semi-Primitive and Rural Natural Management Areas could limit visitor access to these areas.

6.11.6.2 Effects from Natural Resources Management

Under Alternative C, the PWMA would be closed to public vehicle use, eliminating visitor vehicle access to this area.

6.11.6.3 Effects from Lands, Transportation, and Access Management

As under Alternative A, the overlook facilities at Peoria Flat would remain closed, restricting access to this area. There would be no new effect.

The closure of Old Parrotts Ferry Road; the PWMA; the Melones, French Flat, and Bear Creek Recreation Areas; and the Westside, Bowie Flat, Greenhorn Creek, Carson Hill, Dam and Spillway, and Stanislaus River Canyon Management Areas to public vehicles would have the same effects as under Alternative A.

As under Alternative A, the operation and maintenance of the substandard lake access routes and associated facilities in Glory Hole, Tuttletown, Mark Twain, Camp Nine, Parrotts Ferry, and Stanislaus River Canyon Management Areas would continue to provide visitor access to these areas; however, access to substandard facilities may be restricted for public health and safety purposes.

Effects from the updating and modernizing of Camp Nine Road and Parrotts Ferry Road at Natural Bridges would be the same as under Alternative B.

Under Alternative C, seaplane access to New Melones Lake would be restricted. In addition, designated no-fly zones near critical infrastructure would be increased and enforced, except for fire-fighting, emergency, and military operations.

Under Alternative C, Reclamation would allow access to the Westside Management Area via hiking or boat; however, these may not be viable forms of access for all visitors.

Effects from optimizing the connectivity between the existing fire road and trail system in the Glory Hole, Greenhorn Creek and Westside Management Areas would be the same as under Alternative B.

6.11.6.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative C would be the same as those described in Effects Common to All Alternatives from Cultural and Social Resources Management.

6.11.6.5 Effects from Recreation Management

Recreation use and new recreational facilities would increase under Alternative C, but less than under Alternatives B and D. Effects from increased visitation due to new recreational facilities would be similar but somewhat less than under Alternatives B and D.

Only maintaining existing trails and not developing new trails would limit visitor access opportunities within the New Melones Lake Area. Considering multi-use in trail redevelopment and optimizing trail connectivity would make trails available to more uses and expand access within the New Melones Lake Area, but less than under Alternative B.

6.11.7 Effects on Access and Transportation under Alternative D

6.11.7.1 Effects from Physical Resources Management

Updating and improving former roadways in Rural Developed Management Areas would improve user access to Mark Twain, Parrott's Ferry, and Melones Recreation Areas which could allow for continued, and potentially expanded, visitor access to these areas. Effects from restricting or reducing vehicle use within Semi-Primitive and Rural Natural Management Areas would be the same as under Alternative C.

6.11.7.2 Effects from Natural Resources Management

Implementing the Interim Management Plan for the PWMA would have the same effects as described under Alternative A.

6.11.7.3 Effects from Lands, Transportation, and Access Management

Under Alternative D, the overlook facilities at Peoria Flat would remain closed, as under Alternatives A and C; however, public access to the overlook would be provided through guided tours.

The closure of the PWMA; Melones, French Flat, and Bear Creek Recreation Areas; as well as the Westside, Bowie Flat, Greenhorn Creek, Carson Hill, Dam and Spillway, and Stanislaus River Canyon Management Areas to public vehicles would have the same effect as under Alternative A. The reopening of the Old Parrotts Ferry Road would expand visitor access within the New Melones Lake Area; however, this would provide less expanded access than Alternative B.

Effects from the operation and maintenance of lake access routes and associated facilities at Glory Hole and Tuttletown and the updating and modernizing of lake access routes and associated facilities in the Mark Twain, Camp Nine, Parrotts Ferry, and Coyote Creek Management Areas would be the same as under Alternative B.

Continuing to implement the existing seaplane policy would have the same effects as under Alternative A. As under Alternative B, airspace could be restricted over portions of the New Melones Lake Area for public safety and to protect critical infrastructure.

Effects from obtaining access and constructing roads within landlocked Reclamation property areas (Bowie Flat, Skunk Gulch, Grapevine Gulch and Melones Recreation Area) would be the same as under Alternative B.

The effects on accessibility from optimizing the connectivity between the existing fire road and trail system in the Glory Hole, Greenhorn Creek and the Westside Management Areas and developing new trailheads to access Greenhorn Creek and the Westside areas would be similar to Alternative B.

Under Alternative D, Reclamation would allow access to the Westside Management Area via hiking, horseback, or boat; however, these may not be viable forms of access for all visitors.

6.11.7.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative D would be the same as those described in Effects Common to All Alternatives from Cultural and Social Resources Management.

6.11.7.5 Effects from Recreation Management

Recreation use and new recreational facilities would increase under Alternative D, but less than under Alternatives B. Effects from increased visitation due to new recreational facilities would be similar but somewhat less than under Alternative B.

Effects from trails management would be similar to Alternative B.

6.12 Public Health and Safety

6.12.1 Introduction

Public health and safety issues involve recreation activities, use permits, special events, concessionaire agreements, boating, caves, abandoned mines, illegal dumping and drug manufacturing, and public services (Park Rangers, law enforcement, fire protection, and medical attention). This section describes potential effects on public health and safety from management actions and other resource uses. This analysis focuses on direct and indirect effects from actions that would improve or worsen public health and safety.

6.12.2 Methods of Analysis

6.12.2.1 Methods and Assumptions

Effects on public health and safety are determined through the consistency of proposed management actions with Reclamation's mission to manage, develop, and protect water and related resources in an environmentally and economically sound manner, in the interest of the American public. Effects are determined to be adverse if actions create situations that are unhealthy or unsafe for the public.

The analysis is based on the following assumptions:

- Proposed activities that could not be mitigated would not be authorized;
- BMPs and SOPs would be implemented when necessary to protect public health and safety;
- Proposed regulation of activities would be fully enforced;
- Reclamation provides that staff levels be commensurate with recreation visitation. This is to fully implement policies and management actions and to maintain the level and quality of safety and services expected by visitors to the New Melones Lake area.
- Compliance with applicable laws and regulations governing public health and safety would improve public health and safety; and
- Increasing law enforcement, increasing the presence of law enforcement personnel, improving safety around firearms, increasing safety around water, improving wildfire safety, and reducing illegal drug activity have been identified by adjacent, affected communities as important values on public lands (Bureau of Reclamation 2007d). The importance of public health and safety is expected to increase in value to residents and visitors over the life of the RMP.

6.12.3 Effects on Public Health and Safety Common to All Alternatives

6.12.3.1 Effects from Physical Resources Management

A protection plan for caves with significant resource value or potential hazards could continue to be implemented, as needed. This would continue to provide public protection by allowing cave visits to occur when conditions are safe. There would be no new effects.

In all Rural Developed and Rural Natural Management Areas, Reclamation would continue to update minimum basic facilities, such as parking and restrooms. This would continue to provide public protection by providing appropriate infrastructure for acceptable recreation in these areas. There would be no new effects.

Reclamation would continue to prohibit dumping of any kind on Reclamation lands or in water. This would continue to provide public protection by keeping the public from coming into contact with dumped material, which may contain dangerous substances. There would be no new effects.

Reclamation would continue to confine all public vehicles to existing roadways and continue to enforce bans on OHV operation. This would continue to provide public protection by keeping OHVs out of areas where the public is not expecting or prepared to encounter OHVs. There would be no new effects.

Reclamation would continue to respond immediately to any hazardous waste problems discovered on Reclamation lands to minimize water quality degradation, per RCRA and other applicable regulations. This would continue to provide public protection by

minimizing the potential for the public to come into contact with hazardous waste. There would be no new effects.

6.12.3.2 Effects from Natural Resources Management

The CDFG would continue to be encouraged to monitor and enforce rules and regulations related to hunting and fishing. Enforcement of the rules and regulations would continue to provide public protection by minimizing illegal hunting activities. There would be no new effects.

Except when snags present a safety hazard, Reclamation would continue to leave dead trees in the reservoir to provide fish habitat. This would continue to provide public protection by minimizing the potential for dead trees to damage boats used during recreation. There would be no new effects.

6.12.3.3 Effects from Lands, Transportation, and Access Management

Reclamation would continue the designation of the New Melones Lake Project as a Special Use Area, pursuant to 43 CFR, Part 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, Part 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. This would continue to provide public protection by ensuring appropriate use of Reclamation lands and facilities. There would be no new effects.

Reclamation would continue to coordinate with applicable entities (such as Pacific Gas and Electric, Calaveras County Water Agency, Calaveras County, BLM, USFWS, and CDFG), and appropriate private entities to develop measures to maintain effective management, and decrease negative activities along Camp Nine Road. Measures would address issues such as safety, access, recreational shooting, and the potential disturbance of vegetation, soils, and geologic features. This would continue to provide public protection by increasing road and driving safety in this area. There would be no new effects.

Reclamation would continue to restrict access of inmates beyond the leased area at Baseline Conservation Camp. This would continue to provide public protection by maintaining a buffer between inmates and the recreating public. There would be no new effects.

Reclamation would continue to prohibit certain activities on federal land without a permit, per 43 CFR, Part 423, such as livestock grazing, OHV operation, and construction. This would continue to provide public protection by minimizing the potential for the public coming into contact with individuals conducting illegal activities. There would be no new effects.

Land management actions to prevent unauthorized use and trespass, enforce regulations related to unauthorized use and trespass, and resolve land ownership and jurisdictional uncertainties with other agencies, when discrepancies are identified, would continue to provide public protection by minimizing the potential for the public coming into contact with individuals conducting illegal activities. There would be no new effects.

Reclamation would continue to perform repairs and alterations on existing facilities necessary to comply with accessibility and public health and safety standards, such as the accessibility action plan. Also, in all management areas, both Rural Developed and Rural Natural Management Areas, Reclamation would continue to update minimum basic facilities, such as parking and sanitation facilities. This would continue to provide public protection by providing appropriate infrastructure for acceptable recreation in these areas. There would be no new effects.

Reclamation would continue to restrict public access to and enforce a no trespassing zone within the New Melones Dam and Spillway Management Area. The Spillway would continue to be a no trespassing area. The restricted access zone includes the New Melones power plant and outlet works, Stanislaus River downstream to the buoy line, the Visitor Overlook, and the area leased to the California Division of Forestry for Baseline Conservation Camp. To protect public health and safety, these areas are closed to public vehicles, hunting, and fishing. This would continue to provide public protection by restricting access to unsafe areas. There would be no new effects.

Under all alternatives, Reclamation would continue to do the following:

- Provide staff levels and funding levels commensurate with recreation visitation in order to maintain the level and quality of services expected by the visitors to New Melones;
- Formulate project specific safety plans, by Reclamation or its agent, for individual operations and maintenance projects;
- Support primary emergency services by having rangers provide first response for medical, hazardous materials, search and rescue, and other emergencies at New Melones Lake;
- Develop appropriate educational opportunities on water, boating safety, and general boating etiquette;
- Ensure adequate closure, where necessary, of unsafe or potentially hazardous areas (e.g., caves, old mine shafts, exposed steep areas, and high fire hazards areas) in compliance with closure procedures in 43 CFR, Part 423;
- Mark the tops of intermittent islands, large rock outcroppings, or other aquatic hazards with warning buoys per the New Melones Lake Waterway Hazard Marking Plan;
- Coordinate response to health and safety issues with local, state, and federal entities; and

- Encourage Tuolumne and Calaveras Counties, CDFG, and BLM to monitor ongoing and reclaimed mining operations for compliance with permitting criteria.

This would continue to provide public protection by fostering existing Reclamation public health and safety actions. There would be no new effects.

Reclamation would continue to do the following:

- Address illegal activities in all management areas through continued law enforcement presence, management controls such as gates and visiting hours, signs, and education;
- Implement a long-term strategy for effective law enforcement at New Melones Lake by cooperating with local, state, and federal agencies;
- Maintain working relationships and oversee contracts with Tuolumne and Calaveras Counties to provide law enforcement services. Work to increase law enforcement presence through patrols, public affairs, and other feasible means; and
- Develop a strong partnership with CDFG to increase communication, leading to more effective enforcement of the appropriate regulations under the Clean Water Act and the Fish and Game Code of California.

This would continue to provide public protection by keeping existing Reclamation law enforcement actions. There would be no new effects.

6.12.3.4 Effects from Cultural and Social Resources Management

There were no identified effects on public health and safety from cultural and social resources management.

6.12.3.5 Effects from Recreation Management

Reclamation, in coordination with the BLM, would continue to implement a strategy to prevent illegal activities and public trespass, in addition to a proper stock handling program, at the French Flat management area, and would continue to support and expand boating law enforcement services from Tuolumne and Calaveras counties. This would continue to provide public protection by minimizing the potential for the public coming into contact with individuals conducting illegal activities, and by ensuring boating activities do not create unsafe situations. There would be no new effects.

Reclamation would continue to provide a recreation maintenance program that includes such components as potable water, sanitation, refuse management, landscape maintenance, building and facility repairs, waterway and hazard marking, and pest control. Reclamation would continue to restrict all public vehicles to designated roads, except as authorized under permit. This would continue to provide public protection by keeping public vehicles and boats away from unsafe situations. There would be no new effects.

Reclamation would continue to provide first response for medical, hazardous materials, search and rescue, and other emergencies in support of primary emergency services at New Melones Lake, and would continue to provide public education on natural resources, cultural resources, public safety, invasive species, and Reclamation's mission. This would continue to provide public protection by providing services for responding to emergencies, and providing educational outreach to prevent emergency situations from occurring. There would be no new effects.

Reclamation would continue to develop appropriate educational opportunities on water and boating safety. This would continue to provide public protection by providing educational outreach to prevent emergency situations from occurring. There would be no new effects.

Except when snags present a safety hazard, Reclamation would continue to leave dead trees in the reservoir to provide fish habitat. This would continue to provide public protection by minimizing the potential for dead trees to damage boats used during recreation. There would be no new effects.

Reclamation would continue to mark the tops of intermittent islands, large rock outcroppings, or other aquatic hazards with warning buoys per the New Melones Lake Waterway Hazard Marking Plan. This would continue to provide public protection by minimizing the potential for aquatic hazards to damage boats. There would be no new effects.

Reclamation would provide information to visitors on hunting opportunities and restrictions through signs, maps, visitor contact, and other media. This would continue to provide public protection by educating hunters about safe hunting practices. There would be no new effects.

A protection plan for caves with significant resource value or potential hazards could continue to be implemented, as needed. This would continue to provide public protection by allowing cave visits to occur when conditions are safe. There would be no new effects.

6.12.4 Effects on Public Health and Safety under Alternative A

6.12.4.1 Effects from Physical Resources Management

Effects from physical resources management under Alternative A would be the same as those described in Effects Common to All Alternatives from Physical Resources Management.

6.12.4.2 Effects from Natural Resources Management

Effects from natural resources management under Alternative A would be the same as those described in Effects Common to All Alternatives from Natural Resources Management.

6.12.4.3 Effects from Lands, Transportation, and Access Management

Implementing the wildlife management requirements included in the Baseline Conservation Camp lease would continue to coordinate Reclamation-managed activities

with the Baseline Conservation Camp, thereby continuing to keep inmates and the public apart. There would be no new impacts.

Reclamation would continue to enforce Reclamation's OHV policy and regulation, which states that all Reclamation lands are closed to off-road vehicles, except for those areas specifically designated for such use (43 CFR, Part 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, Part 420, vehicular access is allowed to fire, emergency, or law enforcement vehicles, and for officially designated purposes,. This would continue to provide public protection by minimizing the potential for the public coming into contact with individuals conducting unauthorized activities. There would be no new effects.

Reclamation would continue closure of overlook facilities (parking, restroom, picnic area) at Peoria Flat. This would continue to provide public protection by keeping the public from unsafe areas, such as the hazardous road at Peoria Flat. There would be no new effects.

Unless expressly prohibited, hunting would continue to be allowed on Reclamation lands or waters, except within 150 yards (135 meters) of any designated recreation area, facility, campground, day use area, boat ramp, parking area, neighboring residence, or Camp Nine's two power plants. This would continue to provide public protection by requiring hunting activities only in areas separate from non-hunting activities. Conflicts between hunters and non-hunters, however, would be expected to continue. There would be no new effects.

Reclamation would continue the existing working relationships and contracts with Tuolumne and Calaveras Counties to provide law enforcement services, which are based on patrols and dispatch from the respective county sheriff station. This would continue to provide public protection by maintaining law enforcement services. Slow response times from Tuolumne and Calaveras Counties law enforcement, however, are expected to continue. There would be no new effects.

Reclamation would continue to implement project-wide BMPs to reduce fire danger and respond to wildland fires. This would continue to provide public protection by limiting the public's exposure to unsafe situations involving fire. There would be no new effects.

6.12.4.4 Effects from Cultural and Social Resources Management

There were no identified effects on public health and safety from cultural and social resources management.

6.12.4.5 Effects from Recreation Management

Reclamation would continue to address ongoing safety concerns, and prohibit specific uses of the water surface by continuing to require the following measures:

- No-ski zones in the Camp Nine, and Stanislaus River Canyon areas,
- No-wake zones 200 feet (60 meters) from the launch and marina,

- No boating in designated swimming areas,
- No-swimming zone within the marina,
- No-swimming zones within 100 feet (30 meters) of launch ramps or docks, and
- No fishing off of docks unless otherwise permitted.

This would continue to provide public protection by keeping incompatible activities apart. Other incompatible aquatic activities, however, would continue to occur. There would be no new effects.

Reclamation would continue to maintain designated swimming areas, which would be buoyed off and closed to incompatible uses. This would continue to provide public protection by keeping incompatible activities apart. Other incompatible aquatic activities involving swimming elsewhere, however, would continue to occur. There would be no new effects.

Pathways would continue to be three feet (one meter) wide, with a stabilized aggregate surface, and would generally follow the natural contours of the land. Due to the composition of the trails, this could continue to make certain trails unsafe for use by people with disabilities. There would be no new effects.

Unless expressly prohibited, hunting would continue to be allowed on Reclamation lands or waters, except within 150 yards (135 meters) of any designated recreation area, facility, campground, day use area, boat ramp, parking area, neighboring residence, or Camp Nine's two power plants. This would continue to provide public protection by requiring hunting activities in areas separate from non-hunting activities. Conflicts between hunters and non-hunters, however, are expected to continue. There would be no new impacts.

All concessionaires would continue to provide interpretation and public education to visitors such as water safety and boating rules. This would continue to provide public protection by educating visitors about safe recreation practices. There would be no new effects.

6.12.5 Effects on Public Health and Safety under Alternative B

6.12.5.1 Effects from Physical Resources Management

Effects from physical resources management under Alternative B would be the same as those described in Effects Common to All Alternatives from Physical Resources Management.

6.12.5.2 Effects from Natural Resources Management

Effects from natural resources management under Alternative B would be the same as those described in Effects Common to All Alternatives from Natural Resources Management.

6.12.5.3 Effects from Lands, Transportation, and Access Management

Implementing the wildlife management requirements included in the Baseline Conservation Camp would have the same effects as under Alternative A.

If funding becomes available, the Baseline Conservation Camp would be moved to the existing Equestrian Area away from the Stanislaus River area of the PWMA. Reclamation would restore open areas formerly used by Baseline Conservation Camp to natural habitat, leaving roads and specific facilities for future use. Reclamation would allow a larger or different footprint for Baseline Conservation Camp, if needed to accommodate updated facilities and uses. This action would continue to coordinate Reclamation-managed activities with Baseline Conservation Camp, thereby continuing to keep inmates and the public apart. Also, it would consolidate Baseline Conservation Camp activities in one area, instead of being divided by the New Peoria Flat Road, allowing Corrections to fence the property or install other measures to secure the property without affecting Reclamation.

Reclamation would continue to enforce Reclamation's OHV policy and regulation, and would enter into a managing partner or concession agreement to construct facilities and operate an OHV park. Locations to be considered may include PWMA, Westside, Bowie Flat, Greenhorn Creek, French Flat, and Bear Creek Management Areas. This would continue to provide public protection by minimizing the potential for the public coming into contact with individuals conducting unauthorized activities. Also, Reclamation would provide unauthorized OHV activities a designated site for the lawful conduct of those activities.

If public health, safety and security concerns can be addressed, Reclamation would reopen the overlook facilities at Peoria Flat. Since the area would not be reopened until all public health, safety and security concerns are addressed, there would be no effects to public health and safety.

Effects from hunting management would be the same as described under Alternative A.

As part of the working relationships with Tuolumne and Calaveras Counties, Reclamation would explore the feasibility of siting a sheriff substation with lake access to each county, which would decrease the response time for a sheriff to respond to disturbances in the New Melones Lake Area. This would increase public protection by providing law enforcement services closer to New Melones.

Reclamation would implement the Fire Management Plan (Appendix D). This would increase public protection, as compared to Alternative A, by implementing more current fire management methods.

6.12.5.4 Effects from Cultural and Social Resources Management

There were no identified effects on public health and safety from cultural and social resources management.

6.12.5.5 Effects from Recreation Management

Reclamation would implement additional lake zones to protect public safety. For example, Reclamation would designate additional swimming areas, and areas appropriate for nonmotorized boating, houseboats, and seaplanes. Zones may include, but would not be limited to, designated areas of Greenhorn Creek, Glory Hole, Coyote Creek, Parrotts Ferry, Tuttletown, French Flat, Mark Twain, Stanislaus River Canyon, and Camp Nine Management Areas. Additional float docks (to be used for swimming and fishing), and floating campsites could also be constructed under this alternative. This would increase public protection by assessing growing, incompatible aquatic activities, and then establishing boundaries to keep the activities apart.

Reclamation would designate additional water play areas, which would be safe for swimming, and close those areas to incompatible uses. This would increase public protection by assessing growing, incompatible aquatic activities involving swimming, and then establishing boundaries to keep the activities apart.

Reclamation would prepare and implement a trails management plan that optimizes connectivity and multiple uses of trails, including ADA-compliant trails where appropriate. Reclamation would consider improvements for safety, sanitation, and better access, such as connection of the lower bridge at Natural Bridges to the rest of the trail system. This would increase public protection by making certain trails safer for use by people with disabilities.

Effects from hunting management would be the same as under Alternative A.

All concessionaires could provide expanded interpretation and public education as appropriate, and in conjunction with the Interpretive Master Plan. In addition, Reclamation would develop concessionaire contracts and partnerships specifically to provide interpretive services. These contracts could include a variety of programs ranging from activities based education, such as boating safety, to natural and cultural resource based education, such as the history, prehistory, and ecology of the New Melones Area. This would increase public protection by providing additional opportunities promoting safe recreation practices.

6.12.6 Effects on Public Health and Safety under Alternative C

6.12.6.1 Effects from Physical Resources Management

Effects from physical resources management under Alternative C would be the same as those described in Effects Common to All Alternatives from Physical Resources Management.

6.12.6.2 Effects from Natural Resources Management

Effects from natural resources management under Alternative C would be the same as those described in Effects Common to All Alternatives from Natural Resources Management.

6.12.6.3 Effects from Lands, Transportation, and Access Management

Implementing the wildlife management requirements included in the Baseline Conservation Camp would have the same effects as under Alternative A.

If funding becomes available, Baseline Conservation Camp would be moved to the existing Equestrian Area, away from the Stanislaus River area of the PWMA. Reclamation would restore open areas, formerly used by Baseline Conservation Camp, to natural habitat, leaving roads and specific facilities for future use. The Baseline Conservation Camp lease area would be removed from the PWMA, offsetting with equivalent or more acreage for wildlife mitigation adjacent to the PWMA in other areas. This action would continue to coordinate Reclamation-managed activities with Baseline Conservation Camp, thereby continuing to keep inmates and the public apart. Also, it would consolidate Baseline Conservation Camp activities in one area, instead of being divided by the New Peoria Flat Road, allowing Corrections to fence the property or install other measures to secure the property without affecting Reclamation.

Effects from enforcing Reclamation's off-road vehicles policy and regulation would be the same as under Alternative A.

Effects on public health and safety associated with overlook facilities (parking, restroom, picnic area) at Peoria Flat would be the same as under Alternative A.

To protect health and safety, Reclamation would develop and implement a long-term strategy for managing hunting as visitation and urban development increase. This policy may include restrictions to meet management goals, such as compliance with California Fish and Game code, as well as other applicable regulations, such as EO 13443. Because this action is expected to address conflicts between hunters and non-hunters, public protection would increase, as compared to under Alternatives A and B.

Effects on public health and safety associated with working relationships with Tuolumne and Calaveras Counties' law enforcement would be the same as under Alternative A.

Effects on public health and safety associated with implementing the Fire Management Plan (Appendix D) would be the same as under Alternative B.

6.12.6.4 Effects from Cultural and Social Resources Management

There were no identified effects on public health and safety from cultural and social resources management.

6.12.6.5 Effects from Recreation Management

Reclamation would implement additional lake zones to protect public safety and natural resources. For example, Reclamation would designate additional swimming areas and areas appropriate for nonmotorized boating, houseboats, and seaplanes, and, designate no-wake zones to prevent shore erosion. Zones may include, but would not be limited to, designated areas of Greenhorn Creek, Westside, Glory Hole, Coyote Creek, Parrotts Ferry, Tuttletown, French Flat, Mark Twain, Stanislaus River Canyon, and Camp Nine Management Areas. This would increase public protection by assessing growing, incompatible aquatic activities, and then establishing boundaries to keep the activities

apart. Similarly, designating Environmental Sensitive Areas would restrict certain activities, such as waterskiing and overnight use, in these areas, which would reduce visitor conflicts and increase public protection.

Reclamation would maintain existing water play areas and close those areas to incompatible uses. This would continue to provide for public protection by keeping incompatible activities apart. Other incompatible aquatic activities involving swimming elsewhere, however, would continue to occur. There would be no new effects.

Reclamation would prepare and implement a trails management plan that focuses on resource protection, including ADA-compliant trails, where appropriate. This would increase public protection by making certain trails safer for use by people with disabilities and would reduce conflicts among equestrians, mountain bikers, and hikers.

To protect health and safety, Reclamation would develop and implement a long-term strategy for managing hunting as visitation and urban development increase. This policy may include restrictions to meet management goals, such as compliance with California Fish and Game code, as well as other applicable regulations, such as EO 13443. Because this action is expected to address conflicts between hunters and non-hunters, public protection would increase, as compared to under Alternatives A and B.

Effects on public health and safety associated with concessionaires that could provide expanded interpretation and public education would be the same as under Alternative B.

6.12.7 Effects on Public Health and Safety under Alternative D

6.12.7.1 Effects from Physical Resources Management

Effects from physical resources management under Alternative D would be the same as those described in Effects Common to All Alternatives from Physical Resources Management.

6.12.7.2 Effects from Natural Resources Management

Effects from natural resources management under Alternative D would be the same as those described in Effects Common to All Alternatives from Natural Resources Management.

6.12.7.3 Effects from Lands, Transportation, and Access Management

Implementing the wildlife management requirements included in the Baseline Conservation Camp would have the same effects as under Alternative A.

If funding becomes available, Baseline Conservation Camp would be moved to the existing Equestrian Area, away from the Stanislaus River area of the PWMA. Reclamation would restore open areas, formerly used by Baseline Conservation Camp, to natural habitat, leaving roads and specific facilities for future use. Reclamation would allow a larger or different footprint for Baseline Conservation Camp, if needed to accommodate updated facilities and uses. The PWMA boundaries would be changed to exclude the Baseline Conservation Camp lease area, offsetting with equivalent or more acreage for wildlife mitigation adjacent to the PWMA in other areas. This action would

continue to coordinate Reclamation-managed activities with Baseline Conservation Camp, thereby continuing to keep inmates and the public apart. Also, it would consolidate Baseline Conservation Camp activities in one area, instead of being divided by the New Peoria Flat Road, allowing Corrections to fence the property or install other measures to secure the property without affecting Reclamation.

Effects from enforcing Reclamation's off-road vehicles policy and regulation would be the same as under Alternative A.

Reclamation would continue closure of overlook facilities as under Alternative A. Reclamation would allow public access to the overlook facilities at Peoria Flat through guided tours with Reclamation. Guided tours would not place the public in situations that involve public health, safety and security concerns. Consequently, there would be no effects on public health and safety.

Effects from hunting management would be similar to those under Alternative C. Under Alternative D, the public would be further protected by restricting hunting within 150 yards of the Reclamation boundary at French Flat and Bear Creek.

Effects on public health and safety associated with working relationships with Tuolumne and Calaveras Counties' law enforcement would be the same as under Alternative B.

Effects on public health and safety associated with implementing the project-wide fire management plan (Appendix D) would be the same as under Alternative B.

6.12.7.4 Effects from Cultural and Social Resources Management

There were no identified effects on public health and safety from cultural and social resources management.

6.12.7.5 Effects from Recreation Management

Reclamation would implement additional lake zones to protect public safety and natural resources. For example, Reclamation would designate additional swimming areas, and areas appropriate for nonmotorized boating, houseboats, and seaplanes, and, designate no-wake zones to prevent shore erosion. Zones may include, but would not be limited to, designated areas of Greenhorn Creek, Westside, Glory Hole, Coyote Creek, Parrotts Ferry, Tuttletown, French Flat, Mark Twain, Stanislaus River Canyon, and Camp Nine Management Areas. This would increase public protection by assessing growing, incompatible aquatic activities, and then establishing boundaries to keep the activities apart. Public protection would increase less from designating Environmentally Sensitive Areas than under Alternative C because fewer areas would be given this designation under Alternative D.

Effects on public health and safety associated with designating additional water play areas would be the same as under Alternative B.

Effects on public health and safety associated with ADA-compliant trails would be the same as under Alternative B.

Effects from hunting management would be similar to those under Alternative C. Under Alternative D, the public would be further protected by restricting hunting within 150 yards of the Reclamation boundary at French Flat and Bear Creek.

Effects on public health and safety associated with concessionaires that could provide expanded interpretation and public education would be the same as under Alternative B.

6.13 Fire Management

6.13.1 Introduction

Information on fires in the New Melones Lake Area is largely contained in the draft Fire Management Plan (Appendix D). According to the Fire Management Plan, fires are started by human activity 80 percent of the time within the New Melones Lake Area (not including the three percent where no cause was determined). The average fire size is 64 acres, excluding a single large fire in 2001 of 14,000 acres, including lands not managed by Reclamation. Of all the fires that occurred between 1994 and 2003, 52 percent were less than 0.2 acres and 34 percent were between 0.3 and 9.9 acres. During the same period, total acres burned in any year ranged from one acre to 14,285 acres, including lands not managed by Reclamation. This analysis focuses on direct and indirect effects on wildland fire management from management actions and other resource uses.

6.13.2 Methods of Analysis

6.13.2.1 Methods and Assumptions

The following assumptions were made for the purpose of this analysis:

- As stated in the Fire Management Plan, firefighter and public safety are the top priority, therefore, it is assumed that RMP actions would not supersede safety;
- Fire suppression to protect life, property, and sensitive and high risk areas would be effective at protecting these areas;
- Activities to reduce hazardous fuel loads, and post-fire rehabilitation activities would be effective;
- The spread of noxious weeds or invasive plants is generally considered detrimental to natural fire regimes by increasing fuels and fire intensity;
- Goals and objectives of the Fire Management Plan would be met by the activities proposed. For example, if the goal is to limit the acres burned by wildland fire to 250 acres (FMU 01), this goal would be achieved; and
- RMP requirements to restrict airspace would not apply to fire suppression activities.

6.13.3 Effects on Fire Common to All Alternatives

6.13.3.1 Effects from Physical Resources Management

It is possible that limiting burning, for air quality reasons, could affect the timing of prescribed fire used to improve resource conditions.

Confining vehicles to existing roadways to protect water quality, and continuing the ban on OHV would help to reduce some accidental fire ignitions from sparks and exhaust coming into contact with flammable material, particularly weeds and grasses.

6.13.3.2 Effects from Natural Resources Management

The Vegetation Management Plan sets the course for managing vegetation to be in a more natural and healthy condition, meaning fuels would be reduced and natural fire regimes would be restored.

Controlling invasive species with herbicides or target-specific herbicides would reduce invasive plants that add fuel loading and contribute to the fire regime changes seen in the past.

Maintaining snags for cavity nesting birds may increase fire hazard if many snags (at a level above what is required for the number of birds) are maintained. Snags pose a hazard to firefighters and would be cut during a fire suppression action if necessary. Snags can also act as "chimneys" where the fire burns inside the snag and sprays embers out the top. These embers can travel five miles in the right wind conditions, igniting more fires.

6.13.3.3 Effects from Lands, Transportation, and Access Management

Controlling OHV use would help to control the number of accidental, human-caused fires that occur from vehicle exhaust systems or sparks contacting dry vegetation.

6.13.3.4 Effects from Cultural and Social Resources Management

Fuel reduction and post-fire rehabilitation activities would be subject to Section 106 compliance, which could affect how and where these activities were implemented.

6.13.3.5 Effects from Recreation Management

Recreation has the greatest potential to affect fire management, as most fires are human caused (either accidental or intentional ignitions). Overall, recreation use and new recreational facilities, and therefore the potential for recreation management to affect fire management, would be greatest under Alternative B, followed by D, C, and A.

6.13.4 Effects on Fire under Alternative A

6.13.4.1 Effects from Physical Resources Management

Effects from physical resources management under Alternative A would be the same as those described under Effects Common to All Alternatives from Physical Resources Management.

6.13.4.2 Effects from Natural Resources Management

Reducing fire danger under Alternative A would benefit fire suppression efforts and make them more effective.

Preventing severe invasion of exotics under Alternative A would reduce the fire hazard. However, requiring the use of native seed may reduce the effectiveness of fire restoration activities, as native species are often slower to establish. This may lead to additional weed spread, as weeds can outcompete native species. The spread of weeds and invasive species could increase fire danger.

In the long-term, restricting vegetation treatments to only those that are inexpensive would likely result in more acres burned, and more severe effects on vegetation and soil from fire.

Under Alternative A, a fire management plan would not be implemented. Instead, Reclamation would continue to implement BMPs and SOPs to reduce fire danger and respond to wildland fire. Use of fuel breaks to enhance wildlife habitat would serve to also provide a safe area for fire fighters during fire suppressions, and help to suppress wildland fire.

6.13.4.3 Effects from Lands, Transportation, and Access Management

Maintaining fire roads and trails would maintain access for fire suppression.

Alternative A would not be as effective managing wildland fire as the other alternatives because the Fire Management plan would not be implemented.

6.13.4.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative A would be the same as those described under Effects Common to All Alternatives from Cultural and Social Resources Management.

6.13.4.5 Effects from Recreation Management

Development of new trails would increase public access and the potential for human-caused fire ignitions.

6.13.5 Effects on Fire under Alternative B

6.13.5.1 Effects from Physical Resources Management

Effects from physical resources management under Alternative B would be the same as those described under Effects Common to All Alternatives from Physical Resources Management.

6.13.5.2 Effects from Natural Resources Management

Using the Fire Management Plan as described under Alternative B to protect native habitats, rejuvenate chaparral and oak woodlands, and prevent severe infestation of some invasive plant species would reduce fire hazards. In turn, fire could play a more natural roll in some areas, and in the long-term, reduce the need for fire suppression if the natural fire regime is restored. Fires that start naturally (lightning) could be allowed to burn if

conditions are right, and public safety and facilities can be protected. Additionally, fires started by other ignitions sources would be easier to suppress because fuel loadings would be reduced.

Allowing other seed, besides just native seed, for reseeding could improve restoration effectiveness by facilitating areas to revegetate more quickly than if only native seed were used.

Only preventing severe invasions of exotics when it is inexpensive, as prescribed for Alternative B, would lead to additional infestations, and consequently, a large increase in exotics. These would occur in the most remote portions of the New Melones Lake Area, where fire suppression response times are longest and most expensive. Fires in these areas would also contribute to the spread of these plants.

Allowing grazing to control weeds and invasive plants would reduce fire fuels and therefore reduce fire danger in those areas.

Constructing fuel breaks under Alternative B would provide for fire suppression action, reduce the severity of wildland fire in those areas, and ultimately reduce the acres of burned areas.

Fuel breaks designed with wildlife habitat in mind would help to protect wildland firefighter safety and support wildland fire suppression.

6.13.5.3 Effects from Lands, Transportation, and Access Management

Improving roads would improve access for fire suppression and rehabilitation in some areas. This could reduce response times and result in fewer acres burned.

Optimizing trail connectivity would improve access for fire suppression. However, it may also increase access for recreationists, which may increase the number of human-caused fires, and need for fire patrols.

Using the Fire Management Plan would promote fire safety and management, public awareness, and improve fire planning and fire conditions.

6.13.5.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative B would be the same as those described under Effects Common to All Alternatives from Cultural and Social Resources Management.

6.13.5.5 Effects from Recreation Management

Development of new trails would increase public access and the potential for human-caused fire ignitions.

6.13.6 Effects on Fire under Alternative C

6.13.6.1 Effects from Physical Resources Management

Effects from physical resources management under Alternative C would be the same as those described under Effects Common to All Alternatives from Physical Resources Management.

6.13.6.2 Effects from Natural Resources Management

Restricting reseeding to using only native seed would have the same effects as described in Alternative A.

Using the Fire Management Plan as described under Alternatives C would have similar effects as described under Alternative B, Effects from Natural Resources Management.

As under Alternative B, fuel breaks designed with wildlife habitat in mind would help to protect wildland firefighter safety and support wildland fire suppression.

6.13.6.3 Effects from Lands, Transportation, and Access Management

Closing roads could reduce access for fire suppression and rehabilitation. This could increase response times and result in additional burned areas.

Retaining sufficient wildlife cover in Alternative C would mean maintaining fuels in some areas. If the fuels are involved in a fire, the cover would be lost.

Activities under fire management are more regulated and less flexible under Alternative C than under Alternative A and B. This could limit some activities, however, not to the extent that it would increase fire danger or limit fire suppression success.

6.13.6.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative C would be the same as those described under Effects Common to All Alternatives from Cultural and Social Resources Management.

6.13.6.5 Effects from Recreation Management

Restricting the development of new trails beyond existing trails and unpaved roads would help to avoid an increase in human-caused fires by not increasing access.

6.13.7 Effects on Fire under Alternative D

6.13.7.1 Effects from Physical Resources Management

Effects from physical resources management under Alternative D would be the same as those described under Effects Common to All Alternatives from Physical Resources Management.

6.13.7.2 Effects from Natural Resources Management

Using the Fire Management Plan, as described under Alternatives D, would have the same effects as described under Alternative B, Effects from Natural Resources Management.

Preventing severe invasion of exotics in Alternative D would be the same as described for Alternative A. Restricting reseeding to using native seed would have the same effects as described in Alternative A.

As under Alternative C, retaining sufficient wildlife cover in Alternative D would mean maintaining fuels in some areas. If the fuels are involved in a fire, the cover would be lost.

As under Alternative B, fuel breaks, designed with wildlife habitat in mind, would help to protect wildland firefighter safety and support wildland fire suppression.

6.13.7.3 Effects from Lands, Transportation, and Access Management

Effects from closing roads would be the same as those described under Alternative C.

Activities under fire management would be more regulated and less flexible under Alternative D (same as Alternative C) than under Alternative A and B. This could limit some activities, however, not to the extent that it would increase fire danger or limit fire suppression success.

6.13.7.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative D would be the same as those described under Effects Common to All Alternatives from Cultural and Social Resources Management.

6.13.7.5 Effects from Recreation Management

Development of new trails would have effects similar to those described under Alternative B.

6.14 Cultural Resources

6.14.1 Introduction

Proposed management actions that could affect or increase the risk of potential effects on known and unknown cultural resources include those that require ground disturbance, affect natural processes such as erosion, expose cultural resources to intense fire, open or close land to potentially incompatible uses, affect the visual setting of cultural resources, affect access to cultural resources, and remove or add land subject to federal protections for cultural resources. Most of the New Melones Lake area was inventoried for archaeological and historic sites before the lake was created; however, undiscovered cultural resources are likely still present, even in inventoried areas, due to changes in vegetation cover and survey methods since the initial surveys. Additionally, there are likely to be buried cultural resources within the area that cannot be identified by surface survey alone. The extent and location of contemporary Native American traditional uses and sacred sites is not known.

The Section 106 process and tribal consultation would be completed to address anticipated impacts resulting from authorized and planned activities. Unauthorized activities, wildland fire, dispersed recreation, and natural processes could lead to effects

that may be more difficult to monitor and mitigate. Management actions include stipulations designed to avoid or reduce effects.

Section 106 of the National Historic Preservation Act (NHPA) of 1966 (16 USC, Section 470(f), as amended) requires federal agencies to consider the effects of their actions including the approval, funding or permitting, of an activity on properties that are listed or eligible for inclusion on the National Register of Historic Places (NRHP). Archaeological and historic sites, objects, districts, historic structures, and cultural landscapes that are eligible for listing on the NRHP are known as historic properties. Section 106 also requires the federal agency to afford the Advisory Council on Historic Preservation an opportunity to comment on the agency's efforts to consider historic properties. The implementing regulations for Section 106, found at 36 CFR, Part 800, describe a process of inventory, evaluation, and consultation that satisfies the federal agency's requirements, and are summarized below in Section 6.14.2.

The types of effects resulting from many of the proposed resource management actions are the same or similar for each alternative. Because planned actions would be subject to review under the Section 106 process, there would be further site-specific consideration of cultural resource impacts.

6.14.2 Methods of Analysis

6.14.2.1 Methods and Assumptions

Impacts on cultural resources occur when there is damage or loss of these resources or their settings. The primary indicator for determining if an impact would occur is the effects on cultural resources eligible for listing on the NRHP, or areas of importance to Native American or other traditional communities. Specific indicators include the following:

- Acres and relative depth of ground-disturbing activities permitted, and their potential for affecting known or unknown cultural resources, or areas of importance to Native American or other traditional communities;
- Increased access to, or activity in, areas where resources are present or anticipated. Vandalism or unauthorized collecting can destroy a cultural resource in a single incident. Exposure of cultural resources or access to areas where cultural resources are present can increase the risk of vandalism or unauthorized collection of materials;
- The extent to which an action changes the potential for erosion or other natural processes that could affect cultural resources. Natural processes, such as erosion or weathering, will degrade the integrity of many types of cultural resources over time. Human visitation, recreation, vehicle use, grazing, fire and nonfire vegetation treatments, and other activities can increase the rate of deterioration through natural processes. While the effect of a few incidents may be negligible, the effect of repeated uses or visits over time could increase the intensity of impacts due to natural processes;

- Measures that withdraw land or restrict surface development for the purpose of resource protection can provide direct and indirect protection of cultural resources from disturbance, incompatible activities, and unauthorized activities;
- The extent to which an action alters the setting (such as visual and audio factors) of cultural resources; and
- The extent to which an action alters the availability of cultural resources for appropriate uses.

Impacts on cultural resources are assessed by applying the criteria of adverse effect as defined in 36 CFR, Part 800.5a: "An adverse effect is found when an action may alter the characteristics of a historic property that qualify it for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, workmanship, feeling, or association. Adverse effects may include reasonably foreseeable effects caused by the action that may occur later in time, be farther removed in distance, or be cumulative." The criteria of adverse effect provide a general framework for identifying and determining the context and intensity of potential impacts on other categories of cultural resources as well, if these are present. Assessment of effects involving Native American or other traditional community, cultural, or religious practices or resources also requires focused consultation with the affected group.

The following assumptions regarding the resource base and management practices were made in the analysis:

- Most of the planning area has been inventoried for cultural resources and these are described in Pacific Legacy (2008). Many cultural resources were recorded, but were inundated with the creation of the lake. There may be cultural resources in unsurveyed areas and unknown cultural resources within surveyed areas, but the presence and significance of resources and impacts cannot be quantified.
- Traditional Cultural Properties, sacred areas, and traditional use areas are places associated with the cultural practices or beliefs of a living community. These cultural resource sites are rooted in the community's history and are important in maintaining cultural identity. Contemporary Native American groups maintain social and cultural ties to the land and resources of the New Melones Lake Area. These cultural resources are generally not known or discussed outside of the affected community, but may be present in the area.
- Impacts would be minimized, avoided, or mitigated by compliance with laws and executive orders designed to preserve and protect cultural resources. These include, but are not limited to, the Antiquities Act of 1906, the NHPA Sections 106 and 110(a), the Archaeological Resources Protection Act (ARPA) Section 14(a), the Native American Grave Protection and Repatriation Act (NAGPRA), the American Indian Religious Freedom Act (AIRFA), and Executive Orders 13175 and 13007. Reclamation also has its own cultural resource policies, directives, and standards outlined in the Reclamation Manual.

6.14.3 Effect on Cultural Resources Common to All Alternatives

Chapter 5 indicates the existing site density of each management area and the potential for new sites to be identified in future surveys. With higher site density and new site potential, the potential for effects on cultural resources increases. Additionally, effects on sites included in the NRHP-eligible New Melones Lake Area Archaeological District could be adverse effects under Section 106. The management areas are listed below, from greatest to least potential for effects on cultural resources, identified and unknown, should the management actions discussed in the following sections occur within the management area boundaries:

1. Stanislaus River Canyon
2. Mark Twain
3. Parrotts Ferry
4. French Flat
5. Camp Nine
6. Carson
7. Coyote Creek
8. Tuttletown
9. Bear Creek
10. Peoria Wildlife Area
11. Glory Hole
12. Bowie Flat
13. Westside
14. Dam and Spillway
15. Greenhorn Creek

The Middle Bay, North Bay, and South Bay management areas are beneath the maximum pool. Cultural resources in these areas are inundated and proposed actions would likely not affect them.

6.14.3.1 Effects from Physical Resources Management

Proposed air quality actions that would minimize disturbance of serpentine soils and outcrops would indirectly reduce effects on cultural resources, such as archaeological sites and traditional use areas, if any exist.

Geologic resources actions that restrict mining and material excavation, and require review and comment on mining and reclamation plans within the New Melones watershed, would also help protect the region's cultural resources by limiting ground disturbances and offering input in the latter, helping to preserve the cultural landscape. Additionally, actions that require closing old mines after completing appropriate studies may aid in the interpretation and understanding of historic mines and mining industry in

the region. Actions involving completion of a caves inventory update could identify additional cultural resources within the New Melones Lake Area, and actions proposing a protection plan and recreation management that preserves and minimizes impacts on cave resources provide additional protective measures for cultural resources within caves.

Ground disturbing activities, such as updating and constructing new basic facilities and development of retention basins, are proposed under all alternatives. Such projects would be addressed through the Section 106 process, limiting the potential effects on cultural resources from such actions. Actions under all alternatives to promote good water quality may also affect the availability and health of traditional use areas, if any exist. Additionally, preventing erosion and minimizing the development of serpentine outcrops could also prevent the erosion of cultural resources and disturbances of any traditional use areas.

Visual resource actions that seek to improve, maintain, and minimize impacts on scenic qualities and educate regarding visual qualities would affect traditional and cultural resource sites by maintaining the area's natural and historic appearance. Commenting on plans and environmental documents for projects within the watershed would have similar effects.

6.14.3.2 Effects from Natural Resources Management

Under all alternatives for vegetation management, the protection and promotion of, and limited disturbances of native plant and riparian communities would affect traditional cultural resources by providing healthy traditional fishing and gathering areas, if any exist. Avoidance of wetland communities, in order to avoid erosion or compaction, could affect cultural resources by ensuring healthy traditional use areas, if any exist and are maintained, and by reducing erosion within cultural resource sites. Additionally, under all alternatives, Reclamation would educate the public on the ecology and cultural importance of native plant and wetland vegetation communities.

Under all alternatives, actions requiring the promotion and improvement of fish and wildlife resources would support any traditional fishing and hunting areas that may exist by maintaining healthy populations of native resources. Additionally, allowing hunting would promote traditional hunting activities by Native Americans. Requiring domestic pets to be leashed or caged, minimizing trespass grazing, and controlling feral species would prevent animals from trampling or digging in archaeological sites.

Special status species actions under all alternatives seek to minimize impacts on sensitive natural and cultural resources in rural natural management areas and the PWMA by maintaining dispersed visitor use, and managing rock climbing in accordance with federal regulations, respectively. This would reduce potential effects on cultural resources, such as ground disturbances, unauthorized collecting and vandalism.

Invasive species control actions under all alternatives would promote species traditionally used by Native Americans. Additionally, the reduction in fire danger would reduce the potential for the damaging effects of fire on cultural resources. However, some methods may affect cultural resources. The use of pesticides may affect species traditionally

collected and used, potentially consumed or inhaled, by Native Americans. Additionally the use of grazing and mechanical techniques for invasive species removal could cause trampling and other ground disturbances of archaeological sites.

6.14.3.3 Effects from Lands, Transportation, and Access Management

General land management actions that continue the designation of the New Melones Lake Area as a Special Use Area under all alternatives provide for the protection and preservation of cultural resources and scenery valued for traditional purposes and promote scientific research that would develop our understanding of prehistory and history of the area. Additionally, coordinating with various federal, state, and local agencies regarding environmental documents and plans could contribute to that understanding. Similarly, prohibiting activities that require permits, such as grazing, OHV operation, and construction in specific areas would limit ground disturbing and trampling effects on cultural resources in those areas, but would leave other areas open to such effects. Patrols for unpermitted activities such as these would likely limit those effects. Facility updates to protect public health, safety, and water quality proposed under all alternatives for general land management could affect cultural resources through ground disturbances in previously undisturbed areas.

Effects on cultural resources from access and transportation actions common to all alternatives include continued additional protections for cultural resources stemming from the New Melons Lake Area designation as a Special Use Area and, indirectly, reductions in disturbances to resources through protective management of cave access. Additionally, the possibility of unauthorized collecting and ground disturbing activities is minimized through restrictions on public access, and the enforcement of a no trespassing zone in the New Melones Dam and Spillway Management Area. However, these restrictions could prevent Native Americans from reaching traditional use areas, if any exist.

Under all alternatives, public health and safety actions would result in effects on cultural resources. Efforts to increase law enforcement presence, address illegal activities, and develop a long-term strategy for effective law enforcement would have indirect effects of preventing disturbances or unauthorized collecting of cultural resources, and potentially increase ARPA case convictions. Additionally, ensuring adequate closures of unsafe or potentially hazardous areas, such as caves and old mine shafts, would prevent disturbances to such cultural resources. Allowing hunting under all alternatives would allow Native Americans to continue a traditional way of life.

Fire management actions under all alternatives would protect cultural resources from the damaging effects of fire. Actions proposed to guide the design of fuel breaks and firebreaks include consideration for minimizing impacts on cultural resources.

6.14.3.4 Effects from Cultural and Social Resources Management

Cultural resources management actions common to all alternatives would provide protective measures to these resources. Impacts would, in general, be minimized. Historic properties would be avoided, when possible, through use of protective fencing and exclusion areas. Minimum Impact Suppression Tactics used in coordination with a

cultural resource advisor would also contribute to the preservation of cultural resources. All these would limit disturbances and unauthorized collecting of cultural resources while taking into account traditional Native American values. Educating visitors of the importance of cultural resources through handouts, brochures, signs, ranger interfaces, and interpretive programs could reduce accidental and intentional damage to cultural resources. Avoiding public disclosure of specific culturally sensitive areas would reduce the potential for disturbing traditional use areas, if any exist.

Effects of socioeconomic and environmental justice actions under all alternatives could increase public use of the area, which could lead to disturbances to cultural resources.

Although there are no known ITAs within project lands, consultation with tribes under all alternatives may reveal traditional use areas, or other areas of concern for Native Americans.

6.14.3.5 Effects from Recreation Management

Recreation is a major activity that is largely unsupervised in the New Melones Lake Area. Aquatic recreation can provide public access to cultural resources on shorelines, in caves, and in areas otherwise inaccessible. Recreation also brings additional people which could lead to increased effects from noise and trampling or ground disturbance. Individual projects proposed to improve the recreation experience at New Melones Lake would be addressed through the Section 106 process, limiting the potential effects on cultural resources from such actions.

Recreation actions under all alternatives that focus on coordination, seek to prevent illegal activities, such as unauthorized collecting of cultural resources, and to educate on the negative impacts of certain land use activities. These actions would reduce effects on cultural resources. ADA compliance upgrades proposed under all alternatives could disturb cultural resources. Providing public education on cultural resources under all visitor services and ranger program alternatives would provide opportunities to educate the public on the scientific and sacred importance of cultural resources.

Effects from actions related to aquatic invasive pest species would be similar to those described in Effects Common to All Alternatives from Natural Resources Management. Under all fishing alternatives, effects would be similar to those fish and wildlife actions where efforts to support native fish species and their habitat would also support traditional fishing areas, if any exist.

Land-based recreation actions under all alternatives would have effects on cultural resources similar to aquatic recreation, with increased public presence potentially affecting cultural resources. Actions for land-based recreation would have additional effects on cultural resources, through ground disturbance and potential unauthorized collecting, facilitated by public access. Promotion of climbing and bicycling would have the greatest effect. Actions related to trails and pathways for biking, hiking, and horseback riding under all alternatives would have similar effects. Trail and staging area creation would affect cultural resources primarily through ground disturbance and trampling of sites in those areas. Trails could also allow greater public access to cultural

resources. However, actions requiring protection of these resources would limit these effects. Under all alternatives, actions related to camping, picnicking, and other day use activities propose various forms of new construction, which could disturb archaeological sites, or place new buildings and structures within historic landscapes. Actions related specifically to hunting would have potential effects on cultural resources similar to those described in Effects Common to All Alternatives from Natural Resources Management. Actions related to radio-controlled aircraft would have potential effects on cultural resources similar to those described for seaplanes, but to a lesser degree due to a lower level of noise emissions. Actions specific to rock climbing and spelunking would be similar to those described in Effects Common to All Alternatives from Natural Resources Management.

Interpretive services and visitor information actions under all alternatives would include public education of the scientific and traditional importance of cultural resources through use of interpretive displays, brochures, etc. Education can be helpful in creating an awareness of cultural resources and their need for preservation. The more the public knows about these resources, the more important they are thought to become to the public.

6.14.4 Effects on Cultural Resources under Alternative A

6.14.4.1 Effects from Physical Resources Management

Under Alternative A, Reclamation would close portions of Rural Developed Management Areas when necessary to prevent erosion, and protect water quality and natural and cultural resources.

6.14.4.2 Effects from Natural Resources Management

Invasive species management under Alternative A would continue to promote healthy native resources in traditional use areas that may exist and could be used by Native Americans. Invasive species management considers the effects of herbicides on cultural/traditional uses of plants. No oak tree mitigation area would be established under Alternative A, which would remove the possibility for ground disturbing effects on cultural resources under other alternatives.

The use of SOPs to reduce fire danger, as well as the use of prescribed fire techniques to minimize erosion and fire hazards to create wildlife habitat, would indirectly reduce the potential for wildfires and erosion to affect archaeological sites and historic wooden buildings and structures. Under Alternative A, the Baseline Conservation Camp would be maintained in the PWMA in its existing state, and no new effects on cultural resources would occur.

Protecting wildlife species and habitats associated with the Endangered Species Act could affect traditional use areas, if any exist.

6.14.4.3 Effects from Lands, Transportation, and Access Management

General land use under Alternative A would have fewer potential effects on cultural resources than other alternatives. The Baseline Conservation Camp would not be moved, no lands in the PWMA would be excluded from the protections of that area, there would

be less grazing, and no changes in the land use plan. However, under Alternative A, rights-of-way would not be minimized as under other alternatives, increasing the potential for effects on cultural resources in future rights-of-way.

Under Alternative A, potential effects on cultural resources from access and transportation management include reducing the possibility of unauthorized collecting and ground-disturbing activities. This would be done by continuing to keep closed twelve separate areas to public vehicles and, when warranted, restricting access to substandard facilities in six areas, effectively limiting public access to them. However, these restrictions could prevent Native Americans from reaching sacred sites and traditional cultural properties, if any such resources exist. Allowing seaplanes could create noise that could affect use of such areas. This potential is increased under Alternative A. The emphasis on conservation in the Westside and Bowie Flat Management Areas could lead to increased preservation of cultural resources.

Under Alternative A, fire management bulldozing would be minimized in high erosion areas. This would reduce the potential for ground disturbances and other destructive processes, such as erosion, within cultural resources.

6.14.4.4 Effects from Cultural and Social Resources Management

Under Alternative A, a new Archaeological Storage Facility would not be constructed. As a result, no new ground disturbance would occur that could affect cultural resources. However, collections housed at the facility would continue to be housed in a facility that does not meet standards described in "Curation of Federally Owned and Administered Archeological Collections" (36 CFR Part 79), or current Department of Interior and Reclamation museum collection management policies and procedures.

6.14.4.5 Effects from Recreation Management

Recreation actions, related to the commercial services/concessions and facilities and maintenance program under Alternative A, would have the fewest potential effects from new construction and permitting of new or expansion of existing activities. New construction of facilities, and permitting new or expanded activities could cause ground disturbances within archaeological sites, place modern construction within historic or cultural landscapes, and increase public presence that could lead to increased unauthorized collecting, and audible effects on traditional use areas, if any exist, where ceremonies may occur.

Compared to Alternative B, aquatic recreation management under Alternative A would reduce shoreline erosion, potentially reducing erosion of shoreline cultural resource sites. Additionally the implementation of no ski zones would reduce effects on traditional use areas, if any exist, in the specific areas listed by reducing public presence and noise. Aquatic recreation effects specifically from fishing actions under Alternative A would be similar to those described Alternative A, Effects from Natural Resources Management. Management actions related to boating, water-skiing, wake boarding, and rafting would continue activities that could affect cultural resources through public presence and noise. Effects specifically from seaplane operations under aquatic recreation Alternative A would be the same as those described for access and transportation.

Land-based recreation actions specific to trails and pathways for biking, hiking, and horseback riding could have effects on cultural resources, if present, under Alternative A. Actions that would relocate the PWMA equestrian staging area and facilities could disturb cultural resources within the footprint of the new staging area through new ground disturbance. Additionally, the new activity within a new area could disturb Native American traditional cultural property or traditional use area, if any exist. Alternative A would not place trail markers along the Natural Bridges trail. Although this would reduce the potential for a direct effect on cultural resources from the installation of signs compared to other alternatives, it could increase indirect effects of trail users going off-trail and disturbing cultural resources outside of the trail footprint.

6.14.5 Effects on Cultural Resources under Alternative B

6.14.5.1 Effects from Physical Resources Management

Cave resources actions under Alternative B would expand access to caves, opening cultural resources to increased effects. However identifying caves appropriate for public interpretation and providing tours would provide opportunities for public education on cultural resources and the traditional significance of those caves.

Under Alternative B, Reclamation would promote access to Rural Development Management Areas and provide new construction, potentially increasing access to and effects on cultural resources in those areas.

6.14.5.2 Effects from Natural Resources Management

Effects of invasive species management on cultural resources under Alternative B are the same as under Alternative A, but with less emphasis on promotion of native plants. Also under Alternative B, Reclamation could manage an oak tree mitigation area near the PWMA. Plantings within the area could disturb archaeological sites, but the propagation of a native species would provide additional traditional resources if planted within a traditional use area, if any exist.

Under Alternative B, potential effects on cultural resources from fish and wildlife management would be similar to those under Alternative A, but with greater potential for disturbances from trail construction and fuel breaks constructed with mechanical and prescribed burns. There is also greater potential for unauthorized collecting from increased public access via vehicles and new trails with no unauthorized trails being closed as under Alternative A. Additionally, under Alternative B, the Baseline Conservation Camp would be expanded, potentially resulting in additional effects on archaeological sites from ground disturbances.

Effects of special status species management on cultural resources under Alternative B would be the same as those described under Alternative A.

6.14.5.3 Effects from Lands, Transportation, and Access Management

Alternative B's general land management actions could create more potential effects on cultural resources than Alternative A. Moving the Baseline Conservation Camp and allowing a larger or different footprint of the camp as well as allowing grazing and stock watering to control invasive plant species and reduce fire danger and operating an OHV

park would create additional ground-disturbing activities and potentially create incompatible activities within the landscape of cultural resources.

Potential effects on cultural resources from access and transportation management under Alternative B would be similar to those under Alternative A, with the exception that additional areas would be opened to public access and new roads and connector fire roads and trails created. Additionally, use of the Bowie Flat Management Area would be increased. The increased access could lead to increased ground disturbances at cultural resources from an increase in public activities, potentially lead to a rise in unauthorized collecting in those areas, and potentially increase public presence in traditional use areas, if any exist. New road construction would also lead to new ground disturbances that could affect cultural resources. Alternatively, the increased access could allow easier access for Native Americans to traditional use areas that may be present. Alternative B is the only alternative under which lands could be disposed or transferred, potentially removing federal protections for cultural resources within such lands. Effects from seaplanes under Alternative B are similar to those under Alternative A, but with less effect.

Under Alternative B, fire management would provide new protections for cultural resources, but does not include the proposed minimization of bulldozing as under Alternative A. The Burned Area Stabilization and Emergency Response Plan provides for consultations with the staff archaeologist to evaluate effects on cultural resources and requires prevention of the degradation of cultural resources. The proposed overall project-wildfire management plan also requires that fire management meet cultural management goals through the appropriate use of fire and nonfire fuel treatments and to control erosion following prescribed burns.

6.14.5.4 Effects from Cultural and Social Resources Management

Under Alternative B, a new Archaeological Storage Facility would be constructed outside of the PWMA. The new construction from this action could affect cultural resources within the footprint of the new facility. However, collections currently housed at the facility would receive better curatorial care in a facility that meets federal curation standards.

6.14.5.5 Effects from Recreation Management

Recreation actions related to commercial services/concessions and facilities and maintenance programs under Alternative B represent the greatest amount of effects from new construction and permitting new or expansion of existing activities. Effects from these actions would be similar to those under Alternative A, but with greater incidence of the potential effects described under Alternative A.

Aquatic recreation management, such as expanded or additional use areas, under Alternative B would increase public presence in the areas listed. This could affect cultural resources by increasing public presence, noise, and access to terrestrial areas. Aquatic recreation effects specifically from fishing actions under Alternative B would be similar to those described for fish and wildlife management under Alternative A. Alternative B actions related to boating, water-skiing, wake boarding, and rafting would increase

activities that could affect cultural resources through increased public presence and noise. Additionally, construction of new facilities related to these actions could disturb cultural resources. Effects specifically from seaplane operations under Alternative B would be the same as those described for access and transportation.

Land-based recreation management specific to trails and pathways for biking, hiking, and horseback riding would have effects on cultural resources under Alternative B. Effects would be similar to those described under Alternative A, but with increased potential due to the additional action of developing new trails and optimizing connectivity between trails and fire roads. Trail markers along the Natural Bridges trail could have direct effects on cultural resources where markers would be installed, but reduced potential for indirect effects relative to Alternative A as signs would reduce the potential for hikers to go off-trail and disturb cultural resources.

6.14.6 Effects on Cultural Resources under Alternative C

6.14.6.1 Effects from Physical Resources Management

Actions under Alternative C that seek mandatory compliance with boat and visitor noise regulations would have the greatest likelihood of reducing public presence and noise disturbances, thus providing the greatest effects on cultural resources.

Cave resources management would provide additional protections for cultural resources by controlling access and focusing on conservation. However this alternative lacks the opportunities for public education that Alternative B provides.

Reclamation would restrict access to Rural Developed Management Areas when necessary to prevent erosion and protect water quality and natural and cultural resources. Access would also be restricted in Rural Natural Areas and Semi Primitive Areas, indirectly protecting cultural resources in those areas from the effects of vehicle use and unauthorized collecting.

6.14.6.2 Effects from Natural Resources Management

Effects of invasive species actions on cultural resources under Alternative C are the same as under Alternative A, however with the addition of potential ground disturbance effects from mechanical removal operations and no consideration of the effect of herbicides on the traditional uses of plants.

Under Alternative C the potential effects on cultural resources from fish and wildlife actions are similar to those under Alternative A, but with fewer disturbances at the Baseline Conservation Camp where the footprint would be reduced.

The effects of special status species management under Alternative C are similar to those described under Alternative A, with the added effect of minimizing disruption and loss of sensitive wildlife habitats.

Under Alternative C, invasive species control measures could remove the effects of pesticide use on any traditionally gathered and used species if other effective control

measures can be identified. Additionally, the rehabilitation of all burn areas to prevent invasive species infestation would indirectly prevent erosion of cultural resources.

Additionally, under Alternative C, mechanical and biological invasive species controls, such as grazing, would be allowed in accordance with the Integrated Pest Management Plan which could impact archaeological sites through ground disturbance and trampling, respectively.

6.14.6.3 Effects from Lands, Transportation, and Access Management

Alternative C general land management actions have the least potential to effect cultural resources. Although the Baseline Conservation Camp would be moved, as under Alternative B, future easements and rights-of-way would be minimized. Effects related to grazing would be the same as under Alternative B.

Effects from access and transportation management on cultural resources under Alternative C would be similar to those under Alternative A. Effects from seaplanes and actions within the Westside and Bowie Flat Management areas would be similar to those under Alternative B, but would be slightly more protective of cultural resources. Under Alternative A, no land disposals or transfers would occur in the Westside or Bowie Flat Management areas, and those areas would retain federal protections of cultural resources.

Effects of fire management actions to cultural resources under Alternative C are similar to those under Alternative B, but do not include the additional protections from actions requiring management to meet cultural goals and objectives through use of fire and nonfire fuel treatments, or to control erosion following prescribed burns. Alternative C requires partnership with other agencies and councils to aid in the protection of cultural and natural resources, which could lead to greater preservation of cultural resource sites, and collaborations for a better understanding of prehistoric and historic cultural patterns of the region.

6.14.6.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative C would be the same as those under Alternative B.

6.14.6.5 Effects from Recreation Management

Recreation actions related to the commercial services/concessions and facilities and maintenance program under Alternative C represent the second least amount of effects from new construction, and permitting new or expansion of existing activities. Effects from these actions would be similar to those under Alternative A, but with slightly greater incidence of the potential effects described under Alternative A.

Aquatic recreation actions under Alternative C would have potential effects on cultural resources similar to those under Alternative B. However, Alternative C would also have additional effects from reducing shoreline erosion that would be even greater than under other alternatives. Aquatic recreation effects, specifically from fishing actions under Alternative C, would be similar to those described for fish and wildlife. Alternative C actions related to boating, waterskiing, wakeboarding, and rafting would be similar to those under Alternative B, but with less potential to affect traditional use areas, if any

exist. Effects specifically from seaplane operations under aquatic recreation Alternative C would be the same as those described for access and transportation.

Land-based recreation actions specific to trails and pathways for biking, hiking, and horseback riding would have effects on cultural resources under Alternative C. Effects would be similar to those described under Alternative A, but with less potential due to the reduced ground disturbing actions. Alternative C also focuses on trail connectivity, but would focus new trail development on resource protection. Connector trails would be designed for use by hikers only, meaning the width of trails would be narrower under Alternative C, reducing overall ground disturbance. Effects from trail marker installation would be similar to those described for Alternative B.

Interpretive services and visitor information actions specific to the Visitor Center under Alternative C would develop an outdoor classroom for environmental education on an existing concrete slab. This action could disturb cultural resources within the construction footprint but outside of the existing slab and could place additional construction within the historic landscape of nearby cultural resources. However, including cultural resources in the public education program would increase public awareness of local history and cultural resources, as well as their traditional significance.

6.14.7 Effects on Cultural Resources under Alternative D

6.14.7.1 Effects from Physical Resources Management

Effects of water quality management under Alternative D would be the same as those under Alternative C, except that access to Rural Developed Management Areas, Mark Twain, Parrott's Ferry, and Melones Recreation Area would be increased, potentially increasing effects from erosion, trampling, and unauthorized collecting of cultural resources in those areas.

6.14.7.2 Effects from Natural Resources Management

Effects of invasive species management on cultural resources under Alternative D are the same as under Alternative C.

Effects of fish and wildlife management on cultural resources under Alternative D are the same as under Alternative A.

Effects of special status species management on cultural resources under Alternative D are the same as under Alternative C.

6.14.7.3 Effects from Lands, Transportation, and Access Management

General land management actions under Alternative D would have effects on cultural resources similar to those under Alternatives B and C. Effects relative to the Baseline Conservation Camp and grazing would be similar to those under Alternative B. Effects related to future easements and rights-of-way would be similar to those under Alternative C. However, Alternative D proposes to change the boundaries of the PWMA to exclude the Baseline Conservation Camp, which would remove the additional protections afforded cultural resources in that portion of the PWMA from the designation as a wildlife management area.

Potential effects on cultural resources from access and transportation management under Alternative D would be similar to those under Alternative B. Effects from area closures would be similar to those under Alternative A. Effects from land transfers in the Westside and Bowie Flat Management Areas would be the same as under Alternatives A.

Under Alternative D, potential effects on cultural resources from fire management actions would be similar to those under Alternative B, but do not include actions requiring control of erosion following prescribed burns. Thus, Alternative D poses additional risks of erosion for cultural resources. Alternative D would provide additional potential traditional resources by retaining mature oaks during fire management activities. There are additional opportunities for collaboration between Reclamation and other agencies and councils under Alternative D, compared to Alternative C. However, Alternative D would affect cultural resources within a new fuel break that would be constructed along the Westside Management Area from Peoria to Angels Creek.

6.14.7.4 Effects on Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative D would be the same as those under Alternative B.

6.14.7.5 Effects from Recreation Management

Recreation actions related to commercial services/concessions and facilities and maintenance program under Alternative D represent the second greatest amount of effects from new construction and permitting new or expansion of existing activities. Effects from these actions would be similar to those under Alternative C, but with slightly greater incidence of the potential effects described under Alternative C.

Effects from aquatic recreation actions under Alternative D would be similar to those under Alternative C. Aquatic recreation effects, specifically from fishing actions under Alternative D, would be similar to those described for fish and wildlife. Alternative D actions related to boating, waterskiing, wakeboarding, and rafting would be similar to those under Alternative B. Effects, specifically from seaplane operations, under aquatic recreation Alternative D would be the same as those described for access and transportation.

Land-based recreation actions specific to trails and pathways for biking, hiking, and horseback riding under Alternative D would have effects similar to those described under Alternative B.

Effects from interpretive services and visitor information actions specific to the Visitor Center under Alternative D would be the same as those described under Alternative C.

6.15 Indian Trust Assets

6.15.1 Introduction

This section discusses potential effects from management actions on ITAs in the project lands. There are no ITAs identified within the New Melones Lake Area and therefore no effects under any alternative are anticipated. However, should ITAs be established in the

future, Alternative A would maintain current management practices and therefore would not induce any changes. The growth and concentration of recreation, including hunting, fishing, and gathering, could affect the availability of resources, disturb culturally important areas, or interfere with religious uses within future ITAs. In general, Alternatives B, C, and D propose more actions designed to improve water quality, fisheries, and plant and animal habitat and restore watersheds than Alternative A. These actions would be consistent with maintaining Native American tribal uses under treaty rights that may be asserted in the long-term. Temporary loss of access during treatments or permanent changes in access or permitted activities may affect tribal use of access to any future ITAs. Government-to-government consultation with tribes would be conducted as actions are implemented. If tribal treaty rights are asserted or ITAs are recognized in the future, Reclamation would work with the affected tribes to resolve any potential impacts.

6.16 Socioeconomics and Environmental Justice

6.16.1 Introduction

Local and regional demographic characteristics and economies are affected by project land uses within the New Melones Lake Area. Similarly, social structures and values within the region influence the demand for recreation and other opportunities provided by public lands, as well as the acceptability of proposed land management decisions. This section describes potential impacts on socioeconomics and low-income and minority groups (environmental justice populations) from Reclamation management actions and other resource uses.

6.16.2 Methods of Analysis

6.16.2.1 Methods and Assumptions

Impact analyses and conclusions are based on the existing and projected population, employment, income, housing, earnings, social values, and the economic contribution of public lands, as described in the in Chapter 5 of this document. Low-income and minority populations also are considered. Changes in these indicators could result from management of other resources, particularly those that affect the level of recreation that would occur on project lands. Recreation is the main economic driver in the New Melones Lake Area. It attracts visitors to the area, who then spend money in the local economy for goods, services, and second homes, generating income and inducing further secondary expenditures by those industries receiving the initial economic input. Because this has the indirect effect of generating increased employment and earnings in the local economy, management actions that directly or indirectly affect recreational uses on project lands could have socioeconomic impacts.

The following assumptions were made for the purpose of this analysis:

- Restrictions in land available or implementing SOPs, BMPs, or mitigation measures in order to protect other resources could indirectly affect socioeconomics by increasing costs or precluding development;

- Decisions made with regard to transportation and access could result in increased or decreased recreation opportunities, which also could impact revenues created directly or indirectly for individuals seeking recreation opportunities, depending upon whether access is restricted and what types of recreation are most desired;
- Increased population growth and relocation would increase economic activity and improve local economies; and
- Closing areas for certain uses could negatively impact local economies.

Effects are quantified where possible, but potential socioeconomic impacts were not modeled. Where dollar values were unavailable for economic effects, the degree of impact was based on the number of areas or uses or acreage affected. In the absence of quantitative data, impacts were described using ranges of potential impacts or in qualitative terms, as appropriate.

None of the alternatives would result in direct changes in population or changes in the demand for housing, schools, and public facilities and services. No low-income or minority populations would be displaced or separated from community facilities, nor would minority businesses be disrupted; therefore, low-income and minority groups (environmental justice populations) would not be disproportionately affected by these actions. Therefore, the following analysis discusses effects on socioeconomics only.

6.16.3 Effects on Socioeconomics Common to All Alternatives

6.16.3.1 Effects from Physical Resources Management

Potential restrictions on visitor fires to protect air quality could reduce visitor satisfaction with the recreational experience at the New Melones Lake Area; however, these restrictions would be unlikely to result in a decrease in the number of visitors. It, therefore, would be unlikely to indirectly affect the socioeconomic contribution of recreation on project lands.

Compliance with noise regulations, whether voluntary or mandatory, would be likely to reduce visitor conflicts, which could improve overall visitor satisfaction and bring additional visitors to the area, stimulating the local economy.

The closure of old mine workings would be likely to improve public safety, which could indirectly reduce expenditures by the public and the US government, relating to accidents.

Changes in access to caves could expand or limit recreational opportunities and the associated economic contribution of these recreational opportunities, depending on the measures implemented under each alternative. Economic contributions include the dollars visitors spend in the local economy for goods and services during their visits, and concessionaire businesses, which could lead interpretive tours.

The continued provision of sanitation and fish cleaning facilities, visitor education, and updating of existing facilities would promote a healthier environment for visitors, ensuring their continued use of the New Melones Lake Area and their continued

contribution to the local economy. Changes in the management of former roadways in Rural Developed Management Areas to prevent erosion and protect water resources could restrict or improve access to trailered boat launching and support facilities, depending on the project alternative. All alternatives aim to improve public safety, which would promote continued visitor use, which would bring additional expenditures, employment, and earnings into the local economy.

Commercial operations could experience increased costs to comply with visual resources management objectives under all alternatives. These increased costs would be associated with such activities as moving, shaping, or painting facilities to blend with the surrounding viewshed. In addition, restrictions to recreational activities that could occur in order to maintain the scenic qualities of an area could result in a decrease in visitors and their contribution to the local economy.

6.16.3.2 Effects from Natural Resources Management

Under all alternatives, measures to protect native plant communities could change the location of hiking and biking trails and roads to avoid impacts on native plant communities, and could restrict recreation development in areas identified for protection, which could alter the visitor experience and restrict the location of new recreational development. However, these measures would be unlikely to reduce the number of visitors or their economic contribution to the area unless the number of trails or the variety of recreational uses were substantially reduced. These actions also could limit the number and types of concessionaires that would be permitted, as well as the locations that could be used by concessionaires, who provide local employment and earnings.

Restrictions to protect wetlands and riparian areas, could limit recreational activities and the number of visitors engaging in these activities on project lands. These restrictions could limit the contribution of visitors in the local economy to the extent that they reduce the number of visitors from outside Calaveras and Tuolumne Counties or their expenditures in the local economy. For example, the availability and timing of climbing at Table Mountain could be affected by the presence of vernal pools. If placing restrictions on climbing reduces the number of climbers who come into the area for recreation, the economic activity associated with their expenditures on food, gas, and lodging would decrease.

Hunting, fishing, and wildlife viewing bring visitors and visitor expenditures to project lands, and licensing also generates revenue from issuing hunting, fishing, and commercial fish business licenses. In 2006 in California, $8.0 billion was spent on hunting and fishing recreation, of which $3.4 billion was for trip-related expenditures, $4.1 billion was for equipment purchases, and $488 million was for licenses, contributions, land ownership and leasing, and other expenditures. The average expenditure per angler was $1,383 and the average angler trip expenditure per day was $62. The average expenditure per hunter was $2,119 with an average hunter trip expenditure per day of $68. The average expenditure per wildlife watching participant was $641 per day with an average trip expenditure of $44 (US Fish and Wildlife Service and US Census Bureau 2007). In California, in 2008, sales generated by hunting licenses, sport and commercial fishing licenses, and commercial fish business licenses totaled $21,650,468, $65,930,203, and

$823,839, respectively (California Department of Fish and Game 2009). By continuing to allow hunting and fishing on project lands, Reclamation would ensure that these activities continue to contribute to the local economy and provide social and subsistence benefits to the area. Restrictions to protect spawning areas and fisheries could limit some recreational activities and trail building, the level of which would vary by project alternative, which could reduce the number of recreational visitors and their contribution to the local economy. However, this effect could be offset by an increase in the available fishing, fishing visitation, and contribution of fishing to the local economy.

Requiring the implementation of wildlife management projects in the PWMA could provide local employment and equipment use revenues, the amount of which would vary by alternative.

All alternatives would impose restrictions to protect special status species that could inhibit recreation activities and have indirect socioeconomic effects. These restrictions could increase the costs of concessionaire operations, decrease the incomes of operators, discourage some recreational activities, and potentially decrease expenditures in the local economy as a result of a potential reduction in the number of visitors or concessionaires in the New Melones Lake Area. The extent of these restrictions would vary by alternative.

6.16.3.3 Effects from Lands, Transportation, and Access Management

Land management measures would be implemented to improve public health and safety and eliminate unauthorized uses, which could have an indirect effect on socioeconomic resources that would vary by alternative. These land management actions would likely reduce user conflicts and improve the recreation experience of visitors to project lands, which would encourage continued or increased visitation. This could result in continued or increased expenditures in the local economy, with the secondary effect of generating additional earnings, expenditures, and employment.

All alternatives would impose some level of public transportation access restriction that could affect economic activity generated by recreation and concessionaire activities. Transportation and access measures to increase route connectivity would improve public access and increase the level of recreation and concessionaire activities, which could further expand local economic activity.

Management actions to improve public health and safety could indirectly affect socioeconomics by improving visitors' recreation experience and reducing the effects of conflicting uses. These improvements would encourage continued visitor use and could result in additional visits, which could increase expenditures, earnings, and employment in the local economy.

Under all alternatives, the use of grazing to control invasive species would add another economic activity to the project area. Typically, the cost of grazing on federally-owned land is less than the cost on private land, resulting in cost savings and increased disposable income to ranchers, which can then be invested in the local economy for supplies, equipment, and other goods and services. Therefore, an influx of ranching or a

decrease in the cost of ranching could generate additional earnings and employment. Grazing on project lands would increase administrative costs to Reclamation to comply with regulatory requirements, but also would be a source of revenue from the implementation of grazing fees through the competitive bidding process. Grazing has a social (or non-market) value to visitors from outside the western US, who regard ranching as visual draw, and to the general public as a means of preserving open space and big game habitat, which could benefit the hunting industry (Foulke, Coupal, and Taylor 2006).

Fire management to control wildland fires could pose limitations for some recreational uses. Hazardous fuels reductions could protect infrastructure from wildfire, ensuring continued employment and other economic benefits. Emergency stabilization and rehabilitation treatments would temporarily close areas for certain uses. However, restoring rangeland would improve the health of the land, providing long-term economic benefits for wildlife habitat for hunting. Implementing wildland fire protection measures would protect the economic base of communities. Fire management activities on project lands could result in the employment of the local workforce and purchases of equipment and supplies in the local economy.

6.16.3.4 Effects from Cultural and Social Resources Management

Protecting cultural resources also protects the physical and natural resources that bring visitors to the New Melones Lake Area, which injects dollars into the local economy for goods and services, and generates secondary earnings and employment. However, these protections also could present access and recreational use restrictions, which could limit concessionaire businesses that could operate in the area and the number of visitors. This could indirectly reduce expenditures and subsequently generated earnings and employment in the local economy. In addition, all alternatives would provide interpretation and education for priority cultural sites within public use areas, which could reinforce social values by improving visitors' connection with project lands.

Coordination with local agencies to promote tourism could result in the development of new concessionaire businesses and increased visitors to the New Melones Lake Area. Visitors from outside the local economy spend money in the region of influence for lodging, food, supplies, permits, and recreation. As stated above, $8.0 billion was spent in California on hunting and fishing recreation in 2006. These expenditures generate earnings for local businesses, which would in turn be reinvested in the local economy for additional goods and services, earnings, and employment. By complying with Executive Order 12898 and addressing potential disproportionate human health and environmental effects on low-income and minority populations, Reclamation would avoid adversely affecting environmental justice populations through its management actions.

Tribal consultation may increase operational costs for realty transactions and could limit recreation uses or increase the costs of commercial recreation activities by avoiding sensitive areas of Native American religious importance. These costs would vary based on the scope and degree of mitigating adverse impacts.

6.16.3.5 Effects from Recreation Management

Expenditures for travel and tourism for recreation affect transportation, lodging, eating establishments, retail, and service businesses. These expenditures support jobs, personal income, and government tax revenues. In 1992, travel-generated visitor expenditures in California reached approximately $52.8 billion. These expenditures generated $938 million in local taxes, $2 billion in state taxes, 668,000 jobs and $11.5 billion in payroll expenditures (NPS 1995). As identified in Chapter 5, recreation and tourism at the New Melones Lake Area have generated approximately $75 million, and increased employment in the leisure, hospitality and construction sectors in Calaveras and Tuolumne Counties. Reclamation's regulation of recreational activities in the New Melones Lake Area would be designed to minimize user conflicts, promote public safety, minimize the harmful effects of recreational activities on sensitive resources while promoting multiple uses, and accommodate user demands for recreational opportunities and access. The continued provision of both land-based and aquatic recreation opportunities would ensure the continued economic contribution of recreation at the New Melones Lake Area in Calaveras and Tuolumne Counties, the levels of which could vary by the amount and types of recreation promoted and allowed under each alternative. Concessionaire agreements with private enterprises would continue to provide business opportunities, the level and type of which could vary by alternative.

6.16.4 Effects on Socioeconomics under Alternative A

6.16.4.1 Effects from Physical Resources Management

Managing access to caves under Alternative A to comply with federal law and health and safety requirements would place the fewest restrictions on existing recreational opportunities in caves and would likely maintain the existing economic contribution of these recreational opportunities.

Continuing to close former roadways in Rural Developed Management Areas for public and resource protection could restrict access to trailered boat launching and support facilities and limit future recreational development under Alternative A. If these closures reduced recreational visits or their expenditures in the local economy or limited the locations or types of concessionaire businesses that could operate in the New Melones Lake Area, these restrictions could reduce the level of earnings and employment generated by recreation at the New Melones Lake Area.

6.16.4.2 Effects from Natural Resources Management

Continued implementation of the Peoria Wildlife Management Area Interim Management Plan under Alternative A would not further restrict economic activities, through the restriction of public vehicle use, limiting camping to reservations, closing or restoring unauthorized trails, reseeding or restoring unauthorized roads and impacted areas, and continuing the ban on shooting and target practice; since these restrictions are already in place. Any limitations they would have on recreational activities and the associated economic contribution of these activities is already occurring.

Restrictions to protect spawning areas and fisheries under Alternative A, such as minimizing disturbance of known spawning areas in Texas Charley Gulch and Black Bart

Cove, could limit some recreational activities and trail building, which could reduce the number of recreational visitors and their contribution to the local economy. However, this effect could be offset by an increase in the available fishing, fishing visitation, and contribution of fishing to the local economy.

Conducting surveys for raptors, mastiff bats, and other sensitive species under Alternative A would not directly result in restrictions to protect these special status species. It could limit recreational use of caves and climbing routes at Table Mountain if impacts on sensitive species were identified. Actions that would inhibit recreation activities to protect these species could have indirect socioeconomic effects, as described in Impacts Common to All Alternatives.

6.16.4.3 Effects from Lands, Transportation, and Access Management

Closures to public vehicles under Alternative A currently limits access to recreation that also could limit the level of economic activity generated by recreation and concessionaire activities. Continued operation and maintenance of existing substandard lake access routes would allow continued recreation in the accessed areas, which would not alter the level of economic activity generated by these recreational uses.

Under Alternative A, prohibiting OHV use on project lands precludes the potential economic contribution that this form of recreation would bring to the New Melones Lake Area (described under Alternative B). Since this would not be a change from existing conditions, it would not have a socioeconomic effect, aside from eliminating it as a future source of local economic growth.

The potential use of grazing to control invasive species would have the indirect socioeconomic effects described in Effects Common to All Alternatives from Lands, Transportation, and Access Management; however, Alternative A has the least definitive language for implementing such a program.

Continued implementation of fire management BMPs to control wildland fires could pose limitations for some recreational uses. For example, limiting open campfires could affect some visitors' recreation experience. However, since this would not represent a change from existing conditions, fire management under Alternative A would be unlikely to reduce the number of visitors or the contribution of recreation to the local economy.

6.16.4.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative A would be the same as those described under Effects Common to All Alternatives from Cultural and Social Resources Management.

6.16.4.5 Effects from Recreation Management

Under Alternative A, Reclamation's regulation of recreational activities in the New Melones Lake Area would have socioeconomic effects similar to those described in Effects Common to All Alternatives from Recreation Management, with the following exceptions. Allowing the expiration of the concessionaire contract in 2012 with no plan for renewal and tying the public boat mooring to this contract could result in an unmanaged situation in the future, particularly in peak use periods, if visitor needs were

not met as a result. These issues ultimately could impair the visitor experience and reduce the subsequent number of visitors, which could indirectly affect the local economy by reducing visitor expenditures.

Alternative A would implement the fewest management actions to protect and promote quiet fishing zones, as compared to the other alternatives. Therefore, Alternative A could result in fewer visits by anglers than other alternatives, resulting in a lower economic contribution than the other alternatives. According to the 2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation-California, resident and non-resident anglers spent more than 32 percent of the total wildlife-associated recreation expenditures in 2006 (US Fish and Wildlife Service and US Census Bureau 2007).

Under Alternative A, buoyed off areas would protect existing designated swimming areas, preserving the visitor experience for this use and maintaining the likelihood that visitors would continue to engage in this form of recreation and continue to spend money in the local economy for this use.

Under Alternative A, trails management would be designed to retain visitor traffic in existing high use areas and maintain existing trails to accommodate additional use. These measures would be designed to provide for existing use patterns, which would be likely to retain the existing contribution of recreational visitors to the local economy but would not be likely to draw new types of visitors or the associated new visitor expenditures in the local economy.

The continued updating of campground and RV facilities and the expansion of day use facilities would likely increase visitor satisfaction, which could encourage more recreational use and indirectly result in increased tourism expenditures in the local economy.

Under Alternative A, hunting would continue to be allowed and would continue to support earnings and employment in the local economy. According to the 2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation-California, resident and non-resident hunters spent approximately 11 percent of the total wildlife-associated recreation expenditures in 2006 (US Fish and Wildlife Service and US Census Bureau 2007).

Development of a climbing management plan to protect sensitive species could restrict the number of visitors who use the New Melones Lake Area for climbing and reduce the expenditures of outside visitors to the local economy, which relies heavily on recreation.

Managing access to caves under Alternative A to comply with federal law and health and safety requirements would place the fewest restrictions on existing recreational opportunities in caves, and would likely maintain the existing economic contribution of these recreational opportunities.

6.16.5 Effects on Socioeconomics under Alternative B

6.16.5.1 Effects from Physical Resources Management

Expanding access to caves under Alternative B and potentially providing interpretive opportunities for a concessionaire could attract more visitors and new concessionaire businesses to the New Melones Lake Area, expanding the contribution of recreation to the local economy.

If funding becomes available, updating and improving former roadways in Rural Developed Management Areas for lake access and constructing modern boat launch and support facilities could expand future recreational use under Alternative B. If these improved facilities increase recreational visits from outside the local area, visitor expenditures in the local economy, or expanded the locations or types of concessionaire businesses that could operate in the New Melones Lake Area, these actions could increase the level of earnings and employment generated by recreation at the New Melones Lake Area.

6.16.5.2 Effects from Natural Resources Management

Continued implementation of the Peoria Wildlife Management Area Interim Management Plan under Alternative B would have socioeconomic effects similar to those described under Alternative A; however, Alternative B would not be as restrictive of public vehicle use and would expand the possibilities for special use group camping. These actions could provide expanded recreational access and opportunities, which could bring additional visitors and visitor expenditures into the local economy.

Restrictions to protect spawning areas and fisheries under Alternative B would have the same socioeconomic effects described under Alternative A.

Conducting surveys for raptors, mastiff bats, and other sensitive species under Alternative B would have socioeconomic effects similar to those described under Alternative A. Improving the interpretive program with respect to raptors and encouraging visitor participation in raptor-watching activities could improve the visitor experience for those visiting the New Melones Lake Area for wildlife watching and could stimulate increased visitation and visitor expenditures in the local economy. Approximately 56 percent of total wildlife-related recreation expenditures in California in 2006 were made by wildlife watching participants (US Fish and Wildlife Service and US Census Bureau 2007).

6.16.5.3 Effects from Lands, Transportation, and Access Management

Entering into a managing partner or concession agreement to construct facilities and operate an OHV park would expand recreational opportunities and would draw a new visitor population to the New Melones Lake Area. OHV visitor expenditures in the local economy could generate additional sales, income, and jobs. Expenditures by OHV users in California for equipment, activities and events generated about $3 billion in economic activity in 1992 and supported 43,000 jobs. Rural communities realized much of this economic benefit (Florida Department of Agriculture and Consumer Services 2002). The addition of a concessionaire business also would provide and economic stimulus.

Limiting the extent of OHV use to a specific park area would limit the level of user conflicts, and noise, dust, and crowding effects on other visitors that would be associated with this new use, so that their recreation experience would not be adversely affected, and they would continue to contribute expenditures in the local economy.

By updating the land use allocation under Alternative B to reflect the WROS, carrying capacity study, and commercial services plan, the New Melones Lake Area would be able to plan for and accommodate a more-updated and potentially increased demand for recreational use, while protecting sensitive resources. An increase in recreational visits could also increase visitor expenditures in the local economy and generate employment and income.

Reopening public access to Peoria Flat, Old Parrotts Ferry Road and Melones Recreation Area with updated facilities, continued operation and updating of existing lake access routes, and upgrading of associated facilities under Alternative B would allow increased recreation in the accessed areas, which could increase the level of economic activity generated by these recreational uses.

The potential use of grazing to control invasive species would have the indirect socioeconomic effects described in Effects Common to All Alternatives from Lands, Transportation, and Access Management. Alternative B specifies adding grazing to generate revenue.

Implementation of the Fire Management Plan to control wildland fires could pose limitations for some recreational uses during prescribed burns and fuel hazard reduction activities. However, it is unlikely that these activities would reduce the number of visitors or the contribution of recreation to the local economy, since these activities typically would not happen during peak visitation.

6.16.5.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative B would be the same as those described in Effects Common to All Alternatives from Cultural and Social Resources Management.

6.16.5.5 Effects from Recreation Management

Alternative B would ensure that current marina facilities would be available with fewer limitations due to storms. It would provide the most recreation opportunities to accommodate increased visitor use, draw new types of recreational visitors, and raise visitor satisfaction through the provision of recreational amenities. The additional developed recreation areas would be likely to draw in the most new types of visitor groups and concessionaire businesses, which would generate expenditures in the local economy to support increased incomes and jobs. By basing concessionaire contracts for the marina and other commercial services and the need for development of additional boat storage on the commercial services plan and financial feasibility study, it is possible that more concessionaire contracts and boat storage facilities would be available under Alternative B. Additional concessionaire contracts could result in an increase in business activity in the local economy, and additional boat storage could make it easier for

recreational boaters to visit New Melones Lake and increase the number of visits to the project area. These increases could indirectly result in a stimulus to the local economy.

The potential for development of facilities in rural natural management areas, in addition to operating and maintaining facilities in all rural developed management areas, could encourage additional visitor use. To the extent that this would result in additional visits from outside the local economy or increased expenditures in the local economy from the same visitors, this could indirectly increase the level of activity in the local economy, boosting earnings and employment.

Alternative B would implement the same management of fishing zones as Alternative A and, therefore, would have the same socioeconomic effects with respect to this management action as Alternative A.

The addition of a new concessionaire for whitewater rafting could increase the number of jobs in the local economy by bringing in a new business, which could increase incomes and induce secondary employment and earnings through expenditures by the new business. In addition, a whitewater concession could draw new visitors and visitor expenditures in the local economy.

Under Alternative B, additional zoning to promote public safety on the lake, including additional swimming areas and areas appropriate for nonmotorized boating, houseboats, and seaplanes, would preserve the visitor experience for these uses and maintain the likelihood that visitors would continue to engage in these forms of recreation and continue to spend money in the local economy. Expanded floating dock facilities and floating campsites could draw additional visitors and expenditures in the local economy.

Management of aquatic recreation Under Alternative B would provide for increased use of watercraft and houseboats, which could increase the number of visitors (and visitor expenditures in the local economy) who visit for this use; however, the increased number of watercraft may deter fishing recreation in favor of quieter areas, which could decrease the level of this type of recreation expenditure in the local economy.

New trails development and optimizing trails connectivity would be designed to improve visitor access to accommodate additional use. These measures would be designed to expand use patterns, which would be likely to increase the number of visitors and the contribution of recreational visitors to the local economy.

Similar to Alternative A, the continued updating of campground, particularly RV facilities, and the expansion of day use facilities under Alternative B could indirectly result in increased tourism expenditures in the local economy.

Under Alternative B, hunting would be limited to shotgun-only hunting, which could reduce the number of hunters visiting the New Melones Lake Area and indirectly could reduce the economic contribution of hunting to the local economy.

The indirect socioeconomic effects of development of a climbing management plan under Alternative B would be the same as those identified under Alternative A.

Expanding access to caves under Alternative B and potentially providing interpretive opportunities for a concessionaire could attract more visitors and new concessionaire businesses to the New Melones Lake Area, expanding the contribution of recreation to the local economy.

6.16.6 Effects on Socioeconomics under Alternative C

6.16.6.1 Effects from Physical Resources Management

Restricting and, in some cases, eliminating access to caves under Alternative C would reduce the number of caving visitors, reducing the contribution of recreation to the local economy.

As described under Alternative A, continued closure of former roadways in Rural Developed Management Areas to prevent erosion and protect water resources under Alternative C could reduce the level of earnings and employment generated by recreation at the New Melones Lake Area. Further restrictions of vehicle use in Rural Natural Areas could further reduce visitor access, which could reduce the number of visitors and visitor expenditures in the local economy.

6.16.6.2 Effects from Natural Resources Management

Restricting activities in areas prone to weed invasion could restrict recreation, such as hiking, biking, and equestrian activities under Alternative C. To the extent that these recreation restrictions reduce the number of visitors to the New Melones Lake Area, they could result in reduced expenditures in the local economy.

The PWMA vehicle use and camping restrictions that would comprise implementation of a modified version of the Peoria Wildlife Management Area Interim Management Plan under Alternative C would restrict recreation in the PWMA and could reduce the number of visitors and their associated economic contribution to the area.

Management actions under Alternative C to enhance fish habitat and improve fisheries and aquatic resources would have socioeconomic effects similar to those described under Alternative B. However, restrictions to protect spawning areas and fisheries under Alternative C would limit recreational activities more than the other alternatives and could reduce the contribution of fishing to the local economy if the management actions discouraged fishermen from visiting the project area.

Under Alternative C management to protect special status species, including minimizing disruptions of caves and riparian areas, seasonal use restrictions, and conducting surveys for raptors, mastiff bats, and other sensitive species could limit the recreation opportunities available to visitors and discourage return recreational visits, which could reduce the contribution of recreation expenditures in the local economy.

6.16.6.3 Effects from Lands, Transportation, and Access Management

Avoiding future easements and rights-of-way across Reclamation lands or applying strict guidelines for the grant of such easements could increase costs to utilities to establish facilities and supply the utilities to the area, which could be passed along to consumers.

Under Alternative C the socioeconomic effects of prohibiting OHV use on project lands would be the same as those described under Alternative A.

Updating the land use allocation under Alternative C to reflect the WROS, carrying capacity study, and commercial services plan, in the New Melones Lake Area would have the same socioeconomic effects described under Alternative B.

Closures to public vehicles under Alternative C would have the same socioeconomic effects described under Alternative A. Continued operation and updating of existing lake access routes and upgrading of associated facilities under Alternative C would have the same socioeconomic effects as described under Alternative B.

The potential use of grazing to control invasive species would have the indirect socioeconomic effects described in Effects Common to All Alternatives from Lands, Transportation, and Access Management. Alternative C would be likely to limit the extent of grazing and, consequently, its contribution to the local economy, by implementing strict BMPs.

Similar to Alternative B, implementation of the Fire Management Plan to control wildland fires could pose limitations for some recreational uses during prescribed burns and fuel hazard reduction activities. However, these activities would be less intrusive under Alternative C and, therefore, would be less likely than under Alternative B to result socioeconomic effects.

6.16.6.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative C would be the same as those described in Effects Common to All Alternatives from Cultural and Social Resources Management.

6.16.6.5 Effects from Recreation Management

Management regulations to minimize user conflicts and promote safety under Alternative C would be unlikely to have a measurable indirect effect on visitors, the number of visitors and consequent visitor expenditures in the local economy, since they would be more restrictive of user activities than under Alternative B, but compliance with these expanded regulations could improve the visitor experience for the activities that would continue to be permitted by further reducing user conflicts and safety issues.

The socioeconomic effects of commercial services and concessions management on recreation under Alternative C would be intermediate between Alternatives A and D (all of which would induce a lower economic stimulus than Alternative B), since Alternative C would continue to provide the commercial services and concessions that are described in Effects Common to All Alternatives from Recreation Management. It would provide additional services, lodging, facilities, and permits for a limited number of outfitters to provide guide services, and construction of equestrian facilities for day use. These additional facilities would involve less development and would draw and accommodate fewer overnight visitors than under Alternative B, which would mean less money spent by visitors in the local economy than Under Alternative B, but would be more spent than under Alternative A. Additional recreation expenditures in the local economy could be

generated by visitors that prefer a more natural setting and a serene experience, since user conflicts generated by increased visitation and competing developed uses would be less likely under Alternative C.

By basing concessionaire contracts for the marina and other commercial services on the preservation of natural and cultural resources, it is likely that more visitors who prefer recreation in the natural environment would participate in recreation in the New Melones Lake Area and derive the most social value for the area, including second home owners. Additional concessionaire contracts could result in an increase in business activity in the local economy; however, the limitations placed on development would not likely bring an influx of new visitors or visitor expenditures to the local economy. Maintaining the existing marina concessionaire agreement would provide for the continued economic activity provided by this business.

Alternative C would have the same socioeconomic effects with respect to the management of fisheries and spawning areas as Alternative B, but the additional designation of Camp Nine, Coyote Creek, Greenhorn Creek and Mormon Creek could limit recreational activities in these areas and indirectly result in a decrease in the number of visitors to the New Melones Lake Area and a reduction visitor expenditures in the local economy.

If whitewater rafting businesses were to be approved under Alternative C, the addition of these businesses would have the same socioeconomic effects as described under Alternative B.

Under Alternative C, management of no-wake zones and swimming areas would have socioeconomic effects similar to those described under Alternative B.

Management of aquatic recreation Under Alternative C would reduce the use of watercraft and houseboats, which could indirectly result in a decrease in the number of visitors (and visitor expenditures in the local economy) who visit for this use; however, the decreased number of watercraft may encourage more fishing and wildlife watching forms of recreation that favor of quieter areas, which together injected $6,599,585,000 in the California economy in 2006 (US Fish and Wildlife Service and US Census Bureau 2007).

Alternative C would limit the number and extent of trails, campgrounds and RV facilities, and other developed facilities and encourage uses that preserve the natural environment, which could increase the level of social value attached to the project area for visitors who prefer more serene conditions. However, the limited development for land-based recreation could indirectly result in an overall decrease in the number of visitors and, therefore, visitor expenditures in the local economy. Modernization of existing facilities, enhancement of high demand areas, and optimizing trail connectivity could improve existing and new visitor access to accommodate existing and projected additional use, which could have socioeconomic effects similar to those described for Alternative B, but would be unlikely to result in a new influx of visitors or visitor expenditures in the local economy, due to development restrictions.

Hunting management under Alternative C could reduce the number of hunters visiting the New Melones Lake Area and indirectly could reduce the economic contribution of hunting to the local economy.

The indirect socioeconomic effects of development of a climbing management plan under Alternative C could further limit available climbing routes and decrease visiting climber expenditures in the local economy.

Restricting access to caves under Alternative C could indirectly result in a reduction in the number of caving visits to the New Melones Lake Area and could reduce the contribution of caving recreation to the local economy.

6.16.7 Effects on Socioeconomics under Alternative D

6.16.7.1 Effects from Physical Resources Management

While cave access would not be expanded under Alternative D, providing interpretive opportunities for a concessionaire could attract more visitors and new concessionaire businesses to the New Melones Lake Area, expanding the contribution of recreation to the local economy.

Updating and improving former roadways in Rural Developed Management Areas if funding becomes available would improve user access to Mark Twain, Parrott's Ferry, and Melones Recreation Area which could allow for continued and potentially expanded visitor use in these areas. If these improved facilities increase recreational visits from outside the local area or visitor expenditures in the local economy, these actions could increase the level of earnings and employment generated by recreation at the New Melones Lake Area. Providing dry camping opportunities in Semi-Primitive Areas and floating campsites in Rural Natural Areas could increase visitor satisfaction and visitor use, which could increase recreation-based economic activity.

6.16.7.2 Effects from Natural Resources Management

Full implementation of the Peoria Wildlife Management Area Interim Management Plan under Alternative D would have the same effects on socioeconomic resources as described under Alternative A.

Restrictions to protect spawning areas and fisheries under Alternative D, would have socioeconomic effects intermediate between Alternatives A and C, since restrictions to protect spawning areas and fisheries under Alternative D would limit recreational activities more than alternatives A and B and could reduce the contribution of fishing to the local economy if the management actions discouraged fishermen from visiting the project area. However, Alternative D does not call for seasonal restrictions on known warm water fish spawning areas, so fishing could continue to contribute to the local economy as under Alternative A.

Conducting surveys for raptors, mastiff bats, and other sensitive species under Alternative D would have the same effects on socioeconomic resources as those described under Alternative A.

6.16.7.3 Effects from Lands, Transportation, and Access Management

Under Alternative D the socioeconomic effects of prohibiting OHV use on project lands would be the same as those described under Alternative A.

The socioeconomic effects of updating the land use allocation under Alternative D to reflect the WROS, carrying capacity study, and commercial services plan would have the same effects as described under Alternative B.

The socioeconomic effects of closures to public vehicles under Alternative D would be the same as those described under Alternative A. Reopening public access to Old Parrotts Ferry Road, continued operation and updating of existing lake access routes, upgrading of associated facilities, and allowing access to the Westside for dispersed recreation under Alternative D would allow visitor use of the accessed areas, which would be less than would be allowed under Alternative B but more than under Alternatives A and C, which could increase the level of economic activity generated by these recreational uses.

The potential use of grazing to control invasive species would have the indirect socioeconomic effects described in Effects Common to All Alternatives from Lands, Transportation, and Access Management.

The socioeconomic effects of implementation of the Fire Management Plan to control wildland fires under Alternative D would be the same as those described under Alternative B.

6.16.7.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative D would be the same as those described in Effects Common to All Alternatives from Cultural and Social Resources Management.

6.16.7.5 Effects from Recreation Management

The effects of management regulations to minimize user conflicts and promote safety under Alternative D would be the same as those identified under Alternative C.

The effects of commercial services and concessions management on recreation under Alternative D would be intermediate between Alternatives C and B, in terms of increasing visitor use, visitor satisfaction with developed uses, and, therefore, visitor expenditures in the local economy, since a greater level of commercial services and concessions would be offered under Alternative D than under Alternative C but fewer than under Alternative B. Overall, Alternative D would provide increased recreational opportunities beyond what is proposed under Alternatives A and C, but limit development more than Alternative B. This would, satisfy users that prefer developed areas more than Alternatives A and C but potentially limit the level of competing uses that could occur under Alternative B, which could encourage a greater mix of visitor uses, but would limit the number and types of new visitors and their associated expenditures in the local economy. This would likely result in a lower economic stimulus than would be generated under Alternative B, but would still be likely to increase incomes and employment in the surrounding areas, as a result of goods and services purchases.

Alternative D would have socioeconomic effects similar to those described under Alternative B resulting from development of facilities in Rural Natural Management Areas in addition to operating and maintaining facilities in all Rural Developed Management areas.

Alternative D would implement the same management of fishing zones as Alternative A and, therefore, would have the same socioeconomic effects.

The socioeconomic effects of permitting commercial whitewater rafting businesses at the New Melones Lake Area under Alternative D would be the same as described under Alternative B.

Similar to Alternative B, management of aquatic recreation Under Alternative D would provide for increased use of watercraft and houseboats, which would have the same socioeconomic effects described under Alternative B.

Under Alternative D, increasing and improvement of equestrian trails in the PWMA and the addition of a concession facility, new trails development and optimizing trails connectivity would be designed to improve visitor access to accommodate additional use. These measures would be designed to expand use patterns, which would be likely to increase the number of visitors and the contribution of recreational visitors to the local economy. These socioeconomic effects would be the same as those described under Alternative B.

Similar to Alternatives A and B, the continued updating of campground and particularly RV facilities and the expansion of day use facilities under Alternative D could indirectly result in increased tourism expenditures in the local economy.

Under Alternative D, limitations that could be placed on shotgun-only hunting and other hunting restrictions could reduce the number of hunters visiting the New Melones Lake Area and indirectly could reduce the economic contribution of hunting to the local economy. However, these effects could be offset by potential increases in hunting and associated hunting expenditures in the local economy that could be generated by management to enhance hunting opportunities by developing agreements to allow special hunting events.

The indirect socioeconomic effects of development of a climbing management plan under Alternative D would be the same as those identified under Alternative A.

Managing access to caves under Alternative D would have the same socioeconomic effects described under Alternative A.

6.17 Recreation

6.17.1 Introduction

Effects on recreation from the proposed alternatives would result in a range of possible outcomes. Surface-disturbing activities, such as wildland fire management and

transportation improvements, would have effects on recreational settings and on recreation users due to restrictions or closures during treatments or improvements. This would be the case if areas and activities were restricted or excluded until surface-disturbing activities had concluded, or if such activities were to change the landscape character or the available recreation opportunities.

Recreation is divided into four categories for the purposes of this planning document and associated analyses: General Recreation, Land Based Recreation, Aquatic Recreation, and Interpretive Services, and Visitor Information. Refer to Chapter 5 for a description of the existing recreational opportunities in the New Melones Lake Area by recreational category. Chapter 3 describes the proposed recreation management actions for each recreational category under each alternative.

6.17.2 Methods of Analysis

6.17.2.1 Methods and Assumptions

This section presents potential effects of the alternatives on general, land and aquatic based recreation, and on interpretive services and visitor information, as determined through potential changes to visitor and community resident preferences (activities, experiences, benefits), recreation setting conditions (physical, social, administrative), recreation management (resources, signing, facilities), recreation marketing (visitor services, information, interpretation, and environmental education), recreation monitoring (inventory, monitoring), and recreation administration (permits and fees and visitor limits and regulations. These recreation features are interrelated and connected to access. For example, changes in recreation settings would result in corresponding changes in opportunities to achieve desired recreation experiences and associated benefits, influenced by access.

Recreation experiences and the potential attainment of a variety of beneficial outcomes are vulnerable to any management action that would alter the settings and opportunities in a particular area. Recreation settings are based on a variety of attributes such as remoteness, the amount of human modification in the natural environment, evidence of other users, restrictions and controls, and the level of motorized vehicle use. Management actions that greatly alter such features within a particular portion of the planning area could affect the capacity of that landscape to produce appropriate recreation opportunities and beneficial outcomes.

The recreation settings at the New Melones Lake Area are characterized and organized in a Water Recreation Opportunity Spectrum (WROS). The WROS encompasses six WROS classes. However, there are only three WROS classes within the eighteen management areas: Rural Developed, Rural Natural, and Semi-Primitive. Management actions were analyzed to determine their effects on these settings since recreational opportunities and experiences are dependent upon the available settings.

The analysis of potential effects on recreation is based on knowledge of the planning area and visitor use reporting statistics, which provide information on the amount and types of

recreation. Effects are quantified where possible. In the absence of quantitative data, best professional judgment was used, and effects are expressed in qualitative terms.

The analysis was based on the following assumptions:

- The demand for recreation use would continue to increase;
- Recreation visits would continue to increase;
- The incidence of resource damage and conflicts among recreationists involved in mechanized, motorized, and nonmotorized activities would increase as use of public lands increases;
- Anticipated increases would include OHV and boat use; and
- Users would continue to develop trails.

6.17.3 Effects on Recreation Common to All Alternatives

6.17.3.1 Effects from Physical Resources Management

Management actions designed to protect the geologic resources would also result in an improved recreational setting. Limiting mining would increase the amount of land that is available to recreationists and would limit the degradation of scenic qualities from mining. Closing old mines would protect visitors from accidental falls or injuries in mine shafts.

Recreation in or around caves would be managed to protect the sensitive qualities of caves. This could result in closures of some caves which would limit recreational caving opportunities. All recreation use would be managed to minimize impacts on preserve cave resources such as scenic qualities, fragile formations, cultural resources, and sensitive species. Protecting these qualities could result in prohibitions and/or seasonal restrictions on recreational activities.

Actions designed to protect the water quality at the New Melones Lake Area include updating minimum basic facilities in the Rural Developed and Rural Natural Management Areas. These updates would enhance the recreational experience for those visitors who seek and appreciate manmade conveniences. Maximizing water conservation would enhance recreational opportunities by ensuring that there are no water shortages for recreationists. Actions designed to enhance sanitation in the project lands would ensure that there are enough restrooms and toilets available for visitors. Denuded vegetation and erosion would lower the scenic quality of the project lands, so management actions designed to minimize or prevent erosion would improve aesthetics and the recreational setting. Additionally, denuded vegetation and erosion decrease the value of wildlife habitat and if wildlife leaves an area due to diminished habitat quality, the opportunities for wildlife viewing would also decrease. To control erosion, all vehicles would be confined to existing roadways and all OHV use would be prohibited. While these restrictions would limit some of the access and variety of recreation available in the New Melones Lake Area, it would protect scenic qualities and enhance the recreational experience for those visitors hiking, biking, and participating in other types

of non-motorized recreation. Actions designed to limit the release of contaminants would improve water quality in the project lands, thereby protecting the health of recreationists who drink the water or participate in aquatic activities. Maximizing water conservation would also contribute to sufficient water levels for aquatic recreation.

All noise from motorized boats, watercraft, and seaplanes would be monitored for compliance with noise regulations and seek to maintain noise at current levels. This would enhance visitor experiences, particularly for those seeking a serene setting.

6.17.3.2 Effects from Natural Resources Management

Protecting the native vegetation communities would have a variety of effects on recreation including maintaining or enhancing scenic qualities for visitors, maintaining quality habitat necessary for wildlife viewing opportunities, and screening evidence of other human activity. Protecting native plant communities could limit areas where recreational activities would be allowed, either seasonally or for longer periods. Over time, this would likely enhance recreational opportunities once the areas are reopened. Native plant communities found on serpentine soils contain a higher proportion of rare plant species so serpentine communities could have more closures and restrictions than other areas, which would limit or preclude recreational activities in those areas.

Protecting wetlands would have similar effects. Wetlands areas are particularly valuable for people participating in wildlife viewing activities so actions designed to protect or enhance these areas would enhance the wildlife viewing experience. If wetlands needed to be rehabilitated, then visitors would likely be excluded for short periods of time.

To protect the wildlife resources in the project lands, pets would be required to be leashed at all times, thereby precluding the opportunity to have a pet off-leash. Actions designed to protect or enhance wildlife habitat would have similar effects as those actions designed to protect or enhance vegetation. Improving habitat for wildlife would likely result in greater wildlife viewing opportunities, increased hunting opportunities, and a potentially more natural experience and less developed setting. The specific actions to rehabilitate habitat for wildlife would likely close off certain areas during the process, and thereby make them unavailable for recreation. Maintaining snags and placing nest platforms would increase the opportunities for recreationists to view wildlife that use these resources. Placement of wildlife water facilities could result in increased concentrations or numbers of wildlife, which could result in greater hunting success and an improved recreational experience for hunters as well as improved wildlife viewing opportunities. Actions designed to improve fish habitat would likely lead to improved populations of fish thereby enhancing the recreational opportunities for anglers.

To protect special status species, dispersed visitor use would be maintained in Rural Natural Management Areas, This would enhance the recreational experiences for visitors in those areas that wish to minimize their contact with other people or facilities. In the PWMA, rock climbing would be managed in accordance with federal regulations for natural resources. This could limit climbing if it is determined that climbing is affecting special status species.

The prevention of the introduction of aquatic invasive pest species by prohibiting boat launching from known source locations, screening for invasive plant species, and education would minimize the proliferation of invasive species and maintain natural habitats valued by recreationists.

Sound fish waste management would be promoted through a combination of fish cleaning facilities and public education. Public education opportunities on the ecology and cultural importance of native plant communities, wetlands and riparian areas would also be provided. These management actions would educate the public on a variety of issues and increase the number and type of interpretive visitor services offered.

6.17.3.3 Effects from Lands, Transportation, and Access Management

Land management actions to reduce unauthorized uses and prevent trespass, such as unpermitted grazing, would likely improve safety conditions for recreationists and reduce user conflicts. This would improve the overall recreational experience of visitors to project lands, which would encourage continued or increased visitation. Improvements to existing facilities to promote public health and safety also would ensure a positive visitor experience, which would promote return visits and better accommodate the anticipated increases in recreational use.

All alternatives would provide access to recreational opportunities on projects lands; however, all alternatives also impose some level of restriction on motorized transportation access. Such restrictions could affect the number of visitors that could use the New Melones Lake Area for recreation, the locations and types of recreation that could be pursued, and concessionaire activities. Management measures that continue to enforce Reclamation's off-road vehicles policy would continue to preclude motorized land-based recreation and motorized access to hunting in the New Melones Lake Area, a form of recreation that has seen increasing demand in recent years. However, these measures also would prevent conflicts between motorized and non-motorized land-based users and would preserve more serene user experiences.

Measures to protect public health and safety (such as providing staff levels commensurate with recreation visitation, law enforcement, and emergency first response; marking water safety hazards; and continued coordination with other relevant agencies to protect the public) would be likely to reduce user conflicts, allowing for a more positive recreation experience on project lands. A positive recreational experience would be likely to promote continued or increased recreational use of project lands.

All fuel breaks would be designed to minimize impacts on scenic resources. As a result, the recreation setting and visitor experience of boaters, swimmers and water craft users would not be affected from the sight of fuel breaks in the upland areas surrounding the New Melones Lake Area. Prescribed burns would be conducted in the fall and winter which would minimize effects on aquatic recreationists from smoke, noise and air pollutants.

6.17.3.4 Effects from Cultural and Social Resources Management

Protection of cultural resources also protects the physical and natural resources that bring visitors to the New Melones Lake Area; however, these protections could require access and recreational use restrictions. Such restrictions could limit the number of concessionaire businesses that could operate in the area, the number of recreational visitors that could be accommodated, and the types of recreation that could occur. These restrictions would include maintaining dispersed visitor use near high value resources, and placing barriers around historic properties.

Coordination with local agencies to promote tourism would result in the development of new concessionaire businesses and increased recreational use at the New Melones Lake Area, thereby reducing any potential reductions that could occur from restrictions to protect cultural resources. Tribal consultation could limit recreation uses to avoid sensitive areas of Native American religious importance.

Reclamation would provide interpretive programs, educational printed handouts, protective signs and ranger interface with the public to explain the values of cultural resources and to promote the protection of cultural resources. The implementation of these management actions would increase the cultural resources knowledge base of visitors and increase the number and type of interpretive visitor services offered.

6.17.3.5 Effects from Recreation Management

General

General recreation actions under all alternatives would support a diversity of recreational opportunities to support consumer demand, including development of a long-term recreation management strategy, continued updating of recreation management to reflect changing visitor uses, permitting special events, and supporting concessionaire agreements to provide recreational support services, programs and facilities. Management regulations would continue to foster public safety and minimize user conflicts, which would restrict some recreational activities in target areas.

Coordination measures would be likely to reduce user conflicts and improve public safety by preventing trespass, reducing visual negative impacts by educating landowners and agencies on nearby properties on the potential effects of their actions, and expanding boating law enforcement. These improvements could raise visitor satisfaction in areas where such conflicts have previously resulted in a negative experience.

Commercial services and concessions would continue to provide needed user services under all alternatives, which would allow continued visitor use of the marina, Angels Creek swim beach, the store at Glory Hole, water skiing course within the South Bay/Bear Creek Management Area, and RC flying facility in the PWMA. In addition, allowing special events permits would continue to draw visitors for the specifically permitted activities.

Under all alternatives, the provision and maintenance of facilities such as roads, trails, sanitation facilities, and storage facilities would provide the means for various forms of recreation and foster public health so that the recreation experience is positive for

visitors, encouraging continued use. Limitations placed on roads, trails, and access easements would curtail some land-based uses but would ensure that these facilities continue to be available for public use in the future.

User fees would continue to be implemented and would contribute to Reclamation's ability to provide recreation opportunities in the New Melones Lake Area. In addition, they provide a means to account for the number and types of users that visit project lands and limit recreation to those who desire the particular activity for which fees would be charged. These limits would reduce user conflicts, which could increase the level of satisfaction of the recreation participants; however, they could prevent potential visitors who could not afford the fees from full participation in the recreation opportunities available on project lands.

Aquatic Recreation

The development of appropriate educational opportunities on water and boating safety would improve the safety of boaters, swimmers and watercraft users educate the public and reduce potential conflicts between recreational users. Overall, this would improve the visitor experience.

The allowance of special permit events when they support Reclamation's mission including fishing tournaments, triathlons, and water-ski exhibitions would increase the number of aquatic recreationists on a seasonal basis (summer). Visitors not participating in special events would likely be displaced from areas that are being used for special events and congestion would increase.

Measures to prevent the introduction of aquatic invasive pest species would include prohibiting boat launching from known source locations, screening for invasive plant species, and education. These measures would provide an environmental education opportunity for the public. They would also reduce the number of boat launch areas, thereby limiting access for aquatic recreationists and increasing congestion in the remaining launch areas. However, courtesy docks in the waters surrounding usable boat ramps would continue to be provided, which would facilitate the efficient launch and take-out of boats and contribute to a positive visitor experience.

Land-Based Recreation

Continuing to provide a diverse range of land-based recreational opportunities would continue to draw large numbers of users and that number would likely increase over time. Limiting land-based recreational activities within wetlands and riparian buffer zones would alter use patterns and would limit recreational opportunities related to these ecosystems such as gathering flowers, viewing wildlife or just enjoying the scenic qualities of these ecosystems. Promoting wildlife viewing and other dispersed recreation in the PWMA would increase use in that area, thereby potentially altering use patterns somewhat throughout the New Melones Lake Area. Permitting of special events would contribute to a diverse array of recreational opportunities. However, recreationists not participating in the special events could find the quality of their experience diminished due to high numbers of users. Minimizing erosion and runoff through the design of

recreation area facilities would contribute to an improved recreational setting and experience due to an improvement in scenic qualities.

Directional signs and interpretive markers on trails would facilitate and potentially promote, biking, hiking, and horseback riding. Designing roads, trails, and access easements to follow natural contours and minimize steep slopes and stream crossings would also facilitate and likely promote scenic driving, hiking, biking, horseback riding, and other use of those facilities. Coordinating with partners in regional trails planning, construction, and management would improve the trails system and increase recreational opportunities related to their use. Planning, developing, and maintaining trailheads with minimal facilities and minimal effects on natural resources would create a more scenic and less developed experience for trail users. Construction of pathways would funnel foot traffic into those areas, thereby increasing the number of users on pathways. It would also contribute to a more developed recreation experience. Prohibiting equestrian use of trails within developed parts of the Rural Developed Management Areas such as Tuttletown and limiting bicycle use on equestrian trails would minimize user conflicts and create a safer and more enjoyable recreational experience for most users.

Locating campsites and picnic sites for groups and disabled users at the larger recreation areas would increase the availability of those types of sites and increase Americans with Disabilities Act (ADA) compliance at the New Melones Lake Area. Continuing to operate a volunteer camp host program would benefit recreationists by having hosts on-site to answer questions and offer assistance as needed. The presence of a camp host also facilitates compliance with regulations including noise restrictions, which benefits all visitors.

Educating all visitors on hunting opportunities and restrictions would increase compliance with hunting regulations and increase public safety. The ban on recreational target shooting would also increase public safety.

Under all alternatives, radio-controlled airplanes would continue to be allowed at Peoria Flat, so this recreational opportunity would continue.

Rock climbing would be allowed at the visitor's own risk under all alternatives. In the PWMA, rock climbing would be managed in accordance with federal regulations on natural and cultural resources, which could potentially entail some restrictions.

Spelunking would be allowed to continue at the visitor's own risk and would be managed to protect sensitive resources (scenic qualities, natural resources, cultural resources, etc). Protection could limit or preclude recreational use of caves, thereby limiting this recreational opportunity.

Interpretive and Visitor Services

Reclamation would continue to provide park rangers and resource staff to implement and manage the recreation, interpretive, natural resource, and visitor services programs, which would continue to reduce conflicts between users by providing ranger presence

and enforcing laws. This would provide a safer and more positive recreational experience.

The use of a phone and Internet-based reservation system (National Recreation Reservation System) for campground and group picnic facility reservations would reduce conflicts between users by providing a streamlined process for reservations and ensuring that visitors have a site when they arrive. However, the structured system could deter those visitors who desire a more spontaneous visit.

The continued education of the public on natural resources, cultural resources, public safety, invasive species, and Reclamation's mission would provide environmental education opportunities and potentially increase visitor appreciation of the New Melones Lake Area.

6.17.4 Effects on Recreation under Alternative A

6.17.4.1 Effects from Physical Resources Management

Monitoring and seeking voluntary compliance with boat and visitor noise regulations would improve the recreational experience for visitors by minimizing noise levels. This effect would be the most noticeable in management areas classified as Semi-Primitive since those areas are where visitors go to escape the sights and sounds of mankind.

Access to caves under this alternative would be accomplished to allow recreational use while meeting federal laws. For those recreationists that use caves, access may be restricted if use is determined to be in violation of these regulations.

Maintaining the existing fish cleaning stations would allow anglers to continue to clean their catches at New Melones and would enhance their experiences there. Providing and maintaining restroom facilities would likely enhance the recreational experience for visitors in areas where such facilities are provided. At the Natural Bridges area, the sanitation facilities would continue to be a distance away from where most use occurs, requiring some inconvenience to use the restroom. Roadways in Rural Developed Management Areas would continue to be closed. Closing these roadways would limit access and thereby limit recreational opportunities.

6.17.4.2 Effects from Natural Resources Management

The Baseline Conservation Camp in the PWMA would continue under their current lease. Since the Baseline Conservation Camp is a prison facility, its operation could cause some recreationists to feel uncomfortable in the vicinity of the Camp and cause them to avoid the area.

Actions in the PWMA that may affect recreation include closing all roads to public vehicle use, closing and restoring unauthorized trails, limiting camping to reservation only, and encouraging low-impact recreation (hiking, biking, etc). These actions would encourage the use of the PWMA under the Rural Natural designation. Those visitors wishing a more developed type of recreation would have to use another area.

Restricting and minimizing disturbance to known trout and warm water fish spawning areas would limit the type and amount of recreation in those areas during the spawning periods. This could limit motorized boating as well as recreation along the shorelines in those areas. The continued prohibition of specific water uses, including no-ski or no-wake zones in order to maintain quiet fishing zones, would limit disturbance to shallow water fish and minimize shoreline erosion, which would reduce sedimentation and loss of vegetation and provide more quiet fishing areas for anglers. All of these prohibitions and restrictions would improve fish habitat and spawning areas and would result in improved fishing opportunities over the long-term in the areas that remain open to fishing.

Actions designed to control invasive species would have the potential to affect recreation by closing some areas off to public access during treatments. The Integrated Pest Management Plan includes herbicide and pesticide applications, grazing, mechanical techniques, and biological control as methods to control invasive species. The time needed to implement each method and the time that the area would be off limits to the public varies by treatment and the size of the area to be treated.

6.17.4.3 Effects from Lands, Transportation, and Access Management

Continued closures to public vehicles under Alternative A would restrict recreational access to Mark Twain Lake Access, Old Parrotts Ferry Road, the PWMA, the Melones Recreation, French Flat Recreation, and Bear Creek Recreation Areas, as well as the Westside, Bowie Flat, Greenhorn Creek, Carson Hill, Dam and Spillway, and Stanislaus River Canyon Management Areas, which limits the level of recreational activities that could occur in these areas to more primitive types of recreation. Continued operation and maintenance of existing substandard lake access routes would allow continued recreation in the accessed areas.

Management of travel and access at the Westside and Bowie Flat areas under Alternative A would continue to emphasize low density use, and land-based recreational access would not be provided. A small amount of land-based recreation would be available, using fire roads; however, since the only access to these areas would be by boat, it would be unlikely that much land-based recreation could occur in these areas.

Reclamation would continue to allow hunting, provided it would occur at the regulated distance from human activity, for public safety; this would ensure that this form of recreation would continue to attract visitors to the New Melones Lake area. Under Alternative A, a long-term strategy for managing hunting would not be implemented as under Alternatives C and D. This could result in user conflicts and a decrease in the level of visitor satisfaction for other types of recreational users, as visitation and urbanization increase in the area.

Implementing BMPs to reduce fire danger and to respond to wildland fires would affect recreation in the project lands. Fire has the potential to disrupt recreation in a specific area, as well as affect the experiences for recreationists in other areas (loss of scenic values, smoke and odor, influx of additional visitors to an area that were displaced by the fire, etc.). The BMPs would seek to reduce the frequency of fires as well as to extinguish them immediately. Fire management actions under Alternative A, that have the potential

to affect recreation, include maintaining defensible space around facilities, limiting the use of open campfires to designated overnight campgrounds, and maintaining adequate grass and brush clearance next to roads in recreation areas. Maintaining defensible space and adequate grass and brush control could involve mechanical means. The effects from this include the presence of machinery or the increase in noise levels during these activities. Visitors who wish to have a more primitive experience would likely be affected. Limiting campfires to designated areas would limit the recreational experience of those users who wish to have a campfire as part of their visit, unless they are in a more developed area.

6.17.4.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative A would be the same as those described in Effects Common to All Alternatives from Cultural and Social Resources Management.

6.17.4.5 Effects from Recreation Management

General

Management regulations to minimize user conflicts and promote safety under Alternative A would likely be less restrictive of user activities than under Alternative C because compliance would be sought only for existing regulations, and there would be no expansion of reservoir regulations.

Alternative A would continue to provide the commercial services and concessions that are currently available, which would serve the existing level of visitor use, as described in Effects Common to All Alternatives from Recreation Management. Under Alternative A the marina area would continue to be subject to closure due to storms, which would limit its availability to the public. The level of services available under Alternative A could become less adequate in meeting visitor needs and could result in reduced visitor satisfaction as recreational demand increases, since no new marina facilities, protected floating swim docks, additional RC flying facilities, or retail stores would be constructed. In addition, concessions and commercial services management under Alternative A would not be likely to draw new types of users, since no change would be made in the types of services provided. For example, there would be no plan under Alternative A to provide floating or other overnight lodging facilities, seasonal scenic cruises, a new RV park, new special event facilities, equestrian trail riding, a mountain biking course, camping facilities in a Rural Natural Management Area, an OHV park, additional water courses, skeet or target shooting, and seaplane training; and no permits would be offered for businesses to offer rental equipment. Alternative A, therefore, would provide the most limited level of recreation services of all of the alternatives and would be the least adaptable to increases or changes in visitor demands.

Alternative A would continue the existing provision and maintenance of facilities in both Rural Natural Management Areas and Rural Developed Management Areas, which would serve the existing level of visitor use but could become limited and result in reduced visitor satisfaction as recreational demand increases.

Evaluation of visitor satisfaction through anecdotal information under Alternative A would allow Reclamation to provide optimal recreation opportunities based on current use patterns but would be less effective than Alternatives B, C, and D in using visitor feedback to adjust recreation management since no formal comment structure would be used.

Aquatic Recreation

Maintaining the existing marina contract, but allowing it to expire in 2012, would affect boaters by not providing an adequate number of marina facilities, houseboat repair facilities, and watercraft rentals, particularly since demand is expected to increase over time. Visitor satisfaction would decrease as congestion increased and opportunities decreased.

The prohibition of the following activities would continue: no-ski zones in Camp Nine and Stanislaus Canyon management areas, no-wake zones around the launch and marina (200 feet), no boating in designated swimming areas, no-swimming zones within 100 feet of launch ramps or docks, and no fishing from docks unless otherwise permitted. These management actions would reduce conflicts between aquatic recreation users and increase public safety but would also limit the areas available for various aquatic recreation activities. Congestion would be likely to increase in some areas.

The continued operation of the public water ski course at Bear Creek Cove would continue to provide recreational opportunities for water skiers. The current level of watercraft use would also continue. The continued management of houseboat activities and overnight occupancy vessels would continue. There would be no new effect from these actions.

Reclamation could issue a special use permit or enter into a concessionaire agreement to run a white water rafting operation at the Camp Nine Area which would provide another aquatic recreation activity. Currently, white water rafting occurs without permitted outfitters or special permits. Additionally, other guide services, such as fishing, occur without permits. Issuing a special permit or establishing a concessionaire would make these activities available to more visitors and would reduce safety concerns posed by unmonitored and unregulated guide activities.

Land-Based Recreation

If the equestrian staging area were relocated to a more appropriate area, and overnight use by permit allowed, this could improve the recreational experience for equestrian users.

Using existing trails and unpaved roads to develop future trail systems would limit access to new areas; however, effects on natural resources would be minimized thereby improving scenic qualities and opportunities for wildlife viewing and other similar activities. Operating and maintaining trail infrastructure in intensively used recreation areas would concentrate users and contribute to a more developed recreation experience. Constructing pathways three feet wide with an aggregate surface would contribute to a more developed recreation setting and would create a diminished recreational experience

to those seeking a more natural setting. Operating and maintaining the Natural Bridges trail and the fire road and trail systems in Glory Hole, Greenhorn Creek, and Westside, Tuttletown, Bear Creek, French Flat, and Peoria Wildlife Management Areas would allow access to and travel within those areas to continue.

Continuing to update and modernize campground and day-use facilities, including in all Rural Developed Management Areas, would appeal to, and likely increase, recreationists who desire a developed recreation experience.

Alternative A would allow hunting except within 150 yards of developed recreation areas (campgrounds, parking area, day use area, designated recreation area, etc.), or within 150 yards of the two power plants in the Camp Nine Management Area. This alternative would likely allow for the most hunting opportunities. However, under this alternative, other types of recreationists would be most affected and could potentially experience decreased recreational opportunities and restrictions on activities due to hunting.

If rock climbing activities are determined to be affecting sensitive species, a climbing management plan would be implemented. This would likely result in restrictions or closures in some areas, thereby limiting opportunities for rock climbing.

Access to caves would be managed in accordance with federal law and to meet health and safety requirements, thereby maintaining the opportunity for this type of recreation.

Interpretive and Visitor Services

Effects would be the same as described in Effects on Recreation Common to All Alternative from Recreation Management.

6.17.5 Effects on Recreation under Alternative B

6.17.5.1 Effects from Physical Resources Management

Effects from actions to manage noise levels in the project lands would be the same as under Alternative A.

Alternative B would seek to expand access to caves. Expanding access would likely allow more people to recreate in caves and expand the recreational opportunities in these areas. Alternative B would also provide cave tours led by Reclamation or a concessionaire. This would allow recreationists who prefer a more structured setting to access these caves and increase their recreational opportunities. For visitors who prefer a more primitive experience, this would likely decrease their experience in those areas.

Alternative B would increase the number of fish cleaning stations. This would allow for easier access, enhancing the experience for anglers. In addition to providing appropriate restroom facilities, high use areas would provide showers, RV dump stations, and hookups. These additional facilities in the high use areas would likely increase the recreational opportunities and experiences for those visitors seeking a developed type of recreation. Providing temporary restroom facilities at lower elevations when the water levels drop would ensure that facilities would remain near users and that adequate facilities would be provided. Signs indicating the lack of restroom facilities would be

posted at the Natural Bridges areas to inform users. A restroom may be installed in this area if deemed feasible by the Reclamation, which would reduce the time and inconvenience spent looking for other facilities.

In Rural Developed Management Areas, roads may be updated and improved rather than closed if funding becomes available. In addition to restoring these roads, a modern boat launch and support facilities would be developed in these areas. Having these roads and boat launching facilities open would have the potential to alter the recreational setting and opportunities of the users. An additional boat launch could result in more recreation on the water. Those people who are looking for a primitive type of recreation could leave these areas.

6.17.5.2 Effects from Natural Resources Management

The Baseline Conservation Camp would be managed the same as Alternative A with the exception that they would be allowed to expand operations. This expansion could limit recreation opportunities in the area.

Alternative B would allow a more developed type of recreation to take place in the PWMA. Vehicle use would only be restricted from December 1 to May 1, which would allow greater access to the area. Those seeking a primitive type of recreation may be displaced from the PWMA if vehicle use is allowed. Additional camping by nonequestrian hunters and special use groups (Boy Scouts and Girl Scouts) would be allowed by Special Use Permit. Allowing more camping in the area would likely result in an increased experience for these groups. Enhancing wildlife viewing opportunities in the PWMA would also result in increased experiences for those users engaged in this activity. Enhancing the wildlife viewing opportunities could draw more visitors to the area.

Effects from restricting disturbance near warm water fish and trout spawning areas would be the same as Alternative A.

Habitat for special status species would be protected in the same manner and with the same effects as Alternative A. Alternative B would also construct nesting platforms for ospreys which would improve the wildlife viewing opportunities in those areas. Visitor participation for viewing wildlife would be encouraged through lakeside viewing and boat tours. This would expand the opportunities for people to participate in this type of recreation. Actions to protect sensitive bat species and the effects on recreation would be the same as Alternative A, with the additional action of partnering with local spelunking organizations. Partnering with local organizations could increase the recreation opportunities for spelunkers.

Effects from actions to control the invasive species in the New Melones Lake Area would be similar to Alternative A. Alternative B could allow the use of livestock grazing in all areas except high-density areas (Tuttletown and Glory Hole) to control invasive species. Livestock grazing could result in decreased recreational experiences or opportunities if visitors are not able to access an area due to grazing, or if they choose to leave the area

due to the presence of livestock. Livestock could alter the recreation setting by trampling the native vegetation, leaving bare soil.

Effects from actions designing to minimize disturbance to fish spawning areas would be the same as under Alternative A.

6.17.5.3 Effects for Lands, Transportation, and Access Management

Effects from grazing would be the same as described in Effects from Natural Resources Management under Alternative B.

Under Alternative B operation of an OHV park would allow motorized off-highway land-based recreation, which had been precluded from the project area. The provision of this area would attract additional visitors and provide a new visitor use, allowing the New Melones Lake Area to respond to a user demand that has been increasing in recent years. However, these measures also could result in crowding issues at campsites from the increase in new recreational visitors.

The land management decisions under Alternative B would be based on the updated land use allocation at New Melones Lake, to reflect updated information, currently used management areas, and potential management from such sources as the WROS, carrying capacity study, and the commercial services plan. By doing this, the locations and types of recreation as well as the number of visitors and concessionaires would be allocated so that visitor satisfaction would be maximized, while minimizing user conflicts. These actions could indirectly attract and accommodate more recreational visitors by providing the appropriate facilities and uses.

Reopening Old Parrotts Ferry Road, the PWMA, and the Melones Recreation Area to public access, obtaining access to landlocked Reclamation property, optimizing trail and fire road connectivity, and increasing multiple uses and special use activities at the Bowie Flat Management Area would expand recreational opportunities in the project area, which could allow for more dispersal of visitors, accommodate additional land- and water-based recreation, and could improve the recreation experience of visitors in the project area. The availability of more land and, therefore, dispersed recreation would decrease the number and frequency of encounters, which would benefit users desiring to experience a natural setting and solitude, and would decrease user conflicts that could occur when competing uses occupy the same area. Improving lake access routes and associated facilities under Alternative B would have a similar effect on recreation.

Effects from seaplane management would be the same as under Alternative A.

Effects from hunting management would be similar to Alternative A, except hunting would be limited to shotgun-only, precluding other types of hunting.

Siting a sheriff substation with lake access to decrease response times would improve public safety and be likely to reduce user conflicts, improving the recreational experience for all visitors to the New Melones Lake Area.

Actions from implementing the Fire Management Plan under Alternative B that could affect recreation include creating gates to close areas during burns or in cases of extreme fire danger, undertaking fuel reduction activities or construction of fire lines, and rehabilitating areas after burns. Closing areas due to extreme fire dangers would limit the recreational opportunities. Visitors could move to a different area which could increase human density on that area, affecting the recreational experiences of the people there. A similar effect could occur from closing areas during rehabilitation or restoration activities after a fire.

In Rural Developed Management Areas, the construction of modern boat launch and support facilities and roadway improvements under Alternative B would create greater and enhanced access for boaters than under Alternative A.

6.17.5.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative B would be the same as those described in Effects Common to All Alternatives from Cultural and Social Resources Management.

6.17.5.5 Effects from Recreation Management

General

The effects of management regulations to minimize user conflicts and promote safety under Alternative B would be the same as those described under Alternative A.

Alternative B would continue to provide the commercial services and concessions that are currently available, which would serve the existing level of visitor use, as described in Effects Common to All Alternatives from Recreation Management. Construction of a wave attenuator in the current marina location to minimize storm damage under Alternative B would ensure that these facilities would continue to be available to serve the recreational demands of the public with fewer limitations due to storms. In addition, Alternative B would provide the most recreation opportunities to accommodate increased visitor use, draw new types of recreational visitors, and raise visitor satisfaction through the provision of recreational amenities, since Alternative B would provide new marina facilities, additional marina amenities, protected floating swim docks, additional RC flying facilities, retail stores for camping supplies, floating or other overnight lodging facilities, seasonal scenic cruises, restaurants or cafes, a new RV park, new special event facilities, equestrian trail riding, a mountain biking course, camping facilities in a Rural Natural management area, an OHV park, additional water courses, skeet or target shooting, and seaplane training, Permits would be offered for businesses to provide "adventure" guide services and offer rental equipment. These types of recreational opportunities would be likely to draw in and satisfy visitors who desire more developed types of recreation, but could decrease the satisfaction of visitors who desire a more primitive setting, such as wildlife watching, hiking, and fishing. The additional provision of developed facilities and services, with an associated increase in recreational visitors, also could increase the level of user conflicts on project lands.

Along with the provision and maintenance of facilities under Alternative B Reclamation would assess the feasibility and need for more facilities, based on the recreation demands of the public. This approach would allow greater flexibility in responding to increased use and could result in less crowding during peak visitation, and fewer user conflicts and public safety issues. The ability to resolve these issues also could result in maintaining visitor satisfaction.

Evaluation of visitor satisfaction through formal customer surveys and other forms of public involvement under Alternative B would allow Reclamation to provide optimal recreation opportunities based on patterns and activities desired by the public and would be more effective than Alternative A in using visitor feedback to adjust recreation management.

Aquatic Recreation

In Rural Developed Management Areas, the construction of modern boat launch and support facilities would increase the number of boating opportunities.

The designation of additional swimming areas, areas appropriate for non-motorized boating, houseboats, and seaplanes to protect public safety and natural resources, and additional no-wake zones to prevent shore erosion would reduce aquatic recreational user conflicts.

The allowed level of watercraft use would increase, compared to Alternative A. Additional float docks (to be used for swimming and fishing) and floating campsites would likely be constructed, providing additional opportunities and facilities for aquatic recreationists and likely enhancing visitor experiences.

The relocation of the public water ski course from Bear Creek Cove to Carson Creek Cove would maintain the availability of this activity at New Melones Lake.

The preparation of a moored vessel plan to manage houseboats would likely set the number of available size and term limits for boat mooring, which could limit houseboat activity but could reduce use conflicts and enhance visitor experiences.

The effects from seaplane management would be similar to Alternative A.

The issuance of a special permit or establishment of a concessionaire for white water rafting in the Camp Nine Area and commercial guide services would have effects similar to Alternative A.

Land-Based Recreation

Relocation of the equestrian staging area and its associated facilities at the PWMA would have the same effects as under Alternative A. However, improving the staging area and existing trails and developing additional trails would likely increase use by equestrian recreationists. More user conflicts are a possibility, but the creation of additional trails would also disperse equestrian users and would therefore likely diffuse increased user conflict. Equestrian users would likely have an enhanced recreational experience as a result of the improvements and additional trails.

Using existing trails and unpaved roads to develop future trail systems would have the same effects as under Alternative A. Encouraging multi-use trails (pedestrian, equestrian, bicycle, and ADA compliant) for new or existing trails would concentrate users and lead to an increase in user conflicts, thereby creating a diminished recreational experience for some users. However, ADA compliant trails, along with safety improvements and better access, would create opportunities for those users who previously did not use the trails or only used them on a limited basis. Constructing pathways three feet wide with an aggregate surface would have the same effects as under Alternative A. Updating the Natural Bridges trail in the Coyote Creek Management Area (including trail markers) would likely increase use in that area by making access easier for trail users. Optimizing the connectivity between the existing fire road and trail system for a variety of uses in Glory Hole, Greenhorn Creek, Westside, Tuttletown, Bear Creek, French Flat, and Peoria Wildlife Management Areas would increase recreational access to and travel within those areas, and would also increase the variety of recreational opportunities available in those areas. Developing new trailheads to access the Greenhorn Creek, Westside, Tuttletown, Bear Creek, French Flat, and Peoria Wildlife areas would increase recreational opportunities in those areas.

The effects from continuing to update and modernize campground and day-use facilities under Alternative B (including in all Rural Developed Management Areas) would be similar to those under Alternative A. However, under this alternative, full hookup campsites would also be created, thereby further promoting a developed recreation experience since it would attract more RV users. Adding utilities to RV sites at Glory Hole and Tuttletown would increase the demand and the number of RV recreationists in those areas. Constructing additional full-service RV campgrounds would increase the availability of those sites and contribute to a more developed recreational setting and experience for all visitors.

Creating a day use parking area on 66 acres near the PWMA would allow additional access to the PWMA and the activities popular there such as wildlife viewing and hiking.

Alternative B would restrict hunting more than under Alternative A by limiting it to shotguns only, thereby precluding opportunities to hunt by other weapons such as a rifle or bow. Hunting opportunities would be increased under Alternative B by developing agreements that would allow special hunting events.

Effects from management of rock climbing would be the same as under Alternative A.

Alternative B would increase access to caves while continuing to meet federal regulations and health and safety requirements. This would result in greater recreational opportunities for spelunking. Alternative B would have the most cave access of any of the alternatives.

Interpretive and Visitor Services

Preparing and implementing an Interpretive Master Plan would increase interpretive and educational opportunities for visitors. Updating and modernizing outdoor facilities for interpretive facilities would likely enhance visitor experiences at these facilities.

6.17.6 Effects on Recreation under Alternative C

6.17.6.1 Effects from Physical Resources Management

Alternative C would manage noise to seek mandatory compliance with noise regulations instead of voluntary compliance. By enforcing mandatory compliance, there would be less excessive noise and the recreational experience would likely improve for visitors. As mentioned in Alternative A, those visitors who are seeking to minimize contact with human activity would benefit the most from this.

Alternative C would limit access to caves which would limit recreational opportunities. Visitors would have to use caves off of the project lands for spelunking activities.

Alternative C would provide and maintain appropriate restroom facilities at existing high use areas as well as provide temporary facilities at lower elevations during times of low water levels similar to Alternative B. This Alternative would not provide showers, RV dump stations or hookups as in Alternative B. Not providing these services would likely preclude use of these areas by RVs. Visitors who would normally travel in RVs could not visit New Melones. Visitors who prefer a more primitive type of recreation would likely have an increased recreational experience if there were fewer RVs. A sign indicating the lack of restroom facilities at the Natural Bridges area would installed and BMPs would be implemented to resolve the lack of sanitation facilities there. This would likely enhance the recreational experience of those users who wish to see fewer facilities in the areas, but would detract from the experience of those wishing for more facilities.

In Rural Developed Management Areas, former roadways to boat launching facilities would be closed similar to Alternative A. Alternative C would also restrict or reduce vehicle use in Semi-Primitive Management Areas and reduce vehicle use in Rural Natural Areas. Restricting vehicle access to these areas would result in a more primitive type of recreation and those users would likely have an increased recreational opportunity from these actions. Conversely, those visitors who want more vehicle access would have decreased recreational opportunities. These users could travel to other areas in the project lands and increase activity or use in those areas.

6.17.6.2 Effects from Natural Resources Management

Serpentine soils would be fully surveyed for sensitive plants under Alternative C. This information would be used in project planning. If sensitive plants were found, or their populations found to be decreasing, public access to those areas would likely be limited or restricted. If that happened, there would less land available for public recreation.

The Baseline Conservation Camp would reduce its footprint under Alternative C. This could result in a greater amount of land being available to visitors for recreation. In the PWMA all roads would be closed, no camping would be allowed, and unauthorized trails would be closed. Limiting vehicle access in this area under Alternative C would result in decreased opportunities for those users who wish to drive in the area. Conversely, for those people who prefer a more primitive type of recreation, there would be an increased opportunity in the PWMA. Prohibiting camping would have a similar effect. Also, if

people are unable to camp in this area, they could camp in another area and increase the human density there.

Protections of trout and warm water spawning locations would be similar to Alternative A but with more areas covered. Expanding the protections would result in a larger area of land being off limits to recreation resulting in a decreased recreational opportunity.

Alternative C would protect special status species from disruption or loss, particularly during sensitive periods (breed, nesting, etc). To accomplish this, recreation in habitat for these species would likely be limited or restricted thereby limiting recreational opportunities. Over time, however, as the populations of these species increase in the area, there would be an increased opportunity for wildlife viewing. Climbing routes would be restricted near sensitive bats species and all routes would need to be designated. By limiting climbing routes to designated routes only, the experiences and opportunities of people involved with climbing may decrease. Overall, Alternative C provides the most protection to special status species thereby having the greatest potential to affect recreation from these protections.

Effects from actions designed to control invasive species would be similar to Alternative B.

6.17.6.3 Effects from Lands, Transportation, and Access Management

Under Alternative C, effects from basing land management decisions on the updated land use allocation at New Melones Lake would be the same as those described under Alternative B.

Under Alternative C, continued closure to public vehicles of Mark Twain Lake Access, Old Parrotts Ferry Road, Peoria Wildlife Management Areas, and Melones, French Flat and, Bear Creek Recreation Areas, as well as the Westside, Bowie Flat, Greenhorn Creek, Carson Hill, Dam and Spillway, and Stanislaus River Canyon Management Areas would have the same effects on recreation as described under Alternative A. However, reopening Old Parrotts Ferry Road and the Melones Recreation Area to public access and updating and modernizing the Camp Nine Road and other access roads and parking would have a mitigating effect on these recreation restrictions, similar to those described under Alternative B. However, the level and types of recreation permitted under Alternative C would be more limited than under Alternative B because trail and fire road connectivity would be optimized for hikers, rather than all uses, and recreation at the Bowie Flat Management Area would be optimized for hiking, equestrian use, and dry camping, similar to the emphasis of Alternative A.

Development and implementation of a long-term hunting management strategy could restrict the amount of hunting compared to Alternative A. However, it would also reduce the use conflicts between hunting and other more passive forms of recreation, which could result increased visitor satisfaction.

Effects from fire management actions would be similar to Alternative B.

6.17.6.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative C would be the same as those described in Effects Common to All Alternatives from Cultural and Social Resources Management.

6.17.6.5 Effects from Recreation Management

General

Management regulations to minimize user conflicts and promote safety under Alternative C would be likely to restrict user activities more than under Alternative B because compliance would be sought for expanded environmental constraints. However, compliance with these expanded regulations could improve the visitor experience for the activities that would continue to be permitted by further reducing user conflicts and safety issues.

The effects of commercial services and concessions management on recreation under Alternative C would be intermediate between Alternatives A and D. Alternative C would continue to provide the commercial services and concessions described in Effects Common to All Alternatives from Recreation Management. Moving the marina to a new location to minimize storm damage under Alternative C would have the same effects on recreation as described under Alternative B. In addition to the services and facilities provided under Alternative A, Alternative C would provide additional seasonally operated marina services, seasonal scenic cruises and lake tours, additional lodging facilities, permits for a limited number of outfitters to provide guide services, and construction of equestrian facilities for day use. These additional facilities would have recreation effects similar to those described under Alternative B but would be oriented more toward more passive uses and would tend to draw more day use visitors and satisfy those visitors desiring a more primitive setting and quieter experience. Since fewer developed facilities would be constructed under Alternative C than under Alternative B, user conflicts generated by increased visitation and competing developed uses would be less likely under Alternative C. By specifically prohibiting the construction of a mountain bike course in currently undeveloped management areas, Alternative C would limit the satisfaction for this user group and would be unlikely to draw additional recreational visitors for this use.

The limitations on future development in Rural Natural Management Areas and Rural Developed Management Areas under Alternative C could limit the level of response to increased recreational use and could result in crowding and user conflicts during peak visitation. Limited facilities development could enhance the satisfaction of users desiring a more primitive setting, however, this potentially could be offset by crowding and user conflicts.

The effects on recreation of valuation of visitor satisfaction through formal customer surveys and other forms of public involvement under Alternative C would be the same as those described under Alternative B.

Aquatic Recreation

The effects on aquatic recreation users from the designation of additional swimming areas, areas appropriate for non-motorized boating, houseboats, and seaplanes would be similar to Alternative B, except that more areas would be restricted to certain activities under Alternative C to protect sensitive resource areas.

The public water ski course would continue to operate and the effects under Alternative C would be similar to Alternative A. However, the relocation of the public water ski course is possible if a suitable location is found that would benefit resources, provide for public safety, minimize conflicts and optimize recreational opportunities.

A decrease in allowed watercraft use, compared to Alternative A, would provide less aquatic recreational opportunities for visitors and would likely result in a decrease in the number of visitors.

The effects on visitor services from the preparation of a moored vessel policy for the management of houseboats would be similar to Alternative B.

Under Alternative C, seaplane activity would be restricted, eliminating this recreational opportunity.

Concessionaire operated, white-water rafting opportunities would not be considered. Currently, white water rafting occurs without permitted outfitters or special permits. There would be no new effect.

Land-Based Recreation

Continuing to operate and maintain the equestrian staging area and its associated facilities at the PWMA and imposing use limits would reduce the amount of equestrian recreation in this management area. Equestrian users would likely be dissatisfied with this management action. However, user conflicts on the trails would decline, resulting in an enhanced recreational experience for the other types of recreationists. Relocating the Baseline Conservation Camp to the equestrian staging area would likely increase user conflicts at the staging area and negate effects from imposition of equestrian use limits.

Precluding new trail development except to protect sensitive species and habitats, would concentrate an increasing number of trail users over time, thereby reducing the quality of their recreational experience. However, as under Alternatives A and B, effects on natural resources would be minimized by precluding new trail construction, which would improve scenic qualities and opportunities for wildlife viewing and other similar activities. The effects from encouraging multi-use trail activities for new or existing trails would be similar to those under Alternatives B and D but with slightly less effect since it would only apply to redevelopment of trails (and not to new trails). The effects from updating the Natural Bridges trail in the Coyote Creek Management Area (including trail markers) would be the same as under Alternatives B and D. Optimizing the connectivity between the existing fire road and trail system for hikers in Glory Hole, Greenhorn Creek, Westside, Tuttletown, Bear Creek, French Flat, and Peoria Wildlife Management Areas would increase hiking access to and within those areas, as well as hiking opportunities.

The effects from continuing to update and modernize campground and day-use facilities under Alternative C would be similar to those under Alternative A except that under this alternative, vehicle barriers would be installed in the campgrounds and day-use areas. This would contain vehicle parking, thereby reducing effects on vegetation and soils. It would contribute to a developed recreation setting and experience, but would reduce the visual effects associated with denuded vegetation and soil erosion. Reducing the density of campground facilities at Rural Developed Management Areas would result in less noise and crowding and allow for a more relaxed and tranquil recreational setting and experience. Recreationists seeking those attributes would appreciate the increased opportunities for that type of setting.

Managing a 66-acre parcel near the PWMA for natural resource restoration projects could provide an additional area for recreational activities.

Alternative C would develop and implement a long-term hunting strategy that would include various hunting restrictions to protect the public. The additional restrictions would result in decreased hunting opportunities if the restrictions close areas previously open to hunting. Educating hunters to increase compliance and public safety would be accomplished in the same manner as Alternative A and would have the same effects.

Alternative C would restrict climbing routes near caves during bat habitation periods for sensitive species. A climbing management plan would be developed and implemented that would designate specific climbing routes and areas, which would limit climbing opportunities.

Interpretive and Visitor Services

Preparing and implementing an Interpretive Master Plan would have effects similar to Alternative B. Updating and modernizing outdoor facilities for interpretive facilities would have effects similar to Alternative C. In addition, an outdoor classroom would be constructed at the visitor center, providing the public with additional educational opportunities.

6.17.7 Effects on Recreation under Alternative D

6.17.7.1 Effects from Physical Resources Management

Effects from actions to manage noise levels would be the same as Alternative A.

Effects from managing access to caves would be similar to Alternative A, and effects from providing tours of caves would be similar to Alternative B.

Effects from managing roads and access for water quality protections would be the same as under Alternative C. One difference is that roads accessing Mark Twain, Parrott's Ferry, and Melones Recreation Area would be updated and improved in Rural Natural Management Areas. Increasing access to these areas would likely increase visitation and the human density in those areas. Additionally, dry camps would be provided in Semi-Primitive Management Areas, and floating campsites would be provided for in Rural Natural Management Areas. This would improve the experiences and opportunities for

most visitors; however, visitors seeking a primitive type of recreation would likely have a reduction of recreational opportunities and experiences in those areas.

6.17.7.2 Effects from Natural Resources Management

Surveying serpentine soils to include information for planning purposes would have the same effect as Alternative C.

Effects from management of Baseline Conservation Camp and PWMA would be similar to Alternative A.

Effects on recreation from special status species management would be similar to Alternative B.

Actions to control invasive species would have effects similar to Alternative A.

The disturbance of trout spawning areas would be restricted and minimized in five areas during the spawning season which would limit the fishing opportunities. The effect to anglers would be less under Alternative D than C, but greater under Alternatives A and B.

6.17.7.3 Effects from Lands, Transportation, and Access Management

Access closures under Alternative D would have recreation effects intermediate between those described under Alternative A and Alternative B, since the same areas would be closed as under Alternative A (Mark Twain Lake Access, Peoria Wildlife Management Area, and Melones, French Flat, and Bear Creek Recreation Areas, as well as the Westside, Bowie Flat, Greenhorn Creek, Carson Hill, Dam and Spillway, and Stanislaus River Canyon Management Areas), but Old Parrotts Ferry Road could be re-opened and lake access routes, associated facilities and Camp Nine Road would be modernized.

Limiting hunting to shotgun-only and development and implementation of long-term hunting management to protect the public and promote safety under Alternative D could potentially restrict the amount of hunting recreation that would occur to a greater extent than under Alternative B (which would be more restrictive than Alternative A). Alternative D would have the maximum potential to reduce the user conflicts between hunting and other forms of land-based recreation, increasing visitor satisfaction for these other types of recreational users and resulting in an increase in the other types of recreation in the area.

Effects from siting a sheriff substation with lake access would have the same effects as under Alternative B.

Effects from fire management actions would be similar to Alternative B.

6.17.7.4 Effects from Cultural and Social Resources Management

Effects from cultural and social resources management under Alternative D would be the same as those described in Effects Common to All Alternatives from Cultural and Social Resources Management.

6.17.7.5 Recreation

General

The effects of management regulations to minimize user conflicts and promote safety under Alternative D would be the same as those identified under Alternative C.

The effects of commercial services and concessions management on recreation under Alternative D would be intermediate between Alternatives C and B, in terms of increasing visitor use and visitor satisfaction with developed uses, since a greater level of commercial services and concessions would be offered under Alternative D than under Alternative C but fewer than under Alternative B. The level of marina services proposed under Alternative D would be similar to those identified under Alternative B, but on a seasonal basis. Similar to Alternative B, Alternative D would provide floating overnight lodging; however, it would be limited to the more primitive floating campsites, rather than the potentially more intensively developed "dockominiums" or floating hotels, which would be more likely to draw visitors that prefer a more primitive experience. Under Alternative D the provision of additional marina amenities, protected floating swim docks, retail stores for camping supplies, restaurants or cafes, a new RV park, new special event facilities, equestrian trail riding, and camping facilities in a Rural Natural Management Area would have the same effects on recreation described under Alternative B. The recreation effects of specifically prohibiting the construction of a mountain bike course in currently undeveloped management areas would be the same as those described under Alternative C. Overall, Alternative D would provide increased recreational opportunities beyond what is proposed under Alternatives A and C but limit development more than Alternative B, satisfying users that prefer developed areas more than Alternatives A and C but potentially limiting the level of competing uses that could occur under Alternative B.

The effects on recreation of the provision and maintenance of facilities under Alternative D would be the same as those described under Alternative B. Alternative D would concentrate future facilities development in specific areas, including French Flat, Bear Creek, Parrotts Ferry, Natural Bridges, Westside, Bowie Flat, Mark Twain, Camp Nine, Greenhorn Creek, Tuttletown and the Glory Hole Recreation Area. These areas cover most of the land-based recreation areas within the New Melones Lake Area.

The effects on recreation of valuation of visitor satisfaction through formal customer surveys and other forms of public involvement under Alternative D would be the same as those described under Alternatives B and C.

Aquatic Recreation

The effects on aquatic recreation users from the designation of additional swimming areas, areas appropriate for non-motorized boating, houseboats, and seaplanes would be less restrictive to recreation than Alternative C but more restrictive than Alternative B.

The public water ski course would continue to operate and the effects under Alternative D would be similar to Alternative A. However, the relocation of the public water ski

course is possible if a suitable location is found that would benefit resources, provide for public safety, minimize conflicts and optimize recreational opportunities.

The level of watercraft use and effects on aquatic recreation under Alternative D would be similar to Alternative B.

The effects on visitor services from preparing a policy for managing houseboats are similar to those under Alternative B.

Effects from seaplane management would be the same as under Alternative A.

The issuance of a special permit or establishment of a concessionaire for white-water rafting in the Camp Nine Area, and commercial guide services would have the same effects as those under Alternative A.

Land-Based Recreation

Effects from relocating the equestrian staging area and its associated facilities in the PWMA would be similar to Alternative B; however, there would be additional emphasis on providing interpretive opportunities.

Precluding new trail development except to protect sensitive species and habitats would have the same effects as under Alternative C. The effects from encouraging multi-use trail activities, implementing ADA-compliance features, safety, and other improvements including better access for new or existing trails would be the same as under Alternative B. The effects from updating the Natural Bridges trail in the Coyote Creek Management Area (including trail markers) would be the same as under Alternatives B and C. The effects from optimizing the connectivity between the existing fire road and trail system for a variety of uses in Glory Hole, Greenhorn Creek, Westside, Tuttletown, Bear Creek, French Flat, and Peoria management areas and from developing new trailheads to access the Greenhorn Creek, Westside, Tuttletown, Bear Creek, French Flat, and Peoria areas are the same under Alternative D as under Alternative B.

The effects from continuing to update and modernize campground and day-use facilities would be similar to those under Alternative A except that under this alternative, vehicle barriers would be installed in the campgrounds, and day-use areas and full hookup campsites would be created. Vehicle barriers would contain vehicle parking, thereby reducing effects on vegetation and soils. The barriers and full hookup campsites both contribute to a developed recreation setting and experience but would reduce the visual effects associated with denuded vegetation and soil erosion associated with parking off pavement and in a broad area. The effects from modernization under Alternative D would be the greatest of any of the four alternatives since Alternative D contains the most actions associated with modernizing campgrounds and day use facilities. The effects from adding utilities to RV sites and constructing full service RV campgrounds would be similar to those under Alternative B.

If a 66-acre parcel near the PWMA were managed to provide for a combination of natural resource restoration projects and recreation, it would increase recreational opportunities in the area.

Hunting under Alternative D would be managed similarly to Alternative C through the implementation of a long-term hunting strategy except that hunting would be limited to shotgun hunting only. This would result in less opportunity for other types of hunting.

Rock climbing and access to caves would be managed in the same manner as Alternative A.

Interpretive and Visitor Services

Preparing and implementing an Interpretive Master Plan would have effects similar to Alternative B. Effects from management of interpretive and visitor services would be similar to Alternative C.

6.18 Cumulative Effects

Cumulative effects are defined as the direct and indirect effects of a proposed project alternative's incremental impacts when they are added to other past, present, and reasonably foreseeable actions, regardless of who carries out the action (40 CFR, Part 1508.7). Guidance for implementing NEPA (Public Law 91-190, 1970) requires that federal agencies identify the timeframe and geographic boundaries within which they will evaluate potential cumulative effects of an action and the specific past, present, and reasonably foreseeable projects that will be analyzed. Effects of past actions and activities on resources are manifested in the current condition of the resource, which is described in Chapter 5 (Affected Environment) for resources on BLM-administered lands.

For this EIS, the cumulative impact assessment timeframe is from approximately 2000 to 2030, with some exceptions where additional past data are available. This encompasses a range within which data are generally available and forecasts can be reasonably made. This analysis is provided for each resource. It is general because decisions about other actions in the planning area would be made by many public and private entities, and the location, timing, and magnitude of these actions are not well known.

Public documents and data prepared by federal, state, and local government agencies are the primary information sources for past, present, and reasonably foreseeable future actions and for identifying reasonable trends in resource conditions and land uses. Actions undertaken by private persons and entities are assumed to be captured in the information made available by such agencies. Actions included in the cumulative impact analysis do not affect all resources equally: some resources would be affected by several or all of the described activities, while others would be affected very little or not at all. The actions that make up the cumulative effect scenario were analyzed in conjunction with the effects of each alternative to determine if they would have any additive or interactive effects on a particular resource.

Actions and trends with the potential to cumulatively affect the resources evaluated (e.g., water resources, vegetation) are identified below.

Calaveras County

Calaveras County has 40 pending projects. The projects involve 3,988 dwelling units on 14,202.24 acres. The projects involve, for example, townhouses and subdivisions. Calaveras County has 14 approved projects. The projects involve 752 dwelling units on 1394.60 acres. The projects involve, for example, townhouses and subdivisions. The pending and approved projects are scattered around Copperopolis, Tulloch Reservoir, New Melones Reservoir, Altaville, Vallecito, Douglas Flat, Murphys, and Avery.

Copper Valley Planning Area

The Copper Valley planning area is nine miles long from north to south and seven miles wide from west to east (Pastizzo 2009). It incorporates 50,000 acres, including 10,000 acres of open space.

There are approximately 15 approved projects within the Copper Valley planning area, covering a minimum of 1,400 acres. Many of these are residential developments. Approximately 40 projects are pending approval within the Copper Valley planning area, covering a minimum of 14,000 acres. These include residential developments such as townhouses and associated amenities, a golf course, and golf communities, and may total 4,000 units.

It is important to note that while some projects overlap with the approved and pending projects described above under Calaveras County, there are additional approved projects yet to be fully built out. Additionally there are some proposed projects that have not come to the planning department yet.

West Side Road Project

A developer in Copperopolis would like to create access to the Westside Management Area on the western shores of New Melones Lake. The draft Copperopolis Community Plan has been submitted to the Calaveras County Board of Supervisors. Within that document the land use map has two routes for the proposed road. The first route is accessed via O'Byrnes Ferry Road near Tulloch Reservoir and crosses through Bowie Flat and the Westside Management Areas to Texas Charlie gulch. The second route follows a portion of Loliando Road from O'Byrnes Ferry Road through the Morrissey Ranch to the Westside Management Area and Texas Charlie gulch (Pastizzo 2009).

Tuolumne County

Tuolumne County is to the eastern side of New Melones. The planning department did not have any information on development projects to provide and indicated that most of their county land near New Melones is designated as agricultural land.

General Plans

The following information came from available general plans. Although not specific to any particular project, the following information is useful with regard to project trends.

Angels Camp

The General Plan for the City of Angels Camp is from 1995, and there is a Draft EIR (2008) for the 2020 General Plan. According to the Draft EIR, the population is expected

to increase from 3,537 in 2005 to 5,400 in 2020. From 2001-2008, there was a projected need for 282 new housing units.

The Angels Camp 2020 General Plan projects an increase in average daily traffic generation, land development, demand for emergency services, and pressure on cultural resources. It also predicts a decrease in wastewater generation and water demand, reduced air quality due to increases in ozone, particulates, and other pollutants, and disturbance to native habitats. The plan includes extensive goals, policies, and implementation program to protect scenic resources.

Calaveras County

According to the general plan, the population in the county is projected to increase 46% from 40,890 in 2000 to 59,691 in 2020. Also, noise from traffic is expected to increase.

Climate Change

Climate change refers to any significant change in measures of climate such as temperature, precipitation, or wind patterns lasting for an extended period such as decades or longer. Climate change may result from natural factors, natural processes within the climate system, and human activities that change the atmosphere's composition through burning fossil fuels or changes in the land surface such as deforestation, urbanization and desertification (EPA 2009).

Climate change is a natural, continuous, and inevitable process that is influenced by many forces, one of which is the concentration of both naturally emitted and human-induced greenhouse gases in the atmosphere. Many other forces also control climate change, including cyclical changes in solar radiation, movement of the Earth's tectonic plates, oscillations in ocean temperatures and ocean currents, and the positions and magnitudes of meteorological entities such as high, low, and convergent zones.

The scientific community is largely in agreement that human activity in the twentieth and twenty-first centuries has enhanced greenhouse gas concentrations in the atmosphere, and these added gases have an effect on global temperatures and climate. Greenhouse gases include water vapor, carbon dioxide (CO_2), methane (CH_4), ozone (O_3), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6) (USGS 2006). CO_2, CH_4, and N_2O are produced naturally by respiration and other physiological processes of plants, animals, and microorganisms, by decomposition of organic matter, by volcanic and geothermal activity, by naturally occurring wildfires, and by natural chemical reactions in soil and water. Ozone is not released directly by natural sources but forms during complex chemical reactions in the atmosphere among organic compounds and nitrogen oxides in the presence of ultraviolet radiation. While water vapor is a strong greenhouse gas, its concentration in the atmosphere is primarily a result of, not a cause of, changes in surface and lower atmospheric temperature conditions.

Increases in greenhouse gas concentrations act primarily to increase the atmospheric absorption of outgoing radiation and increases in aerosols (microscopic airborne particles or droplets) that act to reflect and absorb incoming solar radiation and change cloud properties. Several of the major greenhouse gases occur naturally but increases in their

atmospheric concentrations over the last 250 years are due largely to human activities. Other greenhouse gases are entirely the result of human activities. The current concentration of a greenhouse gas in the atmosphere is the net result of the history of its past emissions and removals from the atmosphere (IPCC 2007).

Water vapor and carbon dioxide are the most abundant greenhouse gases but HFCs, PFCs and SF_6 have higher global warming potential. Global warming potentials are used to compare the abilities of different greenhouse gases to trap heat in the atmosphere. Carbon dioxide is used as the base for all the calculations, so its global warming potential is 1. The higher the global warming potential the more heat the specific gas can keep in the atmosphere (IPCC 2007).

Paleoclimate research has shown that the Earth has experienced several episodes of climate change during which air temperatures and levels of CO_2 increased in ways comparable to the present day changes, although the ice record indicates that the current concentrations of CO_2 in the atmosphere are unprecedented during human existence. Understanding the science of natural variability in climate is essential to forming of effective policy regarding the mitigation of or adaptation to climate change, both human and natural. One of the major challenges facing the climate science community is distinguishing natural climate change from that imposed on the natural system through human activities (USGS 2006).

Regulatory Background

NEPA requires Reclamation to discuss the significant environmental effects of its actions. The courts have held that this applies to climate-related effects as well as traditional environmental effects. The Secretary of the Interior's Order 3226 as amended in 2009 requires that DOI agencies "Consider and analyze potential climate change impacts when undertaking long-range planning exercises, setting priorities for scientific research and investigations, and/or when making major decisions affecting DOI resources." The amendment also includes proscriptions and direction on expanding the DOI consideration of climate change in ongoing programs and promoting carbon sequestration (USDOI 2009). The DOI is developing guidance on incorporating climate change in resource management planning.

The state of California has been a leader among governmental entities in recognizing climate change issues and planning for climate change. There is series of Executive Orders and adopted legislation on climate change within the state and a very active government research program (California 2009).

In 2005 Executive Order S-3-05 established targets for reducing greenhouse gas emissions in California to 2000 levels by 2010; a reduction of emissions to 1990 levels by 2020; and a reduction of GHG emissions to 80 percent below 1990 levels by 2050 (California 2005). The principal state legislation related to climate change is Assembly Bill 32 (AB 32), which Governor Schwarzenegger signed into law on September 27, 2006. AB 32 establishes a comprehensive program of regulatory and market mechanisms for reducing greenhouse gases to 1990 levels by 2020. It also adopted mandatory reporting rules for significant sources of greenhouse gases and a plan for indicating how

emissions will be reduced from significant greenhouse gas sources through discrete incremental actions. It also ensures the opportunity to comment on any actions to achieve these goals and to evaluate any effects on the economy, the environment, public health, equity between regulated entities, electricity reliability, conformance with other environmental laws, and environmental justice (California 2006).

Climate change in itself is not an environmental impact, but it is a global phenomenon that is modifying the affected environment of the planning area and can cause environmental impacts. Climate change has influenced or will influence most resources and resource uses. It can also affect the resource or recreational values of areas and the social and economic features of the planning area. This analysis includes a description of trends in climate change, how climate change is broadly affecting resources and resource uses, how plan alternatives might contribute to climate change and the potential adaptation, mitigation, sequestration, and emissions control measures.

Consideration of effects of climate change on the current condition and trends of specific resources as well as the impacts caused by climate change are addressed in more detail in the respective resource sections which follow. For example, changes in temperature and precipitation patterns are discussed here, but what those trends mean in terms of habitat availability, wildfire management or recreational opportunities are addressed in the subsequent resource sections.

Current Conditions

Climate change by definition is a global phenomenon that manifests itself locally in different ways. The global temperature record shows an average warming of about 1.3°F over the past century. According to the National Oceanic and Atmospheric Administration (NOAA), seven of the eight warmest years on record have occurred since 2001. Within the past 30 years, the rate of warming across the globe has been approximately three times greater than the rate over the last 100 years. The current post industrial warming trend differs from past changes in the Earth's climate because greenhouse gas emissions are higher and warming is occurring faster than at any other time on record. The Intergovernmental Panel on Climate Change (IPCC) concluded that warming of the Earth's climate system is now "unequivocal". The IPCC bases this conclusion on observations of increases in average air and ocean temperatures, melting snow and ice, and average sea level across the globe (EPA 2009; IPCC 2007).

Information on climate and climate change used for decision making is typically provided by historical observations or model results of projected future conditions. The first approach examines historical data for evidence of changing climate conditions and how climate change has manifested itself in the past. Knowing how the climate has already changed provides insight into the current trends in the future. The second approach compares simulations of the late twentieth century to observed data to see how well the downscaled climate information from modeling represents the climate in local regions.

There is a great deal of research being conducted on issues related to climate change in general and in California in particular. Studies that provide a complete synthesis of trends within discrete regions of the state (such as the New Melones Lake area and Sierra

foothills) are limited, so broader scale data are used here. The state of California maintains a web site (www.climatechange.ca.gov) that is constantly updated with the latest reports including primary studies. However, there remains a great deal of uncertainty, particularly with regard to regional and local manifestations of climate change. Researchers are trying to gain an understanding of the sources of uncertainty in tracking trends and planning for the future. The most recent simulations pull together up to twelve climate projections and two statistical downscaling methods to forecast California climate trends. Continuing to address issues of uncertainty in assessing potential climate change trends will remain a priority for researchers and decision makers (California Climate Change Center 2009a).

Greenhouse Gases

Current Trends. There is no synthesized data that inventories the current trends of greenhouse gas emissions specific to the New Melones Lake area or regionally. Detailed inventory by industry is available for the state of California from 1990 to 2004 to provide the baseline and to track targeted reductions. In summary by far most of the greenhouse gases in California are generated by the energy sector and more specifically by fuel combustion activities by vehicles, manufacturing and power generation. Transportation, mostly road transportation, accounts for 38 percent of the total gross emissions generated in the state. Electrical generation accounts for 25 percent, and manufacturing and industrial uses make up 20 percent of the total gross emissions. Agriculture and residential uses generate six percent each and commercial/institutional sources account for three percent.

The annual metric tonnes of CO_2 equivalent emitted have increased during the inventory period for transportation, electrical power generation and agriculture. There have been decreases in emissions from manufacturing and construction and from residential and commercial/institutional sources (California Air Resources Board 2007b , 2007c). To the extent that there are larger populations and more vehicle use in the other areas of the state, the inference may be that there are more greenhouse gas sources in these areas than in the New Melones Lake area.

Projected Trends. There is considerable uncertainty in projections of greenhouse gas emissions. Regardless of California's targeted reductions, future levels of greenhouse gases in the atmosphere will depend on human activities globally. Policy and development outcomes will affect emissions from carbon-based fossil fuel burning and other human activities driving climate change.

Climate researchers working in California have used scenarios developed by the IPCC as the basis for modeling the inputs of greenhouse gases into climate models (IPCC 2007). These scenarios do not assume explicit climate change or emission-reducing policies such as the ones in place in California. One lower-emissions scenario (called "B1") projects future decreases in CO2 concentrations following significant "decarbonization" of the economy. If CO2 emissions continue unabated, high emissions will ensue under a scenario called "A1fi" (for fossil fuel-intensive). The "A2" scenario describes a medium-high emissions scenario. However, the estimated emissions growth from 2000 to 2007 worldwide has been higher than even the most fossil fuel intensive scenario described

above. Climate projections derived from these scenarios should be viewed as a set of possible outcomes, each having an unspecified degree of uncertainty and not as detailed predictions (Cayan et al. 2008; IPCC 2007).

The California Governor's Executive Order S-3-05 calls for an 80 percent reduction in GHG emissions below 1990 levels by 2050 (California 2005). If the industrialized world were to follow California's lead, and newly industrializing nations followed a low carbon emission pathway, global emissions might remain below the lower B1 emissions scenario. However, even if global emissions stay below the lower emissions scenario, some impacts from greenhouse gases in the atmosphere are inevitable. Evidence indicates that even if actions could be taken to immediately curtail emissions, the potency of greenhouse gases that have already built up, their long atmospheric lifetimes, and the inertia of the Earth's climate system, it could still result in additional temperature increases over the next century (Cayan et al. 2008).

Temperature

Current Trends. The West is heating up faster than any other region of the United States. From 2003 through 2007, the global temperature averaged 1°F warmer than its twentieth century average. During the same period, 11 western states averaged 1.7 degrees warmer, 70 percent more than the world average. Scientists have shown that the warming trend is more than 99 percent likely to be outside the normal bounds of climate variation (Moser et al. 2009).

The warming of California is not geographically uniform. Minimum temperatures are increasing almost everywhere in California during the summer. Maximum daily temperatures are increasing at a slower rate, with some locations such as the Central Valley experiencing a cooling trend. Empirical evidence indicates that an increase in agricultural irrigation in the Central Valley since the 1920s has progressively cooled this region, partially masking the warming trend observed in unirrigated regions. Moist irrigated soil allows for evaporative cooling of the air above. The annual minimum temperature averaged over all of California has increased 0.33°F per decade from 1920 to 2003, while the average annual maximum temperature has increased 0.1°F per decade. There is also a positive trend in heat wave activity over the entire region that is expressed more strongly and clearly in nighttime rather than daytime temperature extremes. The magnitude of nighttime heat waves has substantially increased over time. Daytime heat wave activity has been intensifying more rapidly over the elevated interior compared to the lowland valleys (Moser et al. 2009).

Other independent studies have documented an increase in monthly minimum temperatures in the middle elevation Sierra Nevada over the past 100 years by about 5.4°F. In the 1930s, the coldest months still registered with their minimum temperatures below freezing. Researchers have found that the freeze line on western edge of Sierra forests has shifted eastward toward higher elevations (Moser et al. 2009).

Projected Trends. Hotter temperatures are expected throughout the state by the end of the century regardless of what assumptions are made about greenhouse gas emissions. Under a lower greenhouse gas emissions scenario an increase of 3 to 5.5°F in average

temperature is anticipated, and 8 to 10.5°F is anticipated under the higher emissions scenario. Recently accounting has revealed that emissions are rising more rapidly than those predicted by even the highest emission scenario. Thus, future projections of temperature increases for the state will need to model higher emissions scenarios and would likely result in an increase in projected average temperature if global actions to reduce greenhouse gas emissions are not effective (Moser et al. 2009).

Temperatures will vary locally and by the time of day. Urban areas can exacerbate the "heat island" effect, especially by raising nighttime temperatures. In agricultural areas like the Central Valley, for example, future warming will be governed in part by future rates of irrigation known to mask warming effects. Water availability may change agricultural practices and perhaps reduce this positive effect. Some models show greater summertime warming relative to wintertime warming, while some show less seasonality of temperature increases. Minimum nighttime temperatures are projected to warm slightly more relative to daytime temperatures (Moser et al. 2009).

Precipitation

Current Trends. There is a high degree of natural variability in precipitation and runoff in California. Projected increases in air temperature and changes in precipitation patterns could modify rainfall and snowfall patterns, reduce snowpack, change runoff volume and timing, increase sea levels, and change urban and agricultural water demands (California Climate Change Center 2009).

Throughout most of California, the general trend is that there is little summer precipitation. In the upper elevations, especially in the Sierras most precipitation falls in the winter as snow. Sierra snowpack is extremely important because it acts as a large natural reservoir and provides water for the summer and fall when rainfall is scarce. Over the past century, rising temperatures over the Sierra Nevada have had two major implications. First, more precipitation is falling as rain and less as snow and second, snow is melting earlier in the spring (California Climate Change Center 2009; Moser et al. 2009).

As more snow falls as rain during the winter, and spring snow melt occurs sooner, the risk of flooding increases and water shortages may occur in the summer. Because a greater percentage of the annual runoff is occurring outside the traditional snowmelt season, it reduces the amount of runoff that could be stored in reservoirs for later use. Runoff is increasingly occurring during times when flood control requirements mandate release of water from reservoirs to avoid flooding from possible strong storms in late winter. This change in precipitation patterns leads to low flow conditions in streams beginning in late spring with implications on aquatic habitat and water supplies for homes and agriculture (Moser et al. 2009).

The amount of water contained in accumulated snow has also been declining in low elevation areas while snowfall in higher elevations of the southern portion of the Sierra Nevada has been increasing. Lower elevations are more vulnerable to the effects of warming because a small rise in average temperature will create an earlier snowmelt or a shift from snow to rain. At high elevations, cooler temperatures provide a buffer that can

maintain the snowpack until spring, but the trend is toward increased temperatures there as well (Moser et al. 2009).

Projected Trends. There is no evidence from the projections indicating any change in the Mediterranean seasonal precipitation regime in California. Simulations show that most precipitation would continue to be derived during the winter from North Pacific storms. Summer precipitation would change only incrementally, with decreases in some of the simulations, so there is little evidence for a stronger monsoon influence. Precipitation overall would continue to be characterized by large fluctuation between years, including multiyear wetter and drier periods, but not much change in annual precipitation when averaged over the 2000 to 2100 period. The frequency of warm tropical events (El Niños) remains about the same as was exhibited in the historical simulations. However, the models however do not account well for local changes in precipitation which could be substantial (California Climate Change Center 2006).

While there is no clear pattern in the modeling of major changes in the overall amounts of precipitation expected or in the pattern of winter precipitation, the shift toward less snow and more rain in the mountains and earlier snowmelt is expected to continue to increase with rising temperatures. By the end of the century the snowpack in the Sierra Nevada and other mountains is expected to decrease by 20 to 40 percent, depending on the level of greenhouse gas emissions assumed in modeling. There would be an increased risk of winter flooding and earlier spring runoff leading to a greater vulnerability to summer water supply shortages. Hydroelectric power generation may be decreased in the summer when power demand is peaking (Moser et al. 2009).

Sea Level

Current Trends. Sea level has been rising globally since the end of the last glaciation more than 10,000 years ago. Global sea level rose at an average annual rate of 0.07 inches from 1961 to 2003 and at an accelerated average annual rate of about 0.12 inches from 1993 to 2003 (IPCC 2007). Global sea level rise is primarily the result of thermal expansion of the ocean water (water expands as it heats up) and the melting of land based ice. These two contributors account for most but not all of the observed sea-level rise (Moser et al. 2009). Sea level rise is already affecting much of California's coastal region.

Projected Trends. Estimates suggest that future global sea level could increase by 0.6 to 1.9 feet, or as much as over 4 feet by 2100, depending on the emission warming scenario employed (IPCC 2007). One study shows that man-made reservoirs around the world have been reducing the magnitude of global sea level rise by about 30 millimeters during the last half of the 20th century. The actual rate of sea level rise may be higher than had been assumed and used in these future projections. Effects in coastal areas are compounded by sea-level rise combined with storm surge, tides, and other climatic fluctuations, such as El Niño. Projections specific to the San Francisco area that may be relevant farther south indicate higher future sea level extremes resulting from increasing storm intensity, more frequent and longer extreme events and increased winter rainfall (Moser et al. 2009).

Modeling also indicates that there is almost no difference in the expected range of increase in sea level between a lower and higher level of projected future greenhouse gas scenarios. This suggests that even stringent emissions reductions and resulting lower air temperature cannot prevent substantial sea level rise because ocean waters store heat effectively and will expand for centuries, long after air temperatures may have been stabilized by controls on greenhouse gas emissions (Moser et al. 2009).

6.18.1 Air Quality

Cumulative air quality impacts typically occur when multiple projects affect the same geographic areas at the same time, or when sequential projects extend the duration of air quality impacts on a given area over a longer period of time. Since attainment of national ambient air quality standards for ozone and particulate matter require evaluation of conditions over three years, air pollution emissions that occurred in the recent past can affect attainment or nonattainment designations.

There would be cumulative air quality effects in the New Melones Area if projects such as the planned Copperopolis road project were constructed concurrently with construction being performed under proposed management actions in the New Melones Lake Area. Tuolumne County and Calaveras County both expect future increase in population. Population growth will be accompanied by new building construction on public and private lands throughout the two counties, with some of the new construction likely to occur near the New Melones Lake Area. Some of this construction activity is likely to occur concurrently with RMP-related construction activity in the New Melones Lake Area. Population growth in Tuolumne and Calaveras counties also will increase traffic on major roadways. Federal and state vehicle emission control programs may offset the increases in traffic volumes, and thus avoid increases in the absolute amount of vehicle-related air pollutant emissions.

Greenhouse gas emissions from sources in the New Melones Lake Area will contribute to cumulative climate change effects occurring in the region. Sources of greenhouse gas emissions in the New Melones Lake Area include boating and personal watercraft use at New Melones Lake, wildland fires, agricultural burns on private lands, vehicle traffic on paved and unpaved roads, campfires and camp stoves used in campgrounds at New Melones Lake, internal combustion engine equipment (such as portable generators) used in campgrounds at New Melones Lake, and mining and mineral development activities in areas near New Melones Lake. To the extent that these activities increase, greenhouse gas emissions are also likely to increase.

California and other parts of the western US have been warming over recent decades. The warming of California is not geographically uniform. Moser et al. (2009) indicate that minimum temperatures are increasing almost everywhere in California during the summer. Maximum daily temperatures are increasing at a slower rate, with some locations such as the Central Valley experiencing a cooling trend. Empirical evidence indicates that an increase in agricultural irrigation in the Central Valley since the 1920s has progressively cooled this region, partially masking the warming trend observed in non-irrigated regions. Moist, irrigated soil allows for evaporative cooling of the air above. The annual minimum temperature, averaged over all of California, has increased

0.33°F per decade from 1920 to 2003, while the average annual maximum temperature has increased 0.1°F per decade. There is also a positive trend in heat wave activity, over the entire region, that is expressed more strongly and clearly in nighttime rather than daytime temperature extremes. The magnitude of nighttime heat waves has substantially increased over time. Daytime heat wave activity has been intensifying more rapidly over the elevated interior compared to the lowland valleys. Monthly minimum temperatures in the middle elevation Sierra Nevada Mountains have increased by about 5.4ºF over the past 100 years. Researchers have found that this warming has caused the freeze-line on the western edge of Sierra forests to shift eastward toward higher elevations.

There is a high degree of natural variability in precipitation and runoff in California. Projected increases in air temperature, and changes in precipitation patterns could modify rainfall and snowfall patterns, reduce snowpack, change runoff volume and timing, increase sea levels, and change urban and agricultural water demands. Throughout most of California there is little summer precipitation. In the upper elevations of the Sierras most precipitation falls in the winter as snow. Sierra snowpack is extremely important because it acts as a large natural reservoir, and provides water for the summer and fall, when rainfall is scarce. Over the past century, rising temperatures over the Sierra Nevada have had two major implications: first, more precipitation is falling as rain and less as snow, and second, snowmelt is occurring earlier in the spring (California Climate Change Center 2009, Moser et al. 2009). The amount of water contained in accumulated snow has also been declining in low-elevation areas while snowfall in higher elevations of the southern portion of the Sierra Nevada has been increasing. Lower elevations are more vulnerable to the effects of warming since a small rise in average temperature will create an earlier snowmelt or a shift from snow to rain. At high elevations, cooler temperatures provide a buffer that can maintain the snowpack until spring, but the trend is toward increased temperatures there as well (Moser et al. 2009).

Over the long term, climate change may have indirect effects on emissions from wildfires and prescribed burns in the New Melones Lake Area. Climate change may also have indirect effects from greenhouse gas emissions associated with recreational activities by altering seasonal recreational patterns or use intensity. Climate change will alter temperature, precipitation, and snowpack conditions, resulting in changes to vegetation, stream flow, and the flow of springs. Vegetation changes will in turn have an effect on wildfire frequency and intensity, the necessity for conducting prescribed burns, and wildlife habitat conditions. As more precipitation falls as rain during the winter, and spring snow melt occurs sooner, the risk of flooding increases and water shortages may occur in the summer. Because a greater percentage of the annual runoff is occurring outside the traditional snowmelt season, it reduces the amount of runoff that could be stored in reservoirs for later use. Runoff is increasingly occurring during times when flood control requirements mandate release of water from reservoirs to avoid flooding from possible strong storms in late winter. This change in precipitation patterns leads to low flow conditions in streams beginning in late spring, with implications on aquatic habitat, water supplies for homes and agriculture, and water-based recreational activities (Moser et al. 2009). While climate change may affect air quality in the New Melones Lake Area, no cumulatively significant effects on air quality are expected from implementing the New Melones RMP.

6.18.2 Noise

There would be no cumulative effects on noise from climate change.

There would be cumulative effects on noise in the New Melones area if projects such as the planned Copperopolis road project were constructed concurrently with construction being performed under proposed management actions in the New Melones Lake Area.

Tuolumne County and Calaveras County both expect an increase in population of 53% and 46% respectively by the year 2020. This increase will increase the traffic in the area by an estimated 7.4 million trips on roadways between 2002 and 2025. This projected overall increase in traffic will have a cumulative effect on noise through an increase in noise levels if there is also an increase in visitor- and vehicle-related noise in the New Melones Lake Area. While cumulative projects may increase noise in the New Melones Lake Area, no cumulatively significant effects from noise are expected to result from implementing the New Melones Lake Area RMP.

6.18.3 Geological Resources

Past, present, and reasonably foreseeable actions that are relevant to the disturbance of geologic features, caves and soils include population growth, recreational use, wildland fire, and mining activities. The types of impacts that are ongoing and would occur in the future include additional disturbance of soils, increase in erosion, loss of areas with sensitive soils (e.g., serpentine soils, biological crusts), disturbance of cave ecosystems, loss of scientific value of unique geologic and cave features.

Developed areas adjacent to the New Melones Lake Area, such as Angels Camp and Copperopolis, are projected to increase in population, and will increase the demand for roads and housing, as well as increase the number of recreational users at New Melones Lake.

Along with population increases, a road from the West Side management area to Copperopolis would involve direct disturbance of soils, as well as facilitate a large increase in recreation use, with resultant indirect impacts.

Effects on soils from climate change are speculative at this time, and are based on current research. Projected increases in temperature would potentially change the patterns of vegetation species, changing the type and amount of vegetative cover over the soils. Less vegetation, or species with less soil retention capacity, would result in increased erosion. Increases in drought could reduce the vegetative cover, increasing wind erosion and runoff erosion during infrequent rain storms.

Any reductions in the Sierra snowpack would potentially alter the amount of water flowing in the Stanislaus River, and would potentially lower the lake level. This would increase the amount of area of the “bathtub ring” where there is no impediment to erosion. Associated changes to recreation could change the amount of visitation to unique geologic features and caves. Low water would re-expose some caves lost to the construction of the reservoir.

Cumulative effects would not be significant and would be similar among the alternatives. Alternative B would contribute to more regional cumulative effects resulting from implementing actions and allowing for increased use of the New Melones Lake Area. In general, Alternatives A, C, and D would provide more management measures than Alternative B which would directly or indirectly reduce the potential for cumulative impacts. Under Alternative C, the emphasis on actions that value resource conservation, education, and protection would have the least effect, or risk of effect, on vegetation management, and would contribute the least to cumulative effects.

6.18.4 Water Resources (Hydrology and Water Quality)

Effects from past and present events, including recreation development and infrastructure, adjacent land use changes, and road construction, have affected water quality and water resources at New Melones Lake. Foreseeable future events affecting water quality and water resources mirror many of the events that have occurred in the past, and that are currently occurring. Certain events, such as road construction, occur relatively rapidly, while other events, such as the public living closer to public lands, and climate change, occur relatively slowly.

Reclamation cannot prevent certain events, such as landscape-level projects conducted by other land managers, nor can Reclamation entirely forecast some events, such as wildland fires. Reclamation, however, does have greater control over certain events, such as recreation, preservation of open space, and motorized vehicle use.

Cumulative impacts on water quality and water resources from the above events would alter drainage patterns by recontouring the terrain, alter groundwater infiltration by increasing impervious surfaces, increase soil erosion by introducing activities to undeveloped areas, increase the presence of harmful wastes capable of degrading water quality by increasing activities that involve hazardous substances, and change supplies of water at New Melones Lake by altering the water cycle and upstream development. Reclamation would continue to use prohibitions, stipulations, BMPs, and SOPs to minimize impacts on water quality and water resources. While cumulative projects may alter water resources in the New Melones Lake Area, no cumulatively significant effects on water resources are expected to result from implementing the New Melones Lake Area RMP.

6.18.5 Visual Resources

Effects of past and present events, including recreation development and infrastructure, vegetation treatments, adjacent land use changes, and road construction, have affected visual resources at New Melones Lake. Foreseeable future events affecting visual resources mirror many of the events that have occurred and that are currently occurring.

Certain events, such as road construction, occur relatively rapidly. Other events, such as air pollution, the public living closer to public lands, and noxious weeds invading the area, occur relatively slowly.

Reclamation cannot prevent certain nearby events, such as landscape-level projects conducted by other land managers, or forecast events such as wildland fires.

Reclamation, however, does have greater control over other events, such as recreation, preservation of open space, and motorized vehicle use.

Cumulative effects on visual resources could include new nighttime light, new structures (such as buildings or roads), or new activities (such as motorized vehicle use). These effects would be more noticeable if they occurred in undeveloped or natural areas than in areas that already have human-made changes. Reclamation would continue to use prohibitions, stipulations, BMPs, and SOPs, so that changes to the visual landscape from specific, planned events ensured the environmentally sound preservation of visual resources. While cumulative projects may alter visual resources in the New Melones Lake Area, no cumulatively significant effects on visual resources are expected to result from implementing the New Melones Lake Area RMP.

6.18.6 Vegetation

Past, present, and reasonably foreseeable actions that are relevant to vegetation management include population growth, recreational use, wildland fire, watershed rehabilitation activities, regional planning efforts, weed management efforts, and livestock grazing. The types of effects that have occurred and would continue to occur include additional removal or disturbance of vegetation, loss of plant diversity, continued invasive and noxious weed invasion, loss of soil integrity, changes in fire regime, and reduced ecosystem function.

Developed areas adjacent to the New Melones Lake Area, such as Angels Camp and Copperopolis, are projected to increase in population. For example, Angels Camp's population is projected to increase by 53 percent between 2005 and 2020. This increase in population would increase the demand for roads and housing, as well as increase the number of recreational users at New Melones Lake. Such development would increase habitat fragmentation, and could allow for invasive weed introduction and spread. An increased number of vehicles could correspond with an increase in population, which could reduce air quality. This could affect vegetation by altering plant physiological processes, such as respiration, leading to a decline in plant health and vigor.

Along with population increases, a road from the Westside Management Area to Copperopolis would facilitate a large increase in recreation use. This road would permanently remove vegetation in previously undisturbed areas, would disturb vegetative patterns, would allow weeds to be introduced and spread, and would allow unauthorized uses. Effects from population growth and increased recreation would be similar to those described in Effects Common to All Alternatives from Recreation Management. In addition, the proposed roadway location contains extremely steep terrain, and removing vegetation for road construction would increase erosion and would affect water quality in the Texas Charley Gulch Area, a known fish spawning location.

Reclamation's management actions would increase and improve the native plant communities within the New Melones Lake Area. Since much of the surrounding lands are being developed, and weed invasion and loss of native communities are a problem throughout the western states, this cumulative effect could be substantial throughout the region of influence.

Definitive effects on vegetation from climate change are speculative at this time, and are based on current research. Climate change can affect vegetation by altering the frequency, intensity, duration, and timing of fire, drought, introduced species, and insect and pathogen outbreaks (Dale et al. 2001). Projected increases in temperature could favor some species over others, and invasive plant species could have a competitive advantage. Recent modeling has shown that the prevalence of non-native grasses would increase in the Sierra Nevada foothills, with a loss of oak woodland and chaparral communities (Lenihan et al. 2003). Due to their immobility, it is unlikely that plants would be able to adapt and move quickly enough to match the pace of climate changes. Increased temperatures could alter the timing of pollinator life cycles, preventing certain native species from reproducing. Increases in drought could change the natural fire regime by making wildland fires more frequent, causing widespread destruction of vegetation. Further, reductions in the Sierra snowpack could alter the amount of water flowing in the Stanislaus River, and could lower the lake level. This could be beneficial to certain recreational uses, such as white-water rafting, but detrimental to others, such as boating. Changes in recreational uses could affect vegetation, as described in Effects Common to All Alternatives from Recreation Management.

Cumulative effects would not be significant and would be similar among the alternatives. Alternative B would contribute to more regional cumulative effects resulting from implementing actions and allowing for increased use of the New Melones Lake Area. In general, Alternatives A, C, and D would provide more management measures that would directly or indirectly reduce the potential for cumulative effects than Alternative B. Under Alternative C, the emphasis on actions that value resource conservation and protection would have the least effect, or risk of effect, on vegetation management, and would contribute the least to cumulative effects.

6.18.7 Fish and Wildlife

Past, present, and reasonably foreseeable actions relevant to fish and wildlife management include population growth, recreational use, wildland fire, watershed rehabilitation activities, regional planning efforts, weed management efforts, and livestock grazing. The types of effects that have occurred and would continue to occur include additional removal or disturbance of vegetation, habitat fragmentation, loss of plant diversity, continued weed and noxious weed invasion, loss of soil integrity, changes in fire regime, and reduced ecosystem function. This would result in degraded quality of habitats and potentially reduce the populations the habitats can support.

Numerous pending and approved developments have been identified in the area surrounding the New Melones Lake Area. In Calaveras County, approximately 1,395 acres of land has been approved for development (new housing, etc), and approximately 7,101 acres are pending approval. Development of these areas would result in loss of habitat for wildlife species, fragmentation of habitat, and potential disturbance to wildlife in those areas. An increase of people living in the area could result in greater disturbance to wildlife species.

A developer in Copperopolis is proposing to construct a road that would provide access to the western shores of New Melones Lake. Construction of this road would likely

increase access to the reservoir and result in habitat loss and fragmentation where the road is built, disturbance to wildlife along the road, including the possibility of mortality from vehicle strikes, and increased disturbance to wildlife at the reservoir from more visitation due to improved access.

Any construction near water bodies, particularly those upstream of the New Melones Lake Area, could result in increased erosion and sedimentation, and potential degradation of fishery habitat.

In the foreseeable future, implementation of the RMP would put numerous new mitigation, restoration, and conservation measures in place that would reduce the potential extent and severity of effects from other actions. Action on Reclamation lands would have a noticeable effect at the local level, and because of the high level of recreational use that occurs in the projects lands, the contribution from the New Melones Lake Area is considerable.

Climate change is a process influenced by many factors, both natural and man-made. Cumulative effects resulting from climate change, that could affect fish and wildlife species in the New Melones Lake Area, include changes in temperature and precipitation. Current models predict that temperatures throughout California are expected to rise. This could affect wildlife by altering hibernation patterns (beginning hibernation later in the fall and awakening earlier in the spring). If wildlife are hibernating less, then they would likely need greater supplies of food during the additional “awake” period. If wildlife have to search for more food resources, then the likelihood of human/wildlife interactions increases. Another effect of rising temperatures is those species that require cooler temperatures would be required to travel to higher elevations to look for food and shelter. If more species congregate at higher elevations, then the resources there would be more impacted from the increased use. Higher temperature could affect fish species. Cold water fish could have to descend to deeper depths of the reservoir which could limit their access to food resources. Other changes that could occur include loss of potential food sources, loss of host plants, and changes in the timing of life cycle events, such as mating, egg-laying, and migration.

The models for climate change in California do not predict a change in the total amount of precipitation near the project lands, as this area is naturally highly variable in the amount of precipitation. Instead, due to the predicted increases in temperature, more of the precipitation would occur as rainfall than snow. If there is less snow then the snowpack would be less and the snowmelt would likely occur earlier. Altering the spring runoff could have an affect of fish populations. If water levels or flow rates change, it may alter the spawning success for fish species, or cause them to alter the timing of these activities to coincide with the changed flow rates.

While cumulative projects may affect fish and wildlife in the New Melones Lake Area, no cumulatively significant effects on fish and wildlife are expected to result from implementing the New Melones Lake Area RMP.

6.18.8 Special Status Species

Past, present, and reasonably foreseeable actions that are relevant to special status species management include population growth, recreational use, wildland fire, watershed rehabilitation activities, regional planning efforts, weed management efforts, and livestock grazing. The types of effects that have occurred, and would continue to occur, include additional removal or disturbance of vegetation, habitat fragmentation, loss of plant diversity, continued invasive and noxious weed invasion, loss of soil integrity, changes in fire regime, and reduced ecosystem function. The results would be degraded quality of habitats and potentially reduction the populations that the habitats could support.

Population increases are projected for developed areas adjacent to the New Melones Lake Area, such as Angels Camp and Copperopolis. For example, Angels Camp's population is projected to increase by 53 percent between 2005 and 2020. This increase in population would increase the demand for roads and housing, as well as increase the number of recreational users at New Melones Lake. Such development would increase habitat fragmentation, and could destroy special status species or their habitats. An increased population means an increased number of vehicles, which could reduce air quality. This could affect habitats by altering plant physiological processes, such as respiration, leading to a decline in plant health and vigor. In addition, reduced air quality could lower the health of some special status wildlife species.

Along with population increases, a road from the Westside Management Area to Copperopolis would facilitate a large increase in recreation use. This road would permanently remove vegetation in previously undisturbed areas, as well as allow for weed introduction and spread, and unauthorized uses. Effects from population growth and increased recreation would be similar to those described in Effects Common to All Alternatives from Recreation Management.

Reclamation's management actions would increase and improve potential habitats for special status species within the New Melones Lake Area, and protect existing known populations. However, since much of the surrounding lands are being developed, and habitat fragmentation and degradation are a problem throughout the western states, the cumulative effect of fragmentation and degradation could be substantial throughout the region of influence.

Definitive effects on vegetation from climate change are speculative at this time, and are based on current research. Climate change can affect special status species and their habitats by altering the frequency, intensity, duration, and timing of fire, drought, introduced species, and insect and pathogen outbreaks (Dale et al. 2001). Projected increases in temperature could favor some species over others, and invasive plant species could have a competitive advantage. Recent modeling has shown that with a loss of oak woodland and chaparral communities, the prevalence of non-native grasses would increase in the Sierra Nevada foothills, (Lenihan et al. 2003).

Many species, particularly plants, cannot move quickly enough to match the pace of climate changes. Increased temperatures could alter the timing of pollinator life cycles,

preventing certain species from reproducing. Other changes that could occur include loss of potential food sources, loss of host plants, and changes in the timing of life cycle events, such as mating, egg-laying, and migration.

Increases in drought could change the natural fire regime by making wildland fires more frequent, causing widespread destruction of habitats and potential mortality of special status species. Further, reductions in the Sierra snowpack could alter the amount of water flowing in the Stanislaus River and could lower the lake level. This could be beneficial to certain recreational uses, such as white water rafting, but detrimental to others, such as boating. Changes in recreational uses could affect vegetation, as described in Effects Common to All Alternatives from Recreation Management.

Cumulative effects would not be significant and would be similar among the alternatives. Alternative B would contribute to more regional cumulative effects resulting from implementing actions and allowing for increased use of the New Melones Lake Area. In general, Alternatives A, C, and D would provide more management measures than Alternative B that would directly or indirectly reduce the potential for cumulative effects. Under Alternative C, the emphasis on actions that value resource conservation and protection would have the least effect, or risk of effects, on special status species management and would contribute the least to cumulative effects.

6.18.9 General Land Management

Cumulative actions would affect general land management. Recreation demands, adjacent land uses, protection of biological and aquatic resources, and increases in New Melones users and the population, are examples of cumulative actions that affect general land management. Reclamation's mission is to manage, develop, and protect water and related resources in an environmentally and economically sound manner, in the interest of the American public. In order to do this, Reclamation would continue to manage its land and coordinate with others so that cumulative actions did not result in incompatible land uses. As a result, no significant cumulative effects on general land management are expected to result from implementing the New Melones Lake Area RMP.

6.18.10 Access and Transportation

The demand on the transportation network within the New Melones Lake Area is expected to increase in the future along with population growth. Effects on the transportation network and access from residential, commercial and industrial development would occur from an increase in traffic, and create a need for greater access to the New Melones Lake Area. The increase in the WUI in and around the New Melones Lake Area would affect the transportation network by putting more demand on access, especially during a fire. Climate change related effects on the transportation network include increased snowmelt, heavy precipitation events and prolonged periods of warmer air and water temperatures. Roads and access routes would likely be damaged by snowmelt and heavy precipitation from an increased amount of water in tributaries overflowing onto roads within the New Melones Lake Area. The frequency and duration of warmer air and water temperatures would likely increase the amount of traffic in the New Melones Lake Area from a prolonged visitor season. Implementing any of the alternatives would result in a variety of cumulative effects on the transportation network

and access routes. However, no significant cumulative effects on access and transportation are expected to result from implementing the New Melones Lake Area RMP.

6.18.11 Public Health and Safety

Reasonably foreseeable future actions (such as those associated with recreation, visitor use, and population increases) involve additional public health and safety issues due to increased use of, and access to, Reclamation land. Public health and safety issues may involve additional law enforcement, for example. Reclamation strives to provide adequate staffing and enforcement to fully implement policies and management actions to maintain the level and quality of safety and services expected by visitors, thereby minimizing cumulative effects on public health and safety. Depending on the actual level of law enforcement, due to budget constraints, cumulative effects on public health and safety would vary in intensity, but they are unlikely to be significant.

6.18.12 Fire

Cumulative effects for fire management are assessed for 20 years from the beginning of implementation of the revised plan.

In the past, fire has been most affected by fire suppression, which has changed the fire regime from frequent low or mixed severity fire to stand replacing fire, by increasing fuel loads (live and dead vegetation, leaves, needles, etc.) and overstocked (denser vegetation). Fire ignitions between 1994 and 2003 were 90 percent human caused. The extent of burned areas in the future would be determined by the increasing fuel loads, increasing human activities, and weather.

In the 20-year cumulative effects analysis period, temperature trends show a potential 0.5 to 1 degree increase when land use impacts such as irrigation are not considered. Additionally, the predicted trend for precipitation is, “summer precipitation would change only incrementally, and decreases in some of the simulations”. Neither the small potential temperature change, nor the minor increase or decrease in precipitation, is likely to add to fire activity or acres burned. Therefore, predicted climate change would not affect fire behavior, acres burned, or fire severity.

However, fire activity is much more likely to be affected cumulatively in the next 20 years by human activities such as accidental and intentional ignitions, land use activities that increase or decrease fuel loadings, water availability, or urban heat islands.

Proposed new roads in the Westside Management Area would provide additional access, which would improve access for fire suppression, and also increase the chance for human-cause wildland fire.

Housing developments, depending on where they are located, can increase the wildland urban interface, which increases the need for immediate fire suppression and could increase the fire severity on project lands. As the New Melones Lake Area is currently managed for full fire suppression (all fire are suppressed), the effect is likely an increase

in risk to firefighters from combustible materials stored on properties and used in construction of homes and landscaping.

No significant cumulative effects on fire management are expected to result from implementing the New Melones Lake Area RMP.

6.18.13 Cultural Resources

Pending residential development projects being considered by the Calaveras County Planning Department are adjacent to the Coyote Creek, Carson, and Glory Hole Management Areas. Construction near the former two management areas would have the greatest potential to affect cultural resources based upon the known site density of those areas and the potential for undocumented cultural resources to be identified. The area near the Glory Hole Management Area has slightly less potential for effects.

A project proposed by the Copperopolis Community Plan developer proposes roads that would traverse portions of the Westside and Bowie Flat Management Areas. The roads would likely affect five known cultural resources within the Westside Management Area, five cultural resources within the Bowie Flat Management Area, and an unknown number of cultural resources outside of the New Melones Lake Area. Additionally, the Westside Management Area is considered to have a high potential for unrecorded sites (Pacific Legacy 2008). Therefore, the road project would likely have an even greater effect on cultural resources in this area. The Bowie Flat Management Area has a low potential for unrecorded cultural resources as the entire area has been inventoried (Pacific Legacy 2008). Although there is always potential for new inventories to identify new resources, the likelihood for effects in addition to those identified here is less for Bowie Flat than Westside.

Shoreline cultural resources in the New Melones Lake Area are particularly susceptible to the effects of climate change. As water levels rise, these resources are eroded away and eventually submerged. However, as New Melones Lake is a controlled water body, such effects from climate change on cultural resources are unlikely. None of the cultural resource actions would likely add to the climate change of the area.

In general, ground disturbing and new construction projects within the region pose potential effects on the archaeology and historic landscape of the region. The importance of the archaeological and historical landscape of the area has been recognized with the determination that the New Melones Lake Area Archaeological District is eligible for inclusion on the NRHP. As archaeological sites are damaged or removed, the potential for better understanding of prehistoric and historic land use, trade, and settlement patterns of the region is diminished. With new construction the historic “feel” of the region is lost as modern construction replaces historic buildings and structures. Similarly, traditional use areas, if there are any, become more and more constrained in size, and, along with all other types of cultural resources, their views and noise levels are affected. Cultural resource actions would, in general, preserve these resources and would not contribute to the cumulative effects of the identified regional projects. However, construction of a new Archaeological Storage Facility could contribute to cumulative effects on the regional cultural resource population if it were constructed in a manner that disturbs

archaeological sites, historical buildings, historical structures, or Native American traditional use areas. No significant cumulative effects on cultural resources are expected to result from implementing the New Melones Lake Area RMP.

6.18.14 ITA

Because there are no ITAs within the New Melones Lake Area, there would be no cumulative effects on or from ITAs.

6.18.15 Socioeconomics and Environmental Justice

In combination with the increased development and growth-inducing projects that are underway or proposed for the future in the area, resource management at the New Melones Lake Area would not generate additional population growth. However, increased developed recreation in combination with increase growth in the area would be likely to bring more visitors to project lands, which would further increase expenditures in the local economy and induce local economic growth. If these increases resulted in overcrowding and user conflicts at the New Melones Lake Area, visitor satisfaction could be negatively affected, which could reduce the number of visitors from outside the local area. This could result in a decrease in the local economic stimulus provided by recreation at the New Melones Lake Area.

Climate change related effects include increased snowmelt and prolonged periods of warmer air and water temperatures. Warmer temperatures could increase the season of use at the New Melones Lake Area, potentially increasing the demand for recreation and the number of visitors from outside the local area. This could increase the associated expenditures in the local economy and the level of earnings and employment that would be induced by these expenditures.

While cumulative projects may affect socioeconomics and environmental justice in the New Melones Lake Area, no cumulatively significant effects on socioeconomics and environmental justice are expected to result from implementing the New Melones Lake Area RMP.

6.18.16 Recreation

Projected increases in development and in the population of areas surrounding New Melones, construction of new roads near and within the New Melones Lake Area, past and future management actions, and climate change all have the potential to incrementally affect the New Melones Lake Area.

If development and the population surrounding the New Melones Lake Area continue to increase, it would likely result in an increase in the number of visitors and the demand for recreation opportunities. These increases would increase crowding and user conflicts and decrease the level of satisfaction of some user groups, particularly those that favor serene, natural settings.

Construction of new roads within and near the New Melones Lake Area would result in greater access for recreationists. In particular, the proposed road from Copperopolis would provide additional access to the Westside Management Area. Increasing access

would result in more recreational opportunities for the general public but could result in decreased experiences for those seeking a more primitive type of recreation including solitude. Increased housing development in the area would result in more people living near the New Melones Lake Area and using it for recreation. Both the construction of new roads and new housing developments would result in increased noise levels. This would affect the recreational experience for all visitors, especially those seeking quiet and tranquility.

The construction of roads and housing developments in the area would also result in habitat loss and displacement of wildlife. If wildlife from new construction areas relocate to the New Melones Lake Area, wildlife viewing and hunting opportunities would likely increase on the project lands. However, if the construction displaces not only those populations near New Melones but those on project lands as well, then wildlife viewing and hunting opportunities would decrease. Implementing any of the alternatives would also result in a variety of cumulative effects on the transportation network and access routes, which could in turn affect wildlife-related recreational opportunities, as well as access and resulting changes in visitation.

Effects of past actions to the visitor and interpretive services within the project lands include closures and addition of facilities and areas that have altered the number of visitor and interpretive services. However, the amount and type of visitor and interpretive services is expected to increase in the future along with a rise in visitors from a rise in population growth in the surrounding counties. Development in the surrounding areas is expected to result in increased visitation as well as an increased demand for interpretive programs. The increase in development in and around the New Melones Lake Area would also increase the need for environmental education programs focused on effects of living in areas where wildlife frequently occur.

Climate change also has the potential to affect the recreation at New Melones. Climate change affects temperatures, precipitation, greenhouse gases, and sea levels. As the temperatures rise, visitor patterns may change to take advantage of warmer weather in months when it was previously too cold. Precipitation in the area may occur more as rain rather than snow. If that happened, snowmelt could occur at earlier points in the year and affect the regional water levels. This potential climate change has the probability of affecting aquatic recreation, in particular, through increased snowmelt, heavy precipitation, and prolonged periods of warmer air and water temperatures. Longer spring and summer seasons would likely attract a greater number of aquatic recreationists to the New Melones Lake Area. Increased water levels from heavy precipitation and snowmelt could increase the surface area of New Melones Lake, thereby increasing opportunities for aquatic recreationists; however, access to some waterways may be restricted due to steep terrain and limited access to the water's edge. The implementation of the proposed recreation management actions would not contribute appreciably to climate change.

While cumulative projects may affect recreation in the New Melones Lake Area, no cumulatively significant effects on recreation are expected to result from implementing the New Melones Lake Area RMP. Implementation of the New Melones Resource

Management Plan would increase the ability of project lands to accommodate the additional demand for recreation and anticipate future recreation needs.

6.19 Unavoidable Adverse Impacts

Section 102(C) of NEPA requires disclosure of any adverse environmental effects that cannot be avoided should the proposal be implemented. Unavoidable adverse impacts are those that remain, following the implementation of mitigation measures, or those for which there are no mitigation measures. Virtually all potential unavoidable adverse impacts are generally long term, indirect, and difficult to quantify. Some unavoidable adverse impacts would occur by implementing the RMP and from the proposed management under one or more of the alternatives. Others result from everyday use of public lands within the planning area. The alternatives were developed to respond to these impacts and to be protective of the resources, while allowing land use to be as diverse as possible.

Portions of the resource area with increased visitation, and therefore more intense recreational use, would continue to experience scarring, increased soil erosion, and loss of vegetation. Although these latter impacts are unavoidable, if they are concentrated in areas already disturbed, this would reduce the spread of impacts from increased visitation to more remote or less frequented areas. However, changes in the amount of recreational visitation and patterns of use could also result in increased conflicts between users, unanticipated changes in resource conditions, vandalism, and illegal collection of cultural resources. Although mitigation measures could be implemented for scientific data recovery of cultural resources, the impacts on areas of any excavation would be unmitigable. The number of sites anticipated to be inadvertently damaged is unknown but is directly proportional to the acreage disturbed. The greatest impacts would occur from development and increased use. Natural processes, such as erosion and natural decay or deterioration, could also result in unmitigated damage to cultural resources.

Conflicts between user types, such as recreationists who seek more primitive types of recreation and motorized vehicle users who share the same recreation areas, are unavoidable adverse impacts. As recreation demand increases, recreation use would disperse to other parts of the planning area, which could create conflicts with previous uses of those areas.

Unauthorized OHV travel could cause scarring, increased soil erosion, and loss of vegetation cover. Introduced weeds could increase the likelihood of fires and could reduce canopy coverage, leaving soils subject to increased erosion. Additional soil erosion would result from any facility developments, including recreation sites.

Unavoidable adverse impacts would result from the accidental or unauthorized introduction of exotic plant or animal species, either from OHV and boat use or other vectors, which in turn could harm, or cause loss of populations of native plants or animals. Ecosystem components could be impacted if fire-prone areas are not treated

before a high-intensity wildland fire. If fuels are not treated, the risk of loss of life and property would be higher as rural growth expands.

In addition, unavoidable adverse impacts would result from implementing proposed restrictions on recreation, livestock grazing, and other resource uses to protect sensitive resources and other values. These restrictions would lessen the ability of operators, permittees, individuals, and groups to use public lands, and could increase operating costs.

6.20 Irretrievable or Irreversible Commitment of Resources

Section 102(2)C of NEPA requires a discussion of any irreversible or irretrievable commitments of resources from implementing the RMP. Implementing actions in accordance with the selected alternative may result in impacts that could be irreversible or irretrievable or both.

Irreversible commitments of resources refer to the loss of future options and apply primarily to the effects on nonrenewable resources, such as minerals, cultural resources, and soils, that cannot be regained. Examples are the extinction of a species, disturbance of protected cultural resources, or the removal of mined ore. An irretrievable commitment of resources involves the loss of production, harvest, or use of renewable resources. These opportunities are foregone for the period of the proposed action, during which other resource use cannot be realized. These decisions are reversible, but the use opportunities foregone are irretrievable.

Implementing any of the management plan alternatives would result in some impacts that could be characterized as irreversible and irretrievable commitments. For most impacts, the RMP would provide objectives for resource management and guidance for future activity and implementation-level decisions that minimize the potential for irreversible and irretrievable impacts. Some localized resources could be disrupted but could be mitigated. However, implementing the alternatives would result in some irreversible or irretrievable losses.

Visual characteristics near recreation sites could be irretrievably lost during development and operation; that is, opportunities to view undisturbed settings would be lost because of new infrastructure, and this would be irretrievable.

Changes in vegetation communities from drought, wildfire, invasive plants, or restoration treatments may not be reversible or may be reversible only after many decades. Some changes would be irretrievable. Changes in vegetation communities that would result from restoring or not restoring areas may be irreversible or may be reversible only after many decades. Invasion by noxious or invasive weeds may be irreversible. The resources committed to manage weeds would be irretrievable. Wildlife that depend on affected habitats might be displaced and populations might be reduced as carrying capacity of the habitat is reduced. Irreversible and irretrievable losses of wildlife habitat indirectly reduce the amount of suitable special status species habitat. However, management

prescriptions and mitigations prescribed under the alternatives are intended to reduce the magnitude of these impacts and would restore some of the soil, vegetation, and habitat lost. Effects on special status wildlife or plants from authorized and unauthorized activities, wildfire, invasive plants, or restoration treatments may be irreversible.

Construction of roads and other transportation infrastructure improvements create an irretrievable loss of habitat and impair important visual elements, particularly in undeveloped areas.

Stand-replacing fires might cause an irreversible loss of some key ecosystem components. Loss of soils following wildfires, or from erosion during restoration treatments, would be irretrievable. The effect of a high intensity wildfire, or one covering many acres, would be reversible only after several decades. Resources committed for fire suppression and rehabilitation would be irretrievable. Changes in wildlife habitat from wildfire, invasive plants, or restoration treatments may be irreversible or may be reversible only after many decades.

Undiscovered cultural resources could be unintentionally affected by management activities. Cultural resources are by their nature irreplaceable, so altering or eliminating any such resource, be it National Register eligible or not, represents an irreversible and irretrievable commitment. Authorized mitigation of cultural sites before disturbance and unauthorized collecting and vandalism would be an irreversible commitment of the resource. Authorized and unauthorized collection of fossils would also be an irreversible commitment of the resource.

The exact nature and extent of any irreversible and irretrievable commitment of resources cannot be defined due to uncertainties about location, scale, timing, and rate of implementation, as well as the relationship to other actions and the effectiveness of mitigation measures throughout the life of the plan.

6.21 Relationship of Short-Term Uses of the Environment to Long-Term Productivity

Section 102(C) of NEPA requires a discussion of the relationship between local, short-term uses of the human environment and the maintenance and enhancement of long-term productivity of resources. As described in the introduction to this chapter, “short-term” means those effects that are expected to occur while the alternative is being implemented, that is, within one to five years. “Long-term” means those effects that are expected to occur for an extended period after the first five years of alternative implementation, but within the life of the RMP, which is projected to be 20 years. These effects could last many years.

Regardless of which alternative is selected, management activities would result in various short-term adverse effects, such as increased localized soil erosion, smoke and fugitive dust emissions affecting air quality, damage to vegetation and fish and wildlife habitat,

and decreased visual resource quality. Other short-term effects could improve long-term productivity and be beneficial.

Short-term effects, such as those associated with mineral development, could result in long-term degradation of wilderness values and scenic quality. Short-term effects associated with route designations, maintenance, and alterations also could result in long-term effects on recreation activities and wildlife movement within corridors. Alternatively, short-term effects, such as vegetation treatments, would be beneficial to long-term productivity for wildlife by increasing available forage. Short-term effects of wildland fire management and vegetation treatments could result in long-term improvements for scenic quality.

Management actions and best management practices can minimize the effect of short-term uses and reverse the change during the long term. However, project lands are managed to foster multiple uses, and some long-term productivity impacts might occur regardless of management approach.

Surface disturbing and disruptive activities, including mineral development, dispersed recreation, livestock grazing, infrastructure development, and human use, would result in the greatest potential for impacts on long-term productivity. The disturbance of soils, vegetation, and wildlife habitats from these activities would reduce the long-term productivity of the environment in local areas where revegetation or restoration of the natural environment could not be fully realized over time.

7. Consultation and Coordination

7.1 Introduction

This chapter is a description of the public outreach and participation opportunities made available through the development of the draft RMP/EIS and the coordination and consultation efforts with tribes, government agencies, and other stakeholders that have transpired to date. It includes a list of preparers of the document and the agencies, organizations, and individuals that received a copy of the draft RMP/EIS for review. There have been many ways for the public to participate in the planning process for the New Melones Lake Area RMP/EIS.

7.2 Public Collaboration and Outreach

7.2.1 Scoping Process

Scoping is the term used in the Council on Environmental Quality Regulations implementing NEPA (40 Code of Federal Regulations, Part 1500 et seq.) to define the early and open process for determining the scope of issues to be addressed in the planning process. The scoping process gets the public involved in identifying significant issues of land use management actions. The process also helps identify any issues that are not significant and that can thereby be eliminated from detailed analysis. The list of stakeholders and other interested parties is also confirmed and augmented during the scoping process.

7.2.1.1. Notice of Intent

The notice of intent (NOI) is the legal document notifying the public of Reclamation's intent to initiate the planning process and to prepare an EIS for a major federal action. The NOI invites the participation of the affected and interested agencies, organizations, and members of the general public in determining the scope and significant issues to be addressed in the planning alternatives and analyzed in the EIS. The NOI for the New Melones Lake Area RMP was published in the *Federal Register* on December 18, 2006.[1] The scoping period for receiving public comments ended on March 19, 2007, providing 92 days for public input.

[1]"Notice of Intent to Prepare an RMP/EIS and Notice of Public Meetings." *Federal Register*, Vol. 71, No. 242 (December 2006): pp. 75,769-75,770.

7.2.1.2. Press Releases

Reclamation used local newspapers (Stockton *Record,* the *Manteca Bulletin,* the Sonora *Union Democrat,* and the *Calaveras Enterprise*) to disseminate information on the New Melones Lake Area RMP scoping and planning process. Reclamation prepared press releases to notify the public of the project, to announce public scoping meetings, workshops, and open houses, to request public comments, and to provide contact information. Press releases were sent on January 25, 2007, February 14, 2007, September 20, 2007, and August 22, 2008.

7.2.1.3. Scoping Meetings

Reclamation held public scoping meetings in Sonora on January 29, in Angels Camp on January 30, and in Manteca on January 31, 2007. A fourth meeting, for agency officials, was held in Sonora on January 29, 2007. Reclamation provided the local media with press releases announcing the time, location, and purpose of these meetings.

The scoping meetings were presented in a public meeting and workshop format, allowing the public to receive information, ask questions, and provide input. Reclamation provided fact sheets, brochures, and handouts about the project area and a map of the planning area. Site and resource maps were displayed illustrating the current conditions and uses practiced among different resources and land areas. Planning questions were posted to guide the public in formulating questions to be addressed in the RMP/EIS. A slide presentation was used to highlight key issues and to summarize the planning process. Prominent, handicapped-accessible local facilities in informal settings were chosen as venues to encourage broad participation. In addition to Reclamation representatives, 93 people attended the meetings. Attendees were encouraged to mail written comments and questions or to fill out comment cards specific to the New Melones Lake Area RMP.

Additional public meetings were held throughout the RMP/EIS process to inform the public and to solicit input. In late September 2007, Reclamation held two alternatives development workshops to obtain further input on possible management actions and opportunities for the New Melones Lake Area. Public meetings were held in September 2008 to solicit input on Draft RMP/EIS Chapters 1-3 (currently Chapters 1-5).

7.2.2 Project Web Site

In November 2006, Reclamation launched a New Melones Lake Area RMP/EIS project Web site to serve as a clearinghouse for project information during the planning process. The Web site, www.usbr.gov/mp/ccao/newmelones/rmp.html, provides background information about the project, a public involvement timeline and calendar, maps and photos of the planning area, and copies of public information documents, such as the NOI and project updates. The site also provides contact information for submitting comments and for obtaining further information about the project.

7.2.3 Project Updates

Project updates are published throughout the course of the RMP/EIS process and are posted on the New Melones Lake Area Web site. On January 22, 2007, the first project newsletter was mailed to 791 individuals from the public, agencies, and local organizations. The second project update was mailed on September 19, 2007, to 738 individuals identified during the scoping process. The third project update was mailed on July 29, 2008, to 713 individuals. The purposes of these updates were as follows:

- Remind the public of how they can comment and get involved;
- Announce scoping, alternatives development, and open house meetings;
- Inform individuals of where Reclamation is in the RMP process;
- Notify the public of the availability of various documents, such as the visitor use survey and WROS reports; and
- Explain how they could be involved and how input given would be used in creating the RMP/EIS.

In addition, the project updates gave the public various methods to submit their comments, including the project manager's e-mail address and fax line and Reclamation's Central California Area Office address to mail comments.

7.3 Consultation and Coordination

The benefits of enhanced collaboration among agencies in preparing NEPA analyses include disclosing relevant information early in the analytical process, applying available technical expertise and staff support, avoiding duplication with other federal, state, tribal, and local procedures, and establishing a mechanism for addressing intergovernmental issues. One of the key concerns raised during the New Melones public scoping period was how input given during other ongoing and past public participation efforts would be used and incorporated into the New Melones Lake Area RMP/EIS project. Coordination with these other agencies facilitates this sharing of ideas and public input.

To initiate the collaborative planning process, on January 10, 2007, Reclamation mailed 139 letters inviting federal, state, local, and tribal organizations to the agency scoping meeting scheduled for Monday, January 29, 2007, or to any of the three public scoping meetings held during that week. Each of these organizations was also included on the original distribution list to receive the project update. The agencies were also invited to meet individually with Reclamation to discuss specific issues. The Calaveras Council of Governments, Altaville Fire Department, and Calaveras County Chamber of Commerce all requested and attended additional meetings with Reclamation.

Letters inviting Tuolumne and Calaveras Counties to participate as cooperating agencies in the RMP development process were sent on July 31 and August 1, 2007, respectively. To initiate the alternatives development process, on September 19, 2007, Reclamation

mailed 738 postcards inviting federal, state, local, and tribal organizations to the public alternatives development workshops help on September 28 and 29, 2007. Each of these organizations was also included on the original distribution list to receive the project update.

Calaveras and Tuolumne Counties and the City of Angels Camp agreed to serve as cooperating agencies. On May 16, 2008, Reclamation met with cooperating agencies to review an advanced copy of the RMP/EIS Draft Chapters 1-3 (currently Chapters 1-5). The agencies were asked to provide input to further refine the document before releasing it to the public. The cooperating agencies were given 60 days to provide comments. On October 24, 2008, Reclamation invited the cities of Sonora and Angels Camp, as well as Calaveras and Tuolumne Counties, to provide input on the RMP/EIS.

Cultural resource consultation with the SHPO, Native American tribes, and interested parties is required under the NHPA and a variety of laws, regulations, guidance, and departmental and executive orders. Tribes were consulted for the cultural resource overview report prepared in conjunction with this RMP/EIS. Consultations with the SHPO and Indian tribes may be required during implementation of individual projects.

7.4 Distribution List

Scoping for the draft RMP/EIS began in January 2007. The first project update for the New Melones Lake Area RMP was mailed on January 22, 2007, to 791 individuals from the public, agencies, and organizations. The distribution list has been updated throughout the development of the draft RMP/EIS. The distribution list of agencies, organizations, and individuals who have been a part of the RMP/EIS process is available in the administrative record. Reclamation maintains the distribution list for the draft RMP/EIS, which is available on request.

7.5 List of Preparers

A team of resource specialists from Reclamation prepared this RMP/EIS. Tetra Tech, Inc., assisted Reclamation in preparing these documents and in the planning process.

Bureau of Reclamation

Name	Role
Melissa Vignau	Project Manager, Natural Resources Specialist, Central California Area Office
Peggi Brooks	Chief, Recreation Resources Division, Central California Area Office
Jeffrey Laird	Supervisory Park Ranger, New Melones Lake, Central California Area Office
Dan Holsapple	Natural Resources Specialist, New Melones Lake, Central California Area Office
Anastasia Leigh	Regional Archaeologist, Mid-Pacific Region
Scott Springer	Regional Recreation Coordinator, Mid-Pacific Region
Brian Buttazoni	Natural Resources Specialist, Mid-Pacific Region
Janet Sierzputowski	Public Affairs Specialist, Mid-Pacific Region
Robert Schroeder	Chief, Resources Management Branch, Central California Area Office
Michael Finnegan	Central California Area Manager, Central California Area Office
Elizabeth Vasquez	Natural Resources Specialist, Central California Area Office
Richard Johnson	Deputy Area Manager, Central California Area Office

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Tetra Tech Consulting Team

Name	Years Experience	Role/ Responsibility	Education
Kelly Bayer	16	Project Manager	BS, Biology and Marine Science
Meredith Zaccherio	5	Deputy Project Manager, Vegetation, Special Status Species	MA, Biology BS, Biology BS, Environmental Science
Holly Prohaska	11	Land Management, Project Management	MS, Environmental Management, BA, Marine Science
David Munro	15	Climate and Topography, Vegetation, Water Resources, Project Management	MA, Natural Resource Management BA, Psychology
Cynthia Adornetto	24	Recreation	MS, Environmental Policy and Management BS, Natural Resources Management

Tetra Tech Consulting Team

Name	Years Experience	Role/ Responsibility	Education
Maren Anderson	2	Noise	BA, Ecology and Evolutionary Biology
Theresa Avedian	9	Access and Transportation	BS, Civil Engineering
Jenny Benz	15	Access and Transportation, Recreation	BA, Environmental Studies
Kevin Doyle	19	Cultural Resources, Climate Change	BA, Sociology
Yashekia Evans	11	GIS	
Cameo Flood	22	Fire Management	BS, Forest Resource Management
Derek Holmgren	9	Land Management, Public Health and Safety, Visual Resources, Water Resources	MS, Environmental Science BA, International Studies BS, Environmental Science
Cliff Jarman	18	Geology	MS, Geophysics BS, Geology
Genevieve Kaiser	19	Socioeconomics, Recreation	MS, Energy Management and Policy, BA, Economics Professional Certification: GIS
Erin King	8	Cultural Resources, ITA	MA, Cultural Anthropology, Public Archaeology BA, Cultural Anthropology
Neil Lynn	7	Fish and Wildlife, Recreation	BS, Wildlife Biology
Craig Miller	15	Fish and Wildlife	MS, Wildlife Biology BS, Wildlife and Fisheries Biology
Cindy Schad	14	Word Processing	BFA, Creative Writing
Bob Sculley	36	Air Resources, Noise	MS, Ecology BS, Zoology
Randolph Varney	20	Technical Editor	MFA, Writing BA, Technical and Professional Writing
Tom Whitehead	30	Geology	MS, Hydrology, University of Arizona,1987 BS, Geology, California State University Hayward, 1984 BA, Anthropology, California State University San Francisco, 1975

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9. Glossary

A-Weighted Decibel (dBA). A frequency-weighted decibel scale that approximates the relative sensitivity of human hearing to different frequency bands of audible sound.

Air Basin. A regional area, defined for air quality management purposes based on considerations that include the constraints of topographic features on meteorology and pollutant transport patterns, and political jurisdiction boundaries that influence the design and implementation of air quality management programs.

Ambient Air. Outdoor air in locations accessible to the general public.

Ambient Air Quality Standards. A combination of air pollutant concentrations, exposure durations, and exposure frequencies that are established as thresholds above which adverse impacts to public health and welfare may be expected. Ambient air quality standards are set on a national level by the US Environmental Protection Agency. Ambient air quality standards are set on a state level by public health or environmental protection agencies as authorized by state law.

Aquatic. Living or growing in or on the water.

Best Management Practice (BMP). A suite of techniques that guide, or that may be applied to, management actions to aid in achieving desired outcomes

Biological Control. The use of natural enemies (e.g., insects, goats) to retard growth, prevent re-growth and seed formation of a target weed.

Chemical Control. Application of herbicides to control invasive species/noxious weeds and/or unwanted vegetation.

Concession Lease. Authorizes the operation of recreation-oriented services and facilities by the private sector, on Reclamation lands. The concessionaire is authorized through a concession lease administered on a regular basis. The lease requires the concessionaire to pay fees to Reclamation in exchange for the opportunity to carry out business activity.

Criteria Pollutant. An air pollutant for which there is a national ambient air quality standard (carbon monoxide, nitrogen dioxide, ozone, sulfur dioxide, inhalable particulate matter, fine particulate matter, or airborne lead particles).

Critical Habitat. Habitat designated by the US Fish and Wildlife Service under Section 4 of the Endangered Species Act and under the following criteria: 1) specific areas within the geographical area occupied by the species at the time it is listed, on which are found those physical or biological features essential to the conservation of the species and that may require special management of protection; or 2) specific areas outside the geographical area by the species at the time it is listed but that are considered essential to the conservation of the species.

Cultural Resources. Locations of human activity, occupation, or use. Cultural resources include archaeological, historic, or architectural sites, structures, or places with important public and scientific uses and locations of traditional cultural or religious importance to specific social or cultural groups.

Cumulative Effects. The direct and indirect effects of a proposed project alternative's incremental impacts when they are added to other past, present, and reasonably foreseeable actions, regardless of who carries out the action.

Decibel (dB). A generic term for measurement units based on the logarithm of the ratio between a measured value and a reference value. Decibel scales are most commonly associated with acoustics (using air pressure fluctuation data); but decibel scales sometimes are used for ground-borne vibrations or other types of measurements.

Disposal. A transaction that leads to the transfer of title to public lands from the federal government.

Easement. Right afforded a person or agency to make limited use of another's real property for access or other purposes.

Emergency Stabilization. Emergency stabilization action to stabilize and prevent unacceptable degradation to natural and cultural resources, to minimize threats to life or property resulting from the effects of a fire, or to repair/replace/construct physical improvements necessary to prevent degradation of land or resources.

Endangered Species. Any species of animal or plant in danger of extinction throughout all or a significant portion of its range and so designated by the Secretary of Interior in accordance with the 1973 Endangered Species Act.

Erosion. Detachment or movement of soil or rock fragments by water, wind, or gravity. Accelerated erosion is much more rapid than normal, natural, or geologic erosion, primarily as a result of the influence of surface-disturbing activities of people, animals, or natural catastrophes.

Fire Intensity. Technically calculated as the energy release per unit length of flame front. Generally, fire intensity is a component of fire behavior and refers to the heat of the fire. Fire intensity is measured as the fire burns. A high intensity fire would be more difficult to suppress than a low intensity fire.

Fire Severity. The effect of fire. Severity is reflected in killed vegetation or soil damage. Fire severity is determined after the fire. A high intensity fire may not have severe fire effects. High severity fire could result in soil erosion, sediment in water, landslides, and weed infestation. Often, low severity fire is desirable for removing dead fuels.

Fire Suppression. Fire control activities concerned with controlling and extinguishing a fire, starting at the time the fire is discovered.

Greenhouse gases. Compounds in the atmosphere that absorb infrared radiation and reradiate a portion of that back toward the earth's surface, thus trapping heat and warming the earth's atmosphere.

Groundwater. Water beneath the land surface, in the zone of saturation.

Guzzler. General term covering such devices as guzzlers and wildlife drinkers. A natural or artificially constructed structure or device to capture and hold naturally flowing water to make it accessible to small and large animals. Most guzzlers involve above or below ground piping, storage tanks, and valves.

Habitat. A specific set of physical conditions that surround a single species, a group of species, or a large community. In wildlife management, the major components of habitat are considered to be food, water, cover, and living space.

Historic Property. Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the National Register. This term includes artifacts, records, and remains which are related to such district, site, building, structure, or object [16 USC. Section 470(w)(5)].

Indian Trust Assets. Legal interests in property, physical assets, or intangible property rights held in trust by the United States for Indian tribes or individual Indians.

Invasive Species. An exotic species whose introduction does or is likely to cause economic or environmental harm or harm to human health (Executive Order 13122, 2/3/99).

Mechanical Vegetation Treatment. Includes mowing, chaining, chopping, drill seeding, and cutting vegetation to meet resource objective.

National Historic Preservation Act (NHPA). The primary federal law providing for the protection and preservation of cultural resources. The NHPA established the National Register of Historic Places, the Advisory Council on Historic Preservation, and the State Historic Preservation Officers.

National Register Of Historic Places. A listing of architectural, historical, archaeological, and cultural sites of local, state, or national significance, established by the Historic Preservation Act of, 1966, and maintained by the National Park Service.

Off-Highway Vehicle (Off-Road Vehicle). Any motorized vehicle capable of, or designed for, travel on or over land, water, or other natural terrain, excluding: (1) any nonamphibious registered motorboat; (2) any military, fire, emergency, or law enforcement vehicle while being used for emergency purposes; (3) any vehicle whose use is expressly authorized by the an officer or otherwise officially approved; (4) vehicles in official use; and (5) any combat or combat support vehicle when being used for national defense.

Ozone. A compound consisting of three oxygen atoms. Ozone is a major constituent of photochemical smog that is formed through chemical reactions in the atmosphere involving reactive organic compounds, nitrogen oxides, and ultraviolet light. Ozone is a toxic chemical that damages various types of plant and animal tissues and which causes chemical oxidation damage to various materials. Ozone is a respiratory irritant, and appears to increase susceptibility to respiratory infections. A natural layer of ozone in the upper atmosphere absorbs high energy ultraviolet radiation, reducing the intensity and spectrum of ultraviolet light that reaches the earth's surface.

Particulate Matter. Solid or liquid material having size, shape, and density characteristics that allow the material to remain suspended in the atmosphere for more than a few minutes.

Payments In Lieu Of Taxes. Federal payments to local governments that help offset losses in property taxes due to nontaxable Federal lands within their boundaries.

PM_{10} (inhalable particulate matter). A fractional sampling of suspended particulate matter that approximates the extent to which suspended particles with aerodynamic equivalent diameters smaller than 50 microns penetrate to the lower respiratory tract (tracheo-bronchial airways and alveoli in the lungs). In a regulatory context, PM_{10} is any suspended particulate matter collected by a certified sampling device having a 50% collection efficiency for particles with aerodynamic equivalent diameters of 9.5 to 10.5 microns, and an maximum aerodynamic diameter collection limit less than 50 microns. Collection efficiencies are greater than 50% for particles with aerodynamic diameters smaller than 10 microns and less than 50% for particles with aerodynamic diameters larger than 10 microns.

$PM_{2.5}$ (fine particulate matter). A fractional sampling of suspended particulate matter that approximates the extent to which suspended particles with aerodynamic equivalent diameters smaller than 6 microns penetrate into the alveoli in the lungs. In a regulatory context, $PM_{2.5}$ is any suspended particulate matter collected by a certified sampling device having a 50% collection efficiency for particles with aerodynamic equivalent diameters of 2.0-2.5 microns, and an maximum aerodynamic diameter collection limit less than 6 microns. Collection efficiencies are greater than 50% for particles with aerodynamic diameters smaller than 2.5 microns and less than 50% for particles with aerodynamic diameters larger than 2.5 microns.

Prescribed Fire Treatments. Any fire ignited by management actions to meet specific objectives. A written, approved fire management plan must exist, and NEPA requirements (where applicable) must be met before the fire is started.

Raptor. Bird of prey with sharp talons and strongly curved beaks, such as hawks, owls, vultures, and eagles.

Right-of-Way. Land authorized to be used or occupied for the construction, operation, maintenance, and termination of a project, pursuant to a right-of-way authorization.

Riparian. Situated on or pertaining to the bank of a river, stream, or other body of water. Normally describes plants of all types that grow rooted in the water table or sub-irrigation zone of streams, ponds, and springs.

Sedimentation. Deposition of particles and/or clumps of particles of sand, clay, silt, and plant or animal matter carried in water.

Seismicity. A factor of how prone an area is to earthquakes.

Spawning Area. An area where aquatic animals such as bivalve mollusks, fishes, and amphibians deposit their eggs.

Special Status Species. Federal- or state-listed species, candidate or proposed species for listing, or species otherwise considered sensitive or threatened by state and federal agencies.

Special Use Area. A designation used to protect public health and safety, protect and preserve cultural and natural resources, protect environmental and scenic values, scientific research, the security of Reclamation facilities and avoid conflict among visitor use activities per 43 CFR 423.

Special Use Permit. A permit that authorizes the use of Reclamation land for a purpose not specifically authorized under other regulation or statute.

Spelunking. Exploring caves as a hobby.

Standard Operating Procedure (SOP). A written procedure or set of written procedures providing direction for consistently and correctly performing routine operations. These written procedures set forth methods expected to be followed during the performance of the particular task.

Threatened Species. Any species or significant population of that species likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Includes only those species that have been recognized and listed as threatened by federal and state governments.

Trespass. Any unauthorized use of public land.

Vernal Pool. A sensitive, 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.

Visual Resources. The visible physical features on a landscape, (topography, water, vegetation, animals, structures, and other features) that make up the scenery of the area.

Water Recreation Opportunity Spectrum. A tool used to help identify and preserve a diversity of recreation opportunities and experiences ranging from peace and solitude in remote settings to socially oriented experiences in urban settings. The WROS system utilizes six classes: Urban, Suburban, Rural Developed, Rural Natural, Semi Primitive, and Primitive.

Watershed. Topographical region or area delineated by water draining to a particular watercourse or body of water.

Wetlands. Permanently wet or intermittently water-covered areas, such as swamps, marshes, bogs, potholes, swales, and glades.

Wildfire. An unplanned, unwanted wildland fire, including unauthorized human-caused fires, escaped wildland fire use events, escaped prescribed fire projects, and all other wildland fires where the objective is to put the fire out.

APPENDIX A
APPLICABLE REGULATIONS

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Appendix A: Applicable Regulations

Air Quality:

- **The Clean Air Act of 1970, (42 US Code [USC], Sections 7401 et seq.)** regulates air emissions from area, stationary, and mobile sources. Under this law, National Ambient Air Quality Standards (NAAQS) are established for each state by the EPA in order to protect public health and the environment (EPA 2003).

Noise:

- **43 Code of Federal Regulations (CFR), Part 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 of 1972** was passed 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:

Federal Laws and Statutes

- **The Federal Cave Resources Protection Act of 1988 (16 USC, Sections 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.

State Laws and Statutes

- **The California Cave Protection Act (Sections 594-625(c) 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, Section 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, Section 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, Section 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, Sections 460(d) et seq.; 33 USC, Sections 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 Executive Order 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 Policies and Regulations

- **Floodplain Management Policy (CMP P01)** was established 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

- **Floodplain Management Directive and Standard (CMP 01-01)** was established 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.

Cultural Resources

Federal Laws and Statutes

- **An Act for the Preservation of American Antiquities [Antiquities Act of 1906] (PL 59-209; 34 Stat. 225; 16 USC, Sections 432 and 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, Section 461)** 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, Section 470)** 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, Section 4321)** 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, Section 1996)** 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, Sections 470(aa)-470(mm)], as amended (PL 100-555; PL 100-588)** 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, Sections 3000-3013; 104 Stat. 3048-3058)** 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, Sections 469-469(c)]** 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)** establishes 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)** was 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)** describes the criteria for eligibility for inclusion of properties in the NRHP.

- **Protection of Historic Properties (36 CFR, Part 800)** describes the Section 106 Process.

- **Public Conduct on Bureau of Reclamation Facilities, Lands, and Waterbodies (43 CFR, Part 423)** intends 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 Order 13175, Consultation and Coordination with Indian Tribal Governments (65 FR 67249)** 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) (61 FR 42255)** 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 26771)** 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 (68 FR 10635)**, directs Federal agencies to improve their management of historic properties and to foster heritage tourism in partnership with local communities.

Department of Interior Directives

- **Managing Museum Property (Departmental Manual 411)** 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 Policies and Regulations

- **Cultural Resources Management Policy (LND-P01)** states that 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.

- **Cultural Resources Management Directive and Standard (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.

- **Museum Property Management Policy (LND P05) and Directive and Standard (LND 02-02)** defines Reclamation's responsibility for the museum property it owns, controls, or administers on behalf of the United States Government in accordance with Federal laws, regulations, and the Department of the Interior policies.

Biological Resources:

Federal Laws and Statutes

- **Fish and Wildlife Coordination Act of 1934** 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** 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** 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.

- **Federal Endangered Species Act of 1973** 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 and amendments** 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." An amendment was passed in 1972 to include owls, hawks, and other birds of prey.

- **Bald Eagle Protection Act of 1940** 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.

- **Federal Noxious Weed Act of 1974** 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 (64 FR 2793)**, 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.

- **Executive Order 13443 Facilitation of Hunting Heritage and Wildlife Conservation (72 FR 46537)** intends to direct Federal agencies with programs and activities that have a measurable effect on public land management, outdoor recreation, and wildlife management, including the Department of the Interior and the Department of Agriculture, to facilitate the expansion and enhancement of hunting opportunities and the management of game species and their habitat.

Reclamation Policies and Regulations

- **Implementation of the Cost-Sharing Authorities for Recreation and Fish and Wildlife Enhancement Directive and Standard (LND 01-01).**

- **Reclamation Policy for Consultation under the Endangered Species Act of 1973, as amended (ENV P04)**.

- **Wetlands Mitigation and Enhancement Policy (LND P03)** establishes policy for Reclamation to use in determining appropriate mitigation for all actions affecting wetlands. Encourage activities protecting, preserving, and enhancing wetlands.

Indian Trust Assets:

Federal Laws and Statutes

- **Executive Order 13175, Consultation and Coordination with Indian Tribal Governments (65 FR 67249)**, 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) (61 FR 42255)** 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.

Department of Interior Directives

- **Secretarial Order No. 3175, Departmental Responsibilities for Indian Trust Resources**, 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**, 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**, 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**, 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.

Reclamation Policies and Regulations

- **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** 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** is described in a 1993 Memorandum outlining National Environmental Policy Act Handbook Procedures to Implement Indian Trust Asset Policy.

Land Management:

Land Use

Federal Laws and Statutes

- 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, Part 402: Sale of Lands in Federal Reclamation Projects;
- 43 CFR, Part 420: Off-road vehicle use;
- 43 CFR, Part 429: Procedure to process and recover the value of rights-of-use and administrative costs incurred in permitting such use;

Reclamation Policies and Regulations

- Land Withdrawals, Withdrawal Reviews and Withdrawal Revocations Directive and Standard (LND 03-01);
- Real Estate Appraisal Directive and Standard (LND 05-01);
- Land Acquisition Directive and Standard (LND 06-01);
- Land Use Authorizations Directive and Standard (LND 08-01);
- Land Disposal Directive and Standard (LND 08-02);
- Real Property Management Records Directive and Standard (LND 09-01);
- Payments in Lieu of Taxes (PILT) Directive and Standard (LND 09-02); and
- Disposal of Bridges and Crossings on Reclamation Land Directive and Standard (LND 011-01).

Concessions

Reclamation Policies and Regulations

- Concessions Management Policy (LND P02);
- Concessions Management by Reclamation Directive and Standard (LND 04-01); and
- Concessions Management by Non-Federal Partners Directive and Standard (LND 04-02).

Facilities Management

Reclamation Policies and Regulations

- Environmental Management Systems Policy (LND P05);
- Emergency Management Policy (FAC P01);
- Hazardous Waste and Materials Management Policy (ENV P01);

- Pollution Prevention-Hazardous and Solid Waste Minimization Directive and Standard (ENV 02-03); and
- Emergency Management Directive and Standard (FAC 01-01).

Fire Management

Federal Laws and Statutes

- Protection Act of September 20, 1922 (42 Stat. 857; 16 USC, Section 594);
- Reciprocal Fire Protection Act of May 27, 1955 [69 Stat. 66; 42 USC, Sections 1856 and 1856(a)];
- Economy Act of June 30, 1932 (47 Stat. 417; 31 USC, Section 686);
- Disaster Relief Act, Section 417 (PL 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;
- 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; and
- 2001 Updated Federal Wildland Fire Management Policy (1995 Federal Wildland Fire Management Policy Update).

Department of Interior Directives

- 1998 Departmental Manual 620 Chapter 1, Wildland Fire Management General Policy and Procedures.

Transportation

Federal Laws and Statutes

- 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 FR 2877), as amended by Executive Order 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, Section 4321).

Range Management

Federal Laws and Statutes

- The Taylor Grazing Act of 1934 (43 USC, Section 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, Section 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, Section 1712;

- 43 CFR, Part 4100 (Grazing Regulations); and

- General Allotment Act of 1887, as amended.

Public Safety

Federal Laws and Statutes

- The Federal Water Pollution Control Act of 1977 (33 USC, Section 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 Clean Water Act (CWA) of 1972, as amended (33 USC, Section 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, Sections 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, Section 11001) 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, Section 9620);
- Pollution Prevention Act of 1990 (42 USC, Section 13101);
- Resource Conservation and Recovery Act of 1976, as amended (42 USC, Sections 6901 et seq.);
- Toxic Substances Control Act of 1976 (15 USC, Sections 2601 et seq.);
- Federal Insecticide, Fungicide, and Rodenticide Act of 1975 (7 USC, Sections 136 et seq.);
- Clean Air Act of 1970, as amended (42 USC, Sections 7401 et seq.);
- Safe Drinking Water Act of 1974, as amended (42 USC, Sections 300 et seq.);
- Transportation Safety Act of 1974; Hazardous Materials Transportation Act amendments of 1976 and 1990 (49 USC, Sections 1801 et seq.);
- Atomic Energy Act of 1954 (42 USC, Sections 2011 et seq.);
- Uranium Mill Tailings Radiation Control Act of 1978, as amended (42 USC, Sections 2014 et seq.);
- Nuclear Waste Policy Act of 1982 (42 USC, Sections 10101 et seq.);
- 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; and
- Lead-based Paint Poisoning Prevention Act, as amended;

Reclamation Policies and Regulations

- Hazardous Waste and Materials Management Policy (ENV P01);
- Pest Management Policy (ENV P02);
- Occupational Safety and Health Program Policy (SAF P01);
- Pest Management/Resource Protection (Integrated Pest Management) Program Directive and Standard (ENV 01-01);

- Public Notification of Aerial Pesticide Applications on Lands Managed Directly by Reclamation Directive and Standard (ENV 01-02);

- Pollution Prevention-Hazardous and Solid Waste Minimization Directive and Standard (ENV 02-03);

- Emergency Management Directive and Standard (FAC 01-01); and

- Hazardous Materials Directive and Standard (FAC 01-03).

Visitor Use and Recreation:

Federal Laws and Statutes

- **Procedure to process and recover the value of rights-of-use and administrative costs incurred in permitting such use (43 CFR, Part 429)** intends to meet the requirements of the Independent Offices Appropriation Act [31 USC, Section 483(a)] 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;

- **Reclamation Recreation Management Act of 1992** is an amendment to the Federal Project Recreation Act of 1965, PL 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, Part 423)**, **e**stablished on April 17, 2002, 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;

- **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 (PL 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;

- **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;

- **PL 106-206, Commercial Filming**, established the 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** is an amendment to the Federal Project Recreation Act of 1965, PL 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; and

- **Executive Order 13443, Facilitation of Hunting Heritage and Wildlife Conservation (72 FR 46537)**, intends to direct federal agencies that have programs and activities with a measurable effect on public land management, outdoor recreation, and wildlife management, including the Department of the Interior and the Department of Agriculture, to facilitate the expansion and enhancement of hunting opportunities and the management of game species and their habitat.

Reclamation Policies and Regulations

- **Recreation Management Policy (LND P04)** 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;

- Concessions Management by Reclamation Policy (LND P02);

- Concessions Management by Reclamation Directive and Standard (LND 04-01);

- Concessions Management by Non-Federal Partners Directive and Standard (LND 04-02);

- National Environmental Policy Act (ENV P03); and

- 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.

Socioeconomics and Environmental Justice:

Federal Laws and Statutes

- **Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations** 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** prohibits discrimination on the basis of disability in employment, State and local government, public accommodations, commercial facilities, transportation.

APPENDIX B
NEW MELONES LAKE 2008 WATER RECREATION OPPORTUNITY SPECTRUM INVENTORY AND MANAGEMENT ALTERNATIVES

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This Appendix B is a summary of the New Melones Lake Water Recreation Opportunity Spectrum (WROS) Inventory and Management Alternatives Report (Reclamation 2008). The preparers of this report inventoried, classified, mapped, and described the current recreation situation for New Melones Lake in order to help guide land and water managing agencies in future planning and management decisions. Full copies of this report are available by contacting the New Melones RMP/EIS Project Manager, Melissa Vignau, Natural Resources Specialist, 7794 Folsom Dam Road, Folsom, CA 95630; telephone: 916-989-7182; email: *mbrockman@usbr.gov*.

What is the WROS?

A recreation opportunity is composed of four components that are linked together: 1.) The opportunity for a person to participate in a particular recreation activity and 2.) in a specific setting and 3.) to enjoy a particular recreation **experience** and 4.) the benefits this affords. The WROS is a tool that relies on a systematic approach, which is used to understand the type, location, and quality of basic water recreation experiences. The WROS system uses six classes that range from Urban to Primitive. The WROS enables a water body to be inventoried and mapped into any or all of the appropriate six WROS classes.

Each WROS class conveys a basic understanding of what a recreationist can expect to experience, because each class is defined by a particular suite of activities, setting attributes, experiences, and benefits. Characteristics of the WROS classes are described in Chapter 5.

The WROS Inventory Process

WROS is designed to provide a relatively quick, easy, and inexpensive process to inventory recreation on a water body and its land interface. There are three possible levels of WROS inventory analysis: slight, ordinary, and extraordinary. This three-level sliding scale of analysis allows for managers to have the flexibility to make decisions based on a level that is commensurate with the purpose and potential consequences of the decision.

Regardless of what inventory level is selected, the WROS inventory process involves a collaborative team of multidisciplinary experts evaluating a water resource based on 15 physical, social, and managerial attributes (RMP/EIS Chapter 5, Table 5-26), using the six-class, eleven-point scale (Table B-1). The inventory results in a map showing the classes and location of the current recreation opportunities provided on the water resource.

Table B-1. Six-Class, Eleven-Point Scale of the WROS

Scale	WROS Class
1-2	Urban
2-3-4	Suburban
4-5-6	Rural Developed
6-7-8	Rural Natural
8-9-10	Semi Primitive
10-11	Primitive

The team of experts completes standardized inventory forms at selected locations on each body of water. The forms are used to rate the physical, social, and managerial attributes

of each water body. The next step is to arrive at an overall WROS rating for each inventory site using the six-class, eleven-point scale.

Benefits of the WROS are as follows:

- Identifying the needs that any given water body is best suited to serve;
- Providing and preserving diverse recreational experiences across the region;
- Saving money by reducing unnecessary duplication of facilities and services;
- Efficiently planning and managing cooperatively across water body and agency boundaries;
- Improving conservation of natural resources;
- Comparing management alternatives and potentially associated economic impacts;
- Gaining essential information for the public to evaluate alternatives and make informed choices; and
- Improving planning and allocation of limited funds.

General Field Observations

The WROS inventory team found that New Melones Lake is well managed and its facilities and services are diverse and can accommodate many users. Some of its structures are aging and may lack accessibility, but investing major public funds is not necessary at this time, beyond providing for routine maintenance and replacement.

Further, water-based recreation is popular year-round, with prime visitation in the warmer months. Fishing is the primary year-round activity, while houseboating and water-contact activities are popular in the summer.

Visitation and diverse types of boat uses are the key determinants of the available recreation opportunities. The large core area of New Melones provides an opportunity for Rural Developed recreation.

The biggest challenge for Reclamation is deciding how to address the gradual expansion of the Rural Developed area at the loss of the Rural Natural opportunities. Rural Natural areas with the potential to change are the northwest (Angels Creek) and southeast (Long Gulch) corners of the reservoir, plus the area near and above the Parrotts Ferry Bridge. Future management alternatives should focus on these areas. The key planning question is: What is the public demand and support for the current range of WROS diversity on New Melones; that is, is there more support for a more urban and less diverse setting?

Results

The WROS inventory team conducted the study on July 20, 2007. Based on the WROS inventory, the team developed a map depicting the current recreation situation for New Melones Lake. The reservoir provides Rural Developed (RD4 and RD5), Rural Natural (RN6 and RN7), and Semi Primitive (SP9) classes of water recreation opportunities (Table B-2). The team classified five inventory sites as Rural Developed, three inventory sites as Rural Natural, and one inventory site as Semi Primitive.

Table B-2. Water surface acres of WROS classifications

Water Surface	Classification	Surface Acres	Percent of Total Surface Acres
New Melones Lake	Rural Developed	7,500	60
	Rural Natural	3,750	30
	Semi Primitive	1,250	10
Total	**12,500 acres**		

The three changes from the current to the suggested WROS classifications and maps are as follows:

1. The current SP9 area begins up the Stanislaus River Canyon above Parrotts Ferry Road, approximately one mile up-river from the Y-junction. The suggested SP9 classification begins at the Y-junction. At this location, this suggested change represents an addition of approximately one mile of SP9 and a reduction of one mile of RN7.
2. The upper end of North Bay, including the Greenhorn Creek area, would change from the RN6 to the suggested RN7.
3. The western shoreline across from Iron Horse and down through Middle Bay would change from RD4 to the suggested RD5/RN6.

Figure 2-1 in Chapter 2 of the RMP/EIS depicts these changes.

Future Management Considerations

The WROS team members identified management considerations for managing New Melones Lake as a result of their site visits, discussions, and consideration of WROS guidelines.

Consideration 1: Upper Stanislaus River

Current situation

The Upper Stanislaus River was inventoried to provide Semi Primitive recreation opportunities. However, the three attribute scores (physical, social, and managerial) suggest a current or potential inconsistency. The scores suggest that, while the area has the attributes of a Semi Primitive area, there are some uses that reduce the social setting values that may not be compatible with the current situation.

Management Option 1.1: Manage the Upper Stanislaus River as a Semi Primitive setting
Management Option 1.2: Manage the Upper Stanislaus River as a Rural Natural setting

Consideration 2: Greenhorn Creek area

Current situation

This area was inventoried to be on the edge of providing either Rural Developed or Rural Natural recreation opportunities. There was a large variation in the three attribute scores, suggesting an inconsistency. This variation suggests that management intervention is required to mitigate this inconsistency.

Management Option 2.1: Manage the Greenhorn Creek area as a Rural Natural setting
Management Option 2.2: Manage the Greenhorn Creek area as a Rural Developed setting

Consideration 3: Ski course
Current situation
One cove in the South Bay area contains a ski course, which has been in operation for a number of years. The area was inventoried as a Rural Natural area overall, though there were modest variations in the three attribute scores, suggesting a small inconsistency. There is concern that the ski course is having a potential impact on nearby residents and recreationists, especially considering its proximity to the Peoria Wildlife Mitigation Area. The type and extent of the impact is unknown, but it would be reasonable to assume that there is some impact from the ski course and that another location may be of mutual benefit to all parties.

Management Option 3.1: Relocate the ski course
Management Option 3.2: Management change for the ski course

Consideration 4: Houseboat policies
Current situation
Houseboating is allowed on New Melones Lake, and it is an increasingly popular recreation activity. However, in contrast to other types of boating, the space necessary to moor a houseboat is considerable, for it to travel safely and to accommodate its many attendant devices. Currently, there are few policies at New Melones regarding houseboat sizes, length of mooring, number of private and commercial houseboats at one time, or other regulations. In the absence of adequate houseboat policies and regulations, whatever WROS management scheme is implemented in the future would likely be impacted, given the trends in houseboating. Thus, it would seem reasonable for policies to be proactively established for the benefit of all parties.

Management Option 4.1: Expand houseboat management policies
Management Option 4.2: Do not implement houseboat management policies

Regional WROS Perspective
This section allows for a comparison of New Melones Lake to the other study lakes in Region III, which is the East Central Foothills Region WROS study area. Region III includes Lakes McClure and McSwain, Millerton Lake, New Melones Lake, Pine Flat Lake, Turlock Lake, and Don Pedro Lake. Together, these foothill reservoirs provide most of the mid-range WROS Rural Natural and Rural Developed water recreation opportunities and experiences in both the East and West Central regions.

New Melones Lake is unique because it is in a beautiful setting and because approximately two-thirds of its large water surface area is covered by either Rural Natural or Semi Primitive WROS classes. Only eight percent of the water surface acres of all study reservoirs in the region are classified as Semi Primitive, with New Melones Lake representing fifty percent of the total.

Tables B-3 and B-4 are presented below to allow for a comparison of New Melones Lake to other study lakes in Region III.

Table B-3.
Comparison of Physical and Managerial Profile Variables: Region III and New Melones

Variables	Region III[1]		New Melones Lake	
	Region Average	Region Total	New Melones Total	New Melones Percent of Regional Total
Physical Profile Variables				
Total water surface acreage (high pool)	7,056	42,334	12,500	30
Managerial Profile Variables				
Number of developed campgrounds	3	15	5	33
Number of developed campsites	214	1,285	315	25
Number of undeveloped/rustic campsites	61	363	0	0
Number of picnic sites	52	209	100	48
Miles of hiking trails	6	33	25	76
Miles of horseback riding trails	<1	2	2	100
Miles of bike trails	5	31	24	77
Number of boat launch sites	3	20	7	35
Number of paved boat access lanes	9	54	18	33
Number of boat rentals (boats)	15	73	43	59
Number of private moorings (slips)	135	809	170	21
Number of visitor centers	1	3	1	33

[1] Region III includes Don Pedro, McClure, McSwain, Millerton, New Melones, Pine Flat and Turlock Lakes.

Table B-4.
Comparison of Social Profile Variables: Region III and New Melones

Variables	Region III[1]	New Melones Lake
Social Profile Variables	**Region Average**	**New Melones Total**
Number of annual visitors[2]	540,639	800,000
Average length of stay (days)	2	1.5
Average size of visitor groups (people)	4	7
Percent of large groups over 12 people	12	6
Percent of repeat visitors	64	13
What Experiences Visitors Are Seeking (Percentage)		
Social	36	50
Skill development	8	5
Peace and quiet	25	15
Thrills	16	10
Aesthetics	7	20
Other	8	0
Home Origin of Visitors (Percentage)		
Less than 10 miles	2	0
10-25 miles	21	42

Table B-4.
Comparison of Social Profile Variables: Region III and New Melones

Variables	Region III[1]	New Melones Lake
26-100 miles	49	30
101-250 miles	25	28
250+ miles	5	0
Percent of Visitors by Ethnicity		
Caucasian	61	75
Mexican American	24	9
American Indian	4	8
Asian American	8	4
African American	4	2
Other	1	2
Percent of Boats by Size		
<16 feet	33	30
16 to 25 feet	57	60
Over 25 feet	11	10
Percent of Boats by Type		
Nonmotorized	6	5
Outboard engine	49	50
PWC	17	15
Inboard engine	17	10
Houseboat	12	20

[1] Region III includes Don Pedro, McClure, McSwain, Millerton, New Melones, Pine Flat and Turlock Lakes.

[2] The total number of visitors for Region III is 2,703,193. New Melones's percent of the regional total is 30%.

In order to continue providing a diversity of water recreation opportunities and visitor experiences in the region and state, it is most important to protect the WROS classes and opportunities that are relatively rare in the region. As such, management to protect the Semi Primitive areas at New Melones Lake is important.

APPENDIX C
DRAFT NEW MELONES LAKE MOORED VESSEL PLAN

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Draft New Melones Lake Moored Vessel Plan

1. Authority:
The Act of Congress approved June 17, 1902, (32 Stat. 388), the Reclamation Act of 1939, (53 Stat. 1187) including all amendments, supplements, and the Federal Water Project Recreation Act (1965) and the Reclamation Recreation Management Act of 1992.

Additional authority for the Special Recreation Policy is contained in OMB Circular A-25, the Code of Federal Regulations (43 CFR 429), and Reclamation Manual/Directives and Standards LND08-01.

Flood Control Act of 1944, Flood Control Act of 1962

CVPIA

43 CFR Part 423

Reclamation Manual LND P02 Concessions Management

Reclamation Manual LND 04-01 Concessions Management Directives and Standards

2. Purpose: To establish a plan for the placement, mooring and operation of houseboats and other vessels at New Melones Lake, in order to ensure the protection of water quality, enhancement of resource values, and provision of fair and equitable recreational use of this waterway. Any person wishing to place, moor, dock, occupy and/or operate a houseboat, overnight occupancy vessel and/or other vessel on New Melones Lake shall comply with the following provisions.

3. Scope: This policy applies to all privately and commercially owned houseboats, overnight-occupancy vessels and moored/docked vessels on New Melones Lake.

4. Effective Date: January 1, 2013 or upon expiration of existing concession contract.

5. Definitions:

a. Houseboats are defined by Reclamation as vessels which may have the capability of sleeping four or more people and can include galleys, toilets and showers which can produce black and/or gray water. All vessels must meet standards in accordance with 43 CFR 423.39.

b. Moored Vessels are those vessels that are attached to or housed within a floating structure such as a dock or boathouse, or are secured in place by an anchor, mooring line, buoy, or other mooring device for the purpose of temporary or longer term placement on the water of New Melones Lake.

c. Overnight Occupancy Vessels (OOV) are generally shorter in length but may also have galleys and/or toilets and are capable of producing black and/or gray water.

6. Discharge of Wastes:

a. Unauthorized discharge of wastes including gray and/or black water from a vessel is prohibited on New Melones Lake lands or waters.

b. All vessels capable of discharging wastes shall be equipped with intact, fully functional and approved gray and black water holding tanks. While on the waterway, such tanks shall only be discharged via vacuum pumping by a Reclamation-approved pump-out facility.

7. Inspection:

a. Pre-placement Inspections: Prior to being placed, moored or docked on New Melones, all vessels capable of discharging gray and/or black water, including houseboats, shall have on board documentation of having been inspected and certified as meeting federal, state and local requirements. In addition, all moored vessels shall be inspected and certified as being free from all invasive aquatic species. The marina concessionaire shall perform inspections and certifications for vessels prior to issuing mooring or docking permits or placement on the lake. A copy of the inspection reports must be provided to the New Melones Lake Resource Office and a copy must be kept on file at the marina concession office.

b. All vessels moored, docked or operated at New Melones Lake shall be subject to inspection by Reclamation, local boating enforcement and/or U.S. Coast Guard personnel for health, safety and environmental compliance purposes at any time.

c. All permitted houseboats and OOVs will be inspected annually with a Reclamation approved form by the concessionaire to be kept on file and a copy sent to the Reclamation field office.

8. Mooring/Docking Permits:

a. Vessels, including houseboats and overnight-occupancy vessels, may be anchored, docked and occupied only in approved locations overnight on the lake for up to 14 days in a 30 day period. Houseboat mooring and anchoring outside of the marina concession area is permitted except in restricted areas as shown on a map of New Melones Restricted Water Use Zones. Restricted areas may change. For a map of current restricted areas vessel owners shall contact the New Melones Lake Administrative Office. Houseboats will not be anchored within ¼ mile of any campground, day use area, or boat launch ramp.

b. After the 14th day, all vessels shall be removed from the lake unless a mooring or docking permit has been previously obtained from the marina concessionaire legally authorized by Reclamation to provide mooring or docking services.

c. Houseboats and OOV's may be occupied overnight for a maximum of one night while moored/docked in the marina concession area.

d. A maximum number of houseboat, OOV, and vessel mooring/docking permits will be established for New Melones Lake, based on a Carrying Capacity study, Water Recreation Opportunity Spectrum analysis and/or other planning and decision documents including the New Melones Lake Area Resource Management Plan/Environmental Impact Analysis Record of Decision. These permit limitations apply to both privately-owned vessels and rental vessels owned by a concessioner.

e. Mooring/Docking permits for vessels shall be issued, in accordance with 43 CFR 429. Vessel must be removed from the lake by the last day of the permit term or by the last day of the marina concession contract.

f. Mooring/Docking permits will be issued only to the registered owner of the vessel. The owner is that individual(s) or entity identified on the vessel registration at the time the permit is issued. Any change in the registered ownership of a vessel will require the vessel to be removed from the lake and the new owner will be required to place their name on the waiting list. Privately owned vessels may not be used commercially and the permit cannot be transferred. Vessel owners must provide a copy of their vessel registration to the marina concessionaire annually by Dec 31 of each year.

9. Vessel Maintenance:

a. Major maintenance or repairs including policy compliance retrofits requiring haul-out will be accomplished off Reclamation lands or at the marina concession maintenance yard. The authorized concessioner is the only entity permitted to perform maintenance or repairs of houseboats/vessels on Reclamation lands or waters. Owners/Operators of vessels are prohibited from performing their own work on their boats on Reclamation property (including in the marina yard). Owners/Operators may not hire subcontractors or hired contractors to work on their vessels on Reclamation property.

b. No maintenance or repairs shall be made on any houseboat/vessel while on the lake that involves the following: 1) any work or repair that involves structural alteration or modification, 2) any work or repair or any by-product of such work or repair that could result in the introduction of any materials, hazardous material, pollutant or contaminant into the waters of the lake, 3) hot work such as welding or other activities that pose a threat to fire safety.

10. Size Limitations:

a. The maximum size vessel allowed on New Melones Lake is fifteen (15) feet wide and sixty (60) feet long. Total width and length include all temporary and permanent appurtenances in their open or useable position. Manually operated gangplanks designed for passenger boarding that retract flush with the hull when the vessel is underway will be exempted from the appurtenance clause.

b. The maximum height for vessels on New Melones Lake is a single story, which is generally no more than ten (10) feet above the primary deck for permanent structures. Superstructure higher than ten feet above the primary deck is permitted only if it is readily removable or collapsible, or with authorization by Reclamation.

11. Waiting Lists:

a. Marina concessioner shall maintain a waiting list of applicants for houseboat/OOV/vessel moorage/docking permits. This list shall be established via first-come, first-served inquiries from the public.

b. The waiting list will be numbered and posted annually on the marina's website for public review. Annually, individuals on the waiting list must submit a written request not later than December 1st if they wish to remain on the waiting list for the following year. The current waiting list will be posted on the marina concessioner's website by Jan 15 of each year and will be updated a minimum of annually by Jan 15 of each subsequent year.

c. Applicants on the waiting list may not sell, trade, gift, assign, or otherwise transfer his/her position on the waiting list to another person or entity.

d. Waiting lists expire upon expiration/termination of the concession contract. Placement on a waiting list in no way guarantees a future mooring agreement and should never be construed as "permission" to construct or purchase a vessel for placement on New Melones Lake.

12. Launch and Retrieval:

Houseboat owners must comply with New Melones' Special Event Permit program and obtain a permit prior to launching, retrieving, or transporting a houseboat on New Melones Lake waters or lands. Houseboats may only be launched or retrieved Monday through Thursday unless otherwise authorized.

a. The houseboat mover must have an approved permit, including proof of insurance, in their possession when moving a houseboat on New Melones' lands or waters.

b. The houseboat mover must comply with all safety and traffic management laws and obtain necessary permits as required on a state highway.

c. A written traffic or safety plan may be required prior to moving a houseboat.

d. Permitting fees will be determined for any event using the "Special Event Classification and Fees" schedule.

e. A completed application form, MP-1016, and the required certificate of insurance form must be received a minimum of 45 days prior to the requested event date. After an application is received, the Special Use Coordinator will contact the permit applicant in approximately 10 days with the fee amount and any additional permit requirements.

13. Costs and Fees:

Costs or fees associated with required inspections, surveys, permits, launches or haul-outs, salvage operations and environmental clean-up for hazardous materials spills directly caused by the vessel shall be borne in whole by the vessel owner.

14. Compliance:

a. Houseboats and other vessels not in compliance with this policy shall be removed from New Melones Lake within 14 days of the owner or their agent's receipt of written notification. In the event the vessel poses an immediate health, safety or environmental threat, the vessel shall be removed immediately by any feasible means, and the owner or agent may be notified after the fact. Vessels which are not removed in accordance with these provisions may be impounded and removed by Reclamation or its agent at the owner's expense.

b. Unattended or abandoned vessels will be removed in accordance with 43 CFR 423.23 and other applicable directives.

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