

## 4.14 Recreation

### Affected Environment

#### Regional Setting

The Restoration Project is located in northern Tehama and southern Shasta Counties east of the Sacramento River and west of Lassen Volcanic National Park and Lassen National Forest.

Land ownership in the Restoration Project is primarily private with a smaller portion of public land administered by the BLM. The area of potential effect for recreational resources includes private and public lands, waterways, and other areas within the Restoration Project area that provide recreational opportunities. Recreational activities that occur in and around the Restoration Project area include hunting, fishing, boating, wildlife viewing, kayaking, hiking, and family recreation (i.e., river access). Recreational activities are discussed in more detail below under “Recreation Activities.”

#### Wildlife Refuges and Parks

##### Wildlife Refuges

No state or national wildlife refuges are located within the Restoration Project. The DFG manages the Battle Creek Wildlife Area and the Tehama Wildlife Area in the vicinity of the Restoration Project area. The 418-acre Battle Creek Wildlife Area is located west of the Restoration Project area and is adjacent to the Coleman National Fish Hatchery. The wildlife area includes 320 acres of riparian forests, marshes, and oak woodland, and is available for bird watching and fishing activities. The section of Battle Creek running through the Battle Creek Wildlife Area can be accessed for fishing and provides excellent spawning grounds for chinook salmon. The Tehama Wildlife Area is located about 3 miles south of the town of Paynes Creek and of the Restoration Project area. The Tehama Wildlife Area includes 46,900 acres of oak woodland, grasslands, and chaparral in which camping, hunting, and fishing are available activities. These two wildlife areas would not be directly affected by activities at the Restoration Project sites so are not discussed further in this section.

The national wildlife refuge closest to the Restoration Project area is the Red Bluff Diversion Dam Salmon Viewing Plaza (GORP 2001), located in Red Bluff, west of the Restoration Project area. The Red Bluff site would not be directly affected by activities at the Restoration Project sites; therefore, it is not discussed further in this document.

## **Parks**

There are no national or state parks, reserves, historic parks, or recreation areas within the Restoration Project area (California Department of Finance 2000a). The closest national park is the Lassen Volcanic National Park, which lies east of the Restoration Project area. Lassen Volcanic National Park, located just north of the Sierra Nevada, contains 106,000 acres of forested foothills and volcanic relics. Popular recreational activities in the park include hiking, sledding, snowshoeing, and birdwatching. The state park closest to the Restoration Project area is the William B. Ide Adobe State Historic Park, located along the Sacramento River south of Redding.

Because these parks would not be directly affected by activities at the Restoration Project sites, they will not be discussed further in this document.

## **Water Bodies**

### **Battle Creek**

During the dry season, spring-fed Battle Creek has exceptionally high flows, making it important habitat for anadromous fish. Battle Creek is composed of two main branches, North Fork Battle Creek (about 29.5 miles in length from its headwaters to its confluence with the Sacramento River) and South Fork Battle Creek (about 28 miles in length from its headwaters to the same confluence). Both forks are made up of steady-flowing cold water, flow through deep gorges, and have relatively high flows even during dry seasons. Battle Creek also has a number of tributaries, including Soap, Ripley, and Baldwin Creeks.

### **Forebays**

Three forebays are associated with the Hydroelectric Project.

**Coleman Forebay.** Coleman Forebay is the only forebay associated with the Hydroelectric Project located in the Restoration Project area. The 10.6-acre forebay is located to the north of the Coleman Powerhouse and Battle Creek. Picnicking, fishing, and berry picking are popular recreational activities for visitors. There are at least three points for public access for fishing and two areas designated for waterfowl hunting (PG&E 1969).

**Lake Grace.** Lake Grace is north of North Fork Battle Creek and is not within the Restoration Project area. Because its surface area is only 8.5 acres, Lake Grace has had limited recreational development. To maintain a sport fishery throughout the recreation season, the DFG typically plants sport-sized trout in Lake Grace several times per month, starting in April. In addition, there are day-use picnic facilities and sanitary facilities at the lake. Berry picking is another recreational activity at the lake. Because Lake Grace would not be affected by activities at the Restoration Project sites, it is not discussed further in this document.

**Lake Nora.** Lake Nora is north of North Fork Battle Creek and south of Lake Grace; it is not within the Restoration Project. Because its surface area is

only 3.5 acres, it has had limited recreational development. To maintain a sport fishery throughout the recreation season, the DFG typically plants sport-sized trout in Lake Nora several times per month, starting in April. In addition, there are day-use picnic facilities and sanitary facilities at the lake. Berry picking is another recreational activity at the lake. Lake Nora would not be affected by activities at the Restoration Project sites and, therefore, is not discussed further in this document.

### **Reservoirs**

The two storage reservoirs associated with the Hydroelectric Project are described below. Neither reservoir is within the Restoration Project area.

**Macumber Reservoir.** Macumber Reservoir is located on North Fork Battle Creek to the west of North Battle Creek Reservoir. It has a surface area of 127 acres and a storage capacity of 860 acre-feet. Macumber Reservoir has 12 camping units, including five that were upgraded from picnic units in the 1970s (PG&E 2003). A separate boat-launching facility is also located on the west shore of the reservoir. Macumber Reservoir would not be affected by activities at the Restoration Project sites and, therefore, is not discussed further in this document.

**North Battle Creek Reservoir.** North Battle Creek Reservoir has a surface area of 76 acres and a storage capacity of 1,012 acre-feet. The reservoir supports a cold-water trout fishery, which attracts a considerable number of anglers during the summer. Recreational facilities at the reservoir consist of 10 campsites with hookups for trailers and recreational vehicles, and five walk-in campgrounds (PG&E 2003). Services include access for car-top boats. Because access roads are often impassable during the winter and spring, recreational use of the reservoir is limited to the warmer months. Because North Battle Creek Reservoir would not be affected by activities at the Restoration Project sites, it is not discussed further in this document.

### **Wildlife Viewing Areas/Hatcheries**

The Coleman National Fish Hatchery is located on Battle Creek just west of the Restoration Project and includes viewing of the chinook salmon and steelhead migrating up the Sacramento River from the Pacific Ocean. In addition to the hatchery, nine private trout-rearing facilities and one state-run facility are located within the Battle Creek watershed. The private hatcheries, which are operated by Mt. Lassen Trout Farms, Inc., raise rainbow and brown trout for stocking private ponds and lakes throughout California (Paquin-Gilmore 1999). These facilities do not directly interact with fish populations in Battle Creek, although the accidental downstream releases of fish may occur. The Darrah Springs Hatchery is a state-run facility located at Darrah Springs on Baldwin Creek. It raises catchable trout for sport fisheries and is a key hatchery in the DFG's inland fisheries program. Baldwin Creek connects the hatchery to Battle Creek.

## Recreational Activities

The following section highlights some of the more popular recreational activities available in the Restoration Project area.

### Fishing

**Public Access.** PG&E reservoirs, lakes, and streams are typically open to the public, except where operational, safety, and other requirements preclude recreational use. Correspondingly, there are numerous public access points for fishing in the vicinity of the Restoration Project area and at the Hydroelectric Project facilities. There is public access at Coleman Forebay, on Baldwin Creek near Ashbury Diversion Dam, on South Fork Battle Creek near Inskip Powerhouse, on the Cross Country Canal south of Volta Powerhouse 2, and along other canals in the Restoration Project area (PG&E 1969, 1978). In addition, there are other public access points for fishing within the Battle Creek watershed.

Fishing is also permitted on private land. Historically, some landowners have protected these upland areas from human disturbance by limiting access and by focusing land management on areas away from the water (Kier Associates 1999a). In 1997, fishing access on South Fork Battle Creek near the Inskip Powerhouse was eliminated when the private property owner closed the road to the public. However, more landowners have recently supplemented their incomes from agriculture and cattle ranching with the sale of trespass rights for fishing that allow public access for this activity (McC Campbell pers. comm.).

**Fishing in Canals.** The extensive canal system for the hydropower facilities, including Cross Country Canal, South Canal, Union Canal, Inskip Canal, Eagle Canyon Canal, and Coleman Canal, supports juvenile and adult rainbow trout and other species (DFG 1966). Spawning habitat for rainbow trout within the canals is limited. The abundance of rainbow trout in the canals is dependent on entrainment of juvenile and adult rainbow trout from Battle Creek.

**Regulations.** The DFG regulates freshwater sport-fishing in California waters. The most current regulations, for the year 2003, will be effective from March 1, 2003, through February 28, 2004 (DFG 2003). Both Shasta and Tehama Counties, excluding Black Butte Lake, are considered for the regulations to be part of the Sierra District. Battle Creek is the only water body in the Restoration Project area with special fishing regulations. The Sierra District's general regulations apply to all other water in the area of the Restoration Project.

By special regulations, fishing in Battle Creek from its confluence with the Sacramento River to the Coleman National Fish Hatchery is prohibited all year. Fishing from 250 feet upstream from the hatchery to the Coleman Powerhouse is permitted from the last Saturday in April through September 30. Fishing is limited to one hatchery trout or one hatchery steelhead, taken only with artificial lures and barbless hooks (DFG 2003).

Regulations prohibit the take of salmon in all tributaries to the upper Sacramento River, including Battle Creek and its tributaries (DFG 2003). The special regulations also state that in the Sierra District, up to 10 brook trout that are less than eight inches in total length may be taken and possessed per day in addition to the other daily bag and possession limits. In Shasta and Tehama Counties, daytime and nighttime<sup>1</sup> fishing are permitted. However, no trout or salmon may be taken during nighttime hours.

**Fish Stocking.** To maintain sport fishing throughout the recreation season, fish are stocked in some of the water bodies in the Restoration Project area. The DFG typically plants sport-sized trout in South Fork Battle Creek. Rainbow trout have been stocked annually at various locations in North Fork Battle Creek since 1940, with the exception of 1947 and 1975, and at various locations in South Fork Battle Creek since 1946. Rainbow trout generally come from the Darrah Springs Fish Hatchery, although other hatcheries are occasionally used. Brook trout were stocked in North Fork Battle Creek on at least five separate occasions and in South Fork Battle Creek annually since 1990 and on two earlier occasions. In 1995, the DFG stopped stocking the anadromous waters of Battle Creek with hatchery trout. Coleman National Fish Hatchery also releases chinook salmon juveniles into Battle Creek. These fish, however, do not support sport fishing in Battle Creek; rather these fish support the larger ocean sport and commercial fishery and also a large recreational fishery in the mainstem of the Sacramento River.

Private parties also currently stock small quantities of fish in the Battle Creek watershed with the approval of the DFG. The Oasis Springs Lodge annually stocks 400 sterile rainbow trout into South Fork Battle Creek. Another resort owner stocks rainbow trout into the Hydroelectric Project's canals within the watershed. Stocking of Hydroelectric Project waterways, wherever it may occur, is not done with PG&E's knowledge, approval, or concurrence.

**Fishing Guide Services.** In addition to the public access areas discussed above, other privately owned areas are accessed for fishing on a limited basis. The Fly Shop, located in Redding, provides fishing and guide service to the Restoration Project Area through leases and exclusive rights from property owners (The Fly Shop 2001). This service includes fishing rights to an 8- to 9-mile stretch of Battle Creek, known as Battle Creek Ranch, extending from the confluence of North Fork and South Fork Battle Creek to just downstream of the Coleman National Fish Hatchery. Private-property owners have also provided The Fly Shop with fishing access to over a mile of spring-fed stream on Baldwin Creek and along Coleman Ditch, which has all of the characteristics of a spring creek and averages 15 feet across and 4 to 6 feet in depth.

Through The Fly Shop, anglers pay for trespass rights and for an optional guide service. Occupancy is limited to eight anglers per day. The fishing season on this privately owned portion of Battle Creek extends from May 15 to

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<sup>1</sup>Daytime hours are defined as one hour before sunrise to one hour after sunset. Remaining hours are considered nighttime hours.

November 15 and the species fished is rainbow trout. Fishing is restricted to catch-and-release, barbless hooks, and fly-fishing.

### **Kayaking/Rafting**

Kayaking is known to occur along some sections of Battle Creek. Rafting season typically runs from March (after snowmelt) through May or June.

Two sections of Battle Creek in the Restoration Project have been used for kayaking. The first is a 13-mile stretch from Manton Road to the Coleman National Fish Hatchery. The run begins at a public right-of-way at the Manton Bridge and ends at the hatchery. This section is considered primarily a Class III, or intermediate, run with one stretch that is considered a Class IV, or advanced, run (California Creekin' 2000). The second section is an 11.5-mile stretch along South Fork Battle Creek beginning east of South Diversion Dam near Ponderosa Way and passing Inskip Diversion Dam, Inskip Powerhouse, and Coleman Diversion Dam to Manton Road. This section is a Class V, or expert, run with a few areas that are considered unrunnable, including the areas near Inskip and Coleman Diversion Dams. At these points, kayakers leave the water and portage around the facility. Since the area is not listed in any official river rafting guidebooks, kayaking and rafting use in the area could not be quantified.

### **Hunting**

California's range of game animals include deer, wild pig, bear, wild turkey, pheasant, grouse, quail, dove, duck, and goose. Hunting is permitted on BLM lands in accordance with state hunting regulations administered by DFG (DFG 2000b). These regulations also apply to hunting on private property.

Hunting occurs in the Restoration Project area. Because of the remote, rural nature of the area, hunting by landowners is assumed to be prevalent on private lands. Landowners have supplemented their incomes from agriculture and cattle ranching with the sale of access rights to hunters (McC Campbell pers. comm.).

DFG allows hunting for deer, wild pig, and wild turkey at its Tehama Wildlife Area. As discussed above, the wildlife area is located near but not within the Restoration Project area. No wildlife areas or state-operated shooting areas are located within the Restoration Project. Target shooting is permitted on BLM lands and, therefore, may also occur in the Restoration Project (BLM 2001).

### **Lodging/Campgrounds**

Only one lodging facility is located within the Restoration Project area. Oasis Springs Lodge is a 3,000-acre fly-fishing lodge and dude ranch located along South Fork Battle Creek just upstream of Inskip Diversion Dam. The lodge offers catch-and-release fly-fishing for rainbow trout. Other facilities include a spa, a pool, tennis courts, and nature trails. The lodge is typically open from May through mid-November.

The campground closest to the Restoration Project area is Camp Latieze, located in Manton. Owned by the Shasta County Department of Education, the camp is open year-round and can house up to 80 people in 10 rustic cabins. Activities in

the camp include swimming, hiking, and wilderness studies. The camp would not be affected by activities at the Restoration Project sites.

## Regulatory Setting

There are few regulations that apply to recreational activities. As described above, freshwater sport fishing along Battle Creek is subject to restrictions imposed by DFG. DFG also regulates hunting activity.

## Environmental Consequences

### Summary

No significant recreation impacts are associated with the No Action Alternative. Significant impacts are associated with all of the Action Alternatives (Five Dam Removal, No Dam Removal, Six Dam Removal, and Three Dam Removal). Disturbance would be limited to those areas associated with construction, modification, or removal activities, such as streambeds, stream banks, short-term and long-term access roads, staging areas, and Hydroelectric Project dam site facilities, conveyances, and appurtenant facilities. All of the Action Alternatives would result in a significant unavoidable construction impact on recreational opportunities at Oasis Springs Lodge. Otherwise, Reclamation will implement mitigation measures to reduce significant impacts to a less-than-significant level.

### Impact Significance Criteria

For this analysis, based on the criteria contained in Appendix G of the State CEQA Guidelines, impacts would be considered significant if implementation of the Restoration Project would:

- Substantially reduce recreational opportunities in Shasta or Tehama County.
- Increase the use of existing recreational facilities such that substantial physical deterioration of a facility would occur or be accelerated.
- Include recreational facilities or require the construction or expansion of recreational facilities that may have an adverse physical effect on the environment.

### Impact Assessment

As applicable, the General Environmental Commitments listed in the introduction to this chapter shall be utilized to reduce impacts on recreation. Specifically, commitments to postconstruction restoration will maintain the

resources on which fishing is based. In addition, specific mitigation measures for this resource are identified below.

The Restoration Project does not propose any new recreational opportunities or facilities (nor expand any recreational opportunities or facilities) that would have an adverse physical effect on the environment. There would be no measurable increase in the use of wildlife refuges, parks, or other water bodies outside the Restoration Project area. The additional work force required to complete construction activities is not expected to exceed the normal variability in users of these recreational facilities. Because the majority of this work force would reside near the Restoration Project or in nearby cities and towns, no substantial, permanent increase in population would result from the project. As discussed previously, recreational activities and public access to Battle Creek are expected to experience a minimal increase. However, this increase cannot be quantified. Implementation of the Alternatives would not result in a significant increase in use of nearby recreational resources.

The impact assessment, therefore, will focus on the reductions to recreational opportunities that may result from the Restoration Project.

## **No Action Alternative**

The No Action Alternative would not affect recreation. The No Action Alternative is not expected to result in any changes to the existing recreational resources in and around the Restoration Project area. Recreational activities such as hunting, fishing, boating, wildlife viewing, kayaking, hiking, and family recreation would continue as they are currently. Entrainment in the Cross Country, South, Union, Inskip, Eagle Canyon, and Coleman Canals would also continue to maintain rainbow trout abundance for local fishing.

## **Five Dam Removal Alternative (Proposed Action)**

### **Impact 4.14-1 Significant and Unavoidable—Construction activities at Inskip Diversion Dam could reduce recreational opportunities at the Oasis Springs Lodge.**

The Oasis Springs Lodge is a fly-fishing lodge and dude ranch located along South Fork Battle Creek near Inskip Diversion Dam. The lodge, which typically operates from May through mid-November, is noted for its remote location, quiet surroundings, unspoiled landscapes, and retreat-like atmosphere. Because construction activities at Inskip Diversion Dam could potentially extend from spring 2004 through fall 2006, the lodge could be affected during three operating seasons. Recreational activities at the lodge could be disturbed or disrupted by the neighboring construction-related activities. Temporarily increased vehicular traffic and increased noise levels could directly affect recreational use of the lodge (see Sections 4.9, “Transportation,” and Section 4.10, “Noise”). Fishing would be disturbed if water flow is stopped by using temporary cofferdams or if flow is diverted or pumped to temporary holding ponds. Construction activities



could result in reduced recreational opportunities offered by the Oasis Springs Lodge. This impact is considered significant. Implementing the following mitigation measure would reduce this significant impact, but not to a less-than-significant level.

**Mitigation Measures for Impact 4.14-1.** To reduce construction-related impacts on recreational activities offered by the Oasis Springs Lodge, Reclamation will notify the Oasis Springs Lodge as soon as possible and prior to construction activities of the anticipated start date, duration, and type of construction activities. Measures developed in consultation with the lodge operators will be implemented to further reduce direct impacts on recreational opportunities.

**Impact 4.14-2 Significant—Construction activities could temporarily reduce recreational resources and activities.**

The precise timing of proposed activities at the Battle Creek sites could potentially determine whether recreational activities are temporarily affected. Preliminary information on the proposed construction sequence shows a range of months in which particular activities could occur at a certain site. The construction sequence and schedule would be refined during final design. To the extent construction activities occur when participation in recreation is highest (i.e., during open fishing season), the proposed activities could temporarily reduce recreational opportunities. For example, if construction activities at a specific site occur during open fishing season, public access to some areas could be limited and the recreational activities could be adversely affected. Correspondingly, during construction at some Battle Creek sites, either water flow would be stopped using temporary cofferdams or flow would be diverted or pumped to temporary holding ponds. As a result, downstream flows could be reduced and temporarily affect downstream fishing. A reduction in recreational resources and activities as a result of proposed construction at the Battle Creek project sites is considered significant. Implementing the following mitigation measure would reduce this significant impact to a less-than-significant level.

**Mitigation Measures for Impact 4.14-2.** To reduce construction-related impacts on recreational activities near the Restoration Project area, Reclamation will implement the following measures:

- Nearby land and property owners will be notified prior to the onset of construction activities of the anticipated start date and duration of these activities.
- To the extent feasible, the duration of construction activities will be minimized during those periods when recreational activities would be affected.

Adequate notification of and collaboration with landowners and recreational interests would reduce impacts that the Five Dam Removal Alternative may have on recreational opportunities in Shasta or Tehama County.

**Impact 4.14-3 Significant—Construction activities, including the use of equipment and storage areas, may temporarily impede public access to Battle Creek for kayaking and to private property where landowners may grant public access by selling hunting and fishing rights.**

Construction activities at many of the Restoration Project sites would involve the use of heavy equipment to remove existing facilities and to construct new facilities. Equipment use could temporarily disrupt or obstruct access in some locations, temporarily limiting the public's ability to fully participate in and enjoy recreational activities or resulting in the need to find alternative routes to recreational resources along Battle Creek.

Some temporary obstructions would not result in significant impacts because the use of equipment would be localized to the immediate areas disturbed by construction, many of which are in remote areas, often on private land accessed by gated roads and away from public access areas. Impacts would potentially be greater at some sites like Inskip Diversion Dam, which is adjacent to Oasis Springs Lodge, where equipment use would be closer to recreational activities, public access, or other sensitive receptors. This impact is considered to be significant. Implementing the following mitigation measure would reduce this significant impact to a less-than-significant level.

**Mitigation Measures for Impact 4.14-3.** To reduce construction-related impacts on access to public and private recreational areas, Reclamation will implement the following measures:

- Nearby land and property owners will be notified prior to construction activities of the anticipated start date and duration of these activities.
- During construction periods, access roads will be posted with signs alerting recreationalists to the presence of construction machinery and activities and advising them of the anticipated start date and duration of these activities.
- Where practicable, heavy equipment will be stored alongside access roads and roadways to allow public passage.
- To the extent feasible, the duration of construction activities will be minimized when recreational activities would be most affected.

**Impact 4.14-4 Less than Significant—Removing canals and installing fish screens to stop movement of fish into the remaining canals would virtually eliminate the resident trout populations and recreational trout fishing in the canals.**

The Hydroelectric Project's extensive canal system is a recognized recreational trout fishery (DFG 1966). Although private land ownership limits public access, the fishery is used by landowners and fishing clubs. The canals have limited spawning habitat and are subject to annual dewatering for maintenance, which eliminates most of the fish population. During maintenance, most of the stranded fish are rescued and returned to the creek. Presently, the recruitment of new fish into the canal fishery is from Battle Creek via the unscreened diversions.

Under the Five Dam Removal Alternative, diversions at Wildcat, South, Soap Creek Feeder, Ripley Creek Feeder, and Coleman Diversion Dams would cease, and the construction of effective fish screens at North Battle Creek Feeder, Eagle Canyon, and Inskip Diversion Dams (Table 4.1-4) would stop entrainment of rainbow trout in the canals. Rainbow trout abundance would likely be substantially less under the Five Dam Removal Alternative than under the No Action Alternative.

The reduction of rainbow trout abundance in the canals is considered less than significant because the canals do not constitute a stable ecosystem capable of producing a dependable fishery without recruitment from outside sources, such as entrainment of stream fish or stocking hatchery fish. In addition to entraining in the canals' populations of trout that are not self-sustaining, draining the canals for periodic maintenance also eliminates most of their rainbow trout populations. Most fish stranded in drained canals are rescued and released to Battle Creek. In addition, public access to the canals is not available in the Restoration Project area; therefore, the loss of this recreational opportunity would not result in a substantial reduction in recreation available in Shasta and Tehama Counties.

Under the Five Dam Removal Alternative, anadromous fish habitat in North Fork and South Fork Battle Creek would be restored, which would increase the abundance of trout in the nearby stream reaches and thus provide greater fishing opportunities. The substantial benefit of dam removal and fish screens to production of juvenile chinook salmon and steelhead (the anadromous form of rainbow trout) in Battle Creek is discussed in detail in Section 4.1, "Fish" (Entrainment section). In addition, the Five Dam Removal Alternative would maintain full flow of water in Coleman Canal, which has a limited amount of public access; therefore, recreational opportunities would not be eliminated at this location. As a result, the Five Dam Removal Alternative would have a less-than-significant impact on recreational trout fishing in the canals.

**Impact 4.14-5 Beneficial—Increased flows in North Fork and South Fork Battle Creek could increase the opportunities for kayaking, rafting, and/or fishing activities.**

Implementing the Five Dam Removal Alternative would result in increased flows in portions of both North Fork and South Fork Battle Creek. These increased flows could also result in beneficial impacts on recreational activities associated with using the creek for kayaking and rafting. Battle Creek is not listed in any official rafting guidebooks; therefore, the current usage for rafting and kayaking activities cannot be quantified. Increased recreational use of Battle Creek associated with increased flows is expected to be minimal because current use is relatively low and implementing this alternative would not directly result in Battle Creek being listed in any official rafting guidebooks.

After flows increase and new fish ladders and screens are constructed, populations of some fish species are expected to increase. This increased fish population could benefit recreational industries by providing more fish to catch and resulting in the creation of more fishing clubs, guide services, and commercial fisheries. As a result, increased fish populations could attribute to an

increase in the number of people fishing in the area. Similar to kayaking and rafting discussed above, information on the current number of people fishing in the Battle Creek area is not available; therefore, the increased use of Battle Creek could not be quantified. While the number of people fishing in the area may increase, all commercial and sport fishing would continue to operate under strict fishing regulations until species listed under federal and state endangered species statutes have fully recovered and applicable fishing regulations have been modified. Fishing would also continue to be in compliance with the applicable DFG fishing regulations. While no change in fishing regulations would result directly from the implementation of the Five Dam Removal Alternative, increased sport fishing opportunities are consistent with the goals of the California Fish and Game Commission.

## **No Dam Removal Alternative**

The No Dam Removal Alternative would leave the diversion dams in place and would involve the construction of new fish screens and ladders at six diversion dams (North Battle Creek Feeder, Eagle Canyon, Wildcat, South, Inskip, and Coleman). Although construction activities proposed for the No Dam Removal Alternative differ from the Five Dam Removal Alternative, construction-related impacts on recreational activities such as hunting, fishing, boating, wildlife viewing, kayaking, hiking, and family recreation would be similar.

### **Impact 4.14-6 Significant and Unavoidable—Construction activities at Inskip Diversion Dam could reduce recreational opportunities at the Oasis Springs Lodge.**

This impact is similar to Impact 4.14-1 described under the Five Dam Removal Alternative. Under the No Dam Removal Alternative, a fish screen and ladder would be constructed at the Inskip Diversion Dam site. Because proposed construction activities could potentially extend from spring 2004 through fall 2006, the lodge could be affected during three operating seasons. This impact is considered significant. Implementing the mitigation measure recommended for Impact 4.14-1 would reduce this impact, but not to a less-than-significant level.

### **Impact 4.14-7 Significant—Construction activities could temporarily reduce recreational resources and activities.**

This impact is similar to Impact 4.14-2 as described under the Five Dam Removal Alternative. As with the Five Dam Removal Alternative, the precise timing of construction activities proposed for the No Dam Removal Alternative could potentially determine whether recreational activities are temporarily affected. For example, if construction activities at a specific site occur during open fishing season, public access to some areas could be limited and the recreational activities could be adversely affected. Correspondingly, during construction at some Battle Creek sites, either water flow would be stopped using temporary cofferdams or flow would be diverted or pumped to temporary holding ponds. As a result, downstream flows could be reduced and temporarily affect downstream fishing. A reduction in recreational resources and activities as a result of proposed construction at the Battle Creek project sites is considered

significant. Implementing the mitigation measure recommended for Impact 4.14-2 would reduce this significant impact to a less-than-significant level.

**Impact 4.14-8 Significant—Construction activities, including the use of equipment and storage areas, may temporarily impede public access to Battle Creek for kayaking and to private property where landowners may grant public access by selling hunting and fishing rights.**

This impact is similar to Impact 4.14-3 described under the Five Dam Removal Alternative. Construction activities proposed for the No Dam Removal Alternative would involve the use of heavy equipment to construct new fish screens and ladders. Equipment use could temporarily disrupt or obstruct access in some locations, temporarily limiting the public's ability to fully participate in and enjoy recreational activities or resulting in the need to find alternative routes to recreational resources along Battle Creek. This impact is considered significant. Implementing the mitigation measure recommended for Impact 4.14-3 would reduce this impact to a less-than-significant level.

**Impact 4.14-9 Less than Significant—Installing fish screens to stop movement of fish into the canals would virtually eliminate the resident trout populations and recreational trout fishing in the canals.**

The Hydroelectric Project's extensive canal system is a recognized recreational trout fishery as a result of trout becoming entrained in these canals. Although private land ownership limits public access to the canals, the fishery is used by landowners and fishing clubs. Under the No Dam Removal Alternative, fish screens would be installed at North Battle Creek Feeder, Eagle Canyon, Wildcat, South, Inskip, and Coleman diversions, which would stop entrainment of rainbow trout in the canals. However, under the No Dam Removal Alternative, anadromous fish habitat in North Fork and South Fork Battle Creek would be restored by increasing instream flows, which would in turn increase the abundance of trout in the nearby stream reaches and thus provide greater fishing opportunities to the public. As a result, the No Dam Removal Alternative would have a less-than-significant impact on recreational trout fishing in the canals.

**Impact 4.14-10 Beneficial—Increased flows in North Fork and South Fork Battle Creek could increase the opportunities for kayaking, rafting, and/or fishing activities.**

Implementing the No Dam Removal Alternative would result in increased flows in portions of both North Fork and South Fork Battle Creek. These increased flows could also result in beneficial impacts on recreational activities associated with use of the creek for kayaking and rafting. Increased flows in Battle Creek, as well as the installation of new fish screens and ladders at the diversion dams, would contribute to the increase in some fish populations and therefore benefit recreational fishing. This beneficial impact is similar to Impact 4.14-5 described above under the Five Dam Removal Alternative.

## Six Dam Removal Alternative

The Six Dam Removal Alternative would remove Eagle Canyon, Wildcat, South, Soap Creek Feeder, Lower Ripley Creek Feeder, and Coleman Diversion Dams. Fish screens and ladders would also be installed at North Battle Creek Feeder and Inskip Diversion Dams under this alternative. Although construction activities proposed for the Six Dam Removal Alternative differ from the Five Dam Removal Alternative, construction-related impacts on recreational activities such as hunting, fishing, boating, wildlife viewing, kayaking, hiking, and family recreation would be similar.

### **Impact 4.14-11 Significant and Unavoidable—Construction activities at Inskip Diversion Dam could reduce recreational opportunities at the Oasis Springs Lodge.**

This impact is similar to Impact 4.14-1 described under the Five Dam Removal Alternative. Under the Six Dam Removal Alternative, a fish screen and ladder would be constructed at the Inskip Diversion Dam site. Because proposed construction activities could potentially extend from spring 2004 through fall 2006, the lodge could be affected during three operating seasons. This impact is considered significant. Implementing the mitigation measure recommended for Impact 4.14-1 would reduce this impact, but not to a less-than-significant level.

### **Impact 4.14-12 Significant—Construction activities could temporarily reduce recreational resources and activities.**

This impact is similar to Impact 4.14-2 as described under the Five Dam Removal Alternative. As with the Five Dam Removal Alternative, the precise timing of construction activities proposed for the Six Dam Removal Alternative could potentially determine whether recreational activities are temporarily affected. For example, if construction activities at a specific site occur during open fishing season, public access to some areas could be limited and the recreational activities could be adversely affected. Correspondingly, during construction at some Battle Creek sites, either water flow would be stopped using temporary cofferdams or flow would be diverted or pumped to temporary holding ponds. As a result, downstream flows could be reduced and temporarily affect downstream fishing. A reduction in recreational resources and activities as a result of proposed construction at the Battle Creek project sites is considered significant. Implementing the mitigation measure recommended for Impact 4.14-2 would reduce this significant impact to a less-than-significant level.

### **Impact 4.14-13 Significant—Construction activities, including the use of equipment and storage areas, may temporarily impede public access to Battle Creek for kayaking and to private property where landowners may grant public access by selling hunting and fishing rights.**

This impact is similar to Impact 4.14-3 described under the Five Dam Removal Alternative. Construction activities proposed for the Six Dam Removal Alternative would involve the use of heavy equipment to remove existing facilities and to construct new fish screens and ladders. Equipment use could temporarily disrupt or obstruct access in some locations, temporarily limiting the

public's ability to fully participate in and enjoy recreational activities or resulting in the need to find alternative routes to recreational resources along Battle Creek. This impact is considered significant. Implementing the mitigation measure recommended for Impact 4.14-3 would reduce this impact to a less-than-significant level.

**Impact 4.14-14 Less than Significant—Removing canals and installing fish screens to stop movement of fish into the remaining canals would virtually eliminate the resident trout populations and recreational trout fishing in the canals.**

The Hydroelectric Project's extensive canal system is a recognized recreational trout fishery as a result of trout becoming entrained in these canals. Although private land ownership limits public access to the canals, the fishery is used by landowners and fishing clubs. Under the Six Dam Removal Alternative, fish screens would be installed at North Battle Creek Feeder and Inskip diversions, which would stop entrainment of rainbow trout in the canals. In addition, Eagle Canyon, Wildcat, and South Canals would be removed. However, under the Six Dam Removal Alternative, anadromous fish habitat in North Fork and South Fork Battle Creek would be restored by increasing instream flows, which would in turn increase the abundance of trout in the nearby stream reaches and thus provide greater fishing opportunities to the public. As a result, the Six Dam Removal Alternative would have a less-than-significant impact on recreational trout fishing in the canals.

**Impact 4.14-15 Beneficial—Increased flows in North Fork and South Fork Battle Creek could increase the opportunities for kayaking, rafting, and/or fishing activities.**

Implementing the Six Dam Removal Alternative would result in increased flows in portions of both North Fork and South Fork Battle Creek. These increased flows could also result in beneficial impacts on recreational activities associated with the increased use of the creek for kayaking and rafting. Increased flows in Battle Creek, as well as the installation of new fish screens and ladders at the diversion dams, would contribute to the increase in some fish populations and therefore benefit recreational fishing. This beneficial impact is similar to Impact 4.14-5 described above under the Five Dam Removal Alternative.

### **Three Dam Removal Alternative**

The Three Dam Removal Alternative would remove Eagle Canyon, Wildcat, and Coleman Diversion Dams and retain Soap Creek Feeder and Lower Ripley Creek Feeder. Fish screens and ladders would also be installed at North Battle Creek Feeder, South, and Inskip Diversion Dams under this alternative. Although construction activities proposed for the Three Dam Removal Alternative differ from the Five Dam Removal Alternative, construction-related impacts on recreational activities, such as hunting, fishing, boating, wildlife viewing, kayaking, hiking, and family recreation, would be similar.

**Impact 4.14-16 Significant and Unavoidable—Construction activities at Inskip Diversion Dam could reduce recreational opportunities at the Oasis Springs Lodge.**

This impact is similar to Impact 4.14-1 described under the Five Dam Removal Alternative. Under the Three Dam Removal Alternative, a fish screen and ladder would be constructed at the Inskip Diversion Dam site. In addition, the tailrace connection between the South Powerhouse and the Inskip Canal would be an open channel, rather than the full-flow tunnel proposed under the Five Dam Removal Alternative. Because proposed construction activities could potentially extend from spring 2004 through fall 2006, the lodge could be affected during three operating seasons. This impact is considered significant. Implementing the mitigation measure recommended for Impact 4.14-1 would reduce this impact, but not to a less-than-significant level.

**Impact 4.14-17 Significant—Construction activities could temporarily reduce recreational resources and activities.**

This impact is similar to Impact 4.14-2 as described under the Five Dam Removal Alternative. As with the Five Dam Removal Alternative, the precise timing of construction activities proposed for the Three Dam Removal Alternative could potentially determine whether recreational activities are temporarily affected. For example, if construction activities at a specific site occur during open fishing season, public access to some areas could be limited and the recreational activities could be adversely affected. Correspondingly, during construction at some Battle Creek sites, either water flow would be stopped using temporary cofferdams or flow would be diverted or pumped to temporary holding ponds. As a result, downstream flows could be reduced and temporarily affect downstream fishing. A reduction in recreational resources and activities as a result of proposed construction at the Battle Creek project sites is considered significant. Implementing the mitigation measure recommended for Impact 4.14-2 would reduce this significant impact to a less-than-significant level.

**Impact 4.14-18 Significant—Construction activities, including the use of equipment and storage areas, may temporarily impede public access to Battle Creek for kayaking and to private property where landowners may grant public access by selling hunting and fishing rights.**

This impact is similar to Impact 4.14-3 described under the Five Dam Removal Alternative. Construction activities proposed for the Three Dam Removal Alternative would involve the use of heavy equipment to remove existing facilities and to construct new fish screens and ladders. Equipment use could temporarily disrupt or obstruct access in some locations, temporarily limiting the public's ability to fully participate in and enjoy recreational activities or resulting in the need to find alternative routes to recreational resources along Battle Creek. This impact is considered significant. Implementing the mitigation measure recommended for Impact 4.14-3 would reduce this impact to a less-than-significant level.



**Impact 4.14-19 Less than Significant—Installing fish screens to stop movement of fish into the canals would virtually eliminate the resident trout populations and recreational trout fishing in the canals.**

The Hydroelectric Project's extensive canal system is a recognized recreational trout fishery as a result of trout becoming entrained in these canals. Although private land ownership limits public access to the canals, the fishery is used by landowners and fishing clubs. Under the Three Dam Removal Alternative, fish screens would be installed at North Battle Creek Feeder, South, and Inskip diversions, which would stop entrainment of rainbow trout in the canals. However, under the Three Dam Removal Alternative, anadromous fish habitat in North Fork and South Fork Battle Creek would be restored by increasing instream flows, which in turn would increase the abundance of trout in the nearby stream reaches and thus provide greater fishing opportunities to the public. As a result, the Three Dam Removal Alternative would have a less-than-significant impact on recreational trout fishing in the canals.

**Impact 4.14-20 Beneficial—Increased flows in North Fork and South Fork Battle Creek could increase the opportunities for kayaking, rafting, and/or fishing activities.**

Implementing the Three Dam Removal Alternative would result in increased flows in portions of both North Fork and South Fork Battle Creek. These increased flows could also result in beneficial impacts on recreational activities associated with the use of the creek for kayaking and rafting. Increased flows in Battle Creek, as well as the installation of new fish screens and ladders at the diversion dams, would contribute to the increase in some fish populations and therefore benefit recreational fishing. This beneficial impact is similar to Impact 4.14-5 described above under the Five Dam Removal Alternative.

## **Cumulative Impacts**

Cumulative recreational impacts associated with the Proposed Action and past, present, or probable future projects would likely benefit recreational opportunities in the Battle Creek watershed because other projects (including related projects described in Chapter 6) would contribute to restoring the conditions in Battle Creek. Long-term benefits would include increased opportunities for rafting, kayaking, and fishing.

The removal of dams and appurtenant facilities would remove the impediments restricting rafting and kayaking in certain areas along Battle Creek. In addition, implementing the Proposed Action would result in increased instream flows that could contribute to more people fishing in Battle Creek. The increased number of people participating in these recreational activities would likely result in increased requests for public access to the Battle Creek; however, access to Battle Creek must be obtained through other means and is not part of the Restoration Project. The related projects identified and discussed in Chapter 6, "Related Projects," do not appear to negatively affect recreational resources and activities and therefore do not contribute to a cumulative impact on recreation.