

E7.0 RECREATION RESOURCES

This section of Exhibit E of the license application for the Klamath Hydroelectric Project (Project) (FERC Project No. 2082) provides a report on recreational resources potentially affected by the Project as stipulated in Title 18 Section 4.51 (f) (5) of the *U.S. Code of Federal Regulations*:

The report must discuss existing and proposed recreational facilities and opportunities at the Project. The report must be prepared in consultation with local, state, and regional recreation agencies and planning commissions, the National Park Service, and any other state or Federal agency with managerial authority over any part of the Project lands. Consultation must be documented by appending to the report a letter from each agency consulted indicating the nature, extent, and results of the consultation. The report must contain:

(i) A description of any existing recreational facilities at the Project, indicating whether the facilities are available for public use;

(ii) An estimate of existing and potential recreational use of the Project area, in daytime and overnight visits;

(iii) A description of any measures or facilities recommended by the agencies consulted for the purpose of creating, preserving, or enhancing recreational opportunities at the Project and in its vicinity (including opportunities for the handicapped), and for the purpose of ensuring the safety of the public in its use of Project lands and waters;

(iv) A statement of the existing measures or facilities to be continued or maintained and the new measures or facilities proposed by the applicant for the purpose of creating, preserving, or enhancing recreational opportunities at the Project and in its vicinity, and for the purpose of ensuring the safety of the public in its use of Project lands and waters, including an explanation of why the applicant has rejected any measures or facilities recommended by an agency and described under paragraph (f)(5)(iii) of this section; and

(v) The following materials and information regarding the measures and facilities identified under paragraphs (f)(5) (i) and (iv) of this section:

(A) Identification of the entities responsible for implementing, constructing, operating, or maintaining any existing or proposed measures or facilities;

(B) A schedule showing the intervals following issuance of a license at which implementation of the measures or construction of the facilities would be commenced and completed;

(C) An estimate of the costs of construction, operation, and maintenance of any proposed facilities, including a statement of the sources and extent of financing;

(D) A map or drawing that conforms to the size, scale, and legibility requirements of Sec. 4.39 showing by the use of shading, cross-hatching, or other symbols the identity and location of any facilities, and indicating whether each facility is existing or proposed (the maps or drawings in this exhibit may be consolidated); and

(vi) A description of any areas within or in the vicinity of the proposed Project boundary that are included in, or have been designated for study for inclusion in, the National Wild and Scenic Rivers System, or that have been designated as wilderness area, recommended for such designation, or designated as a wilderness Project area under the Wilderness Act.

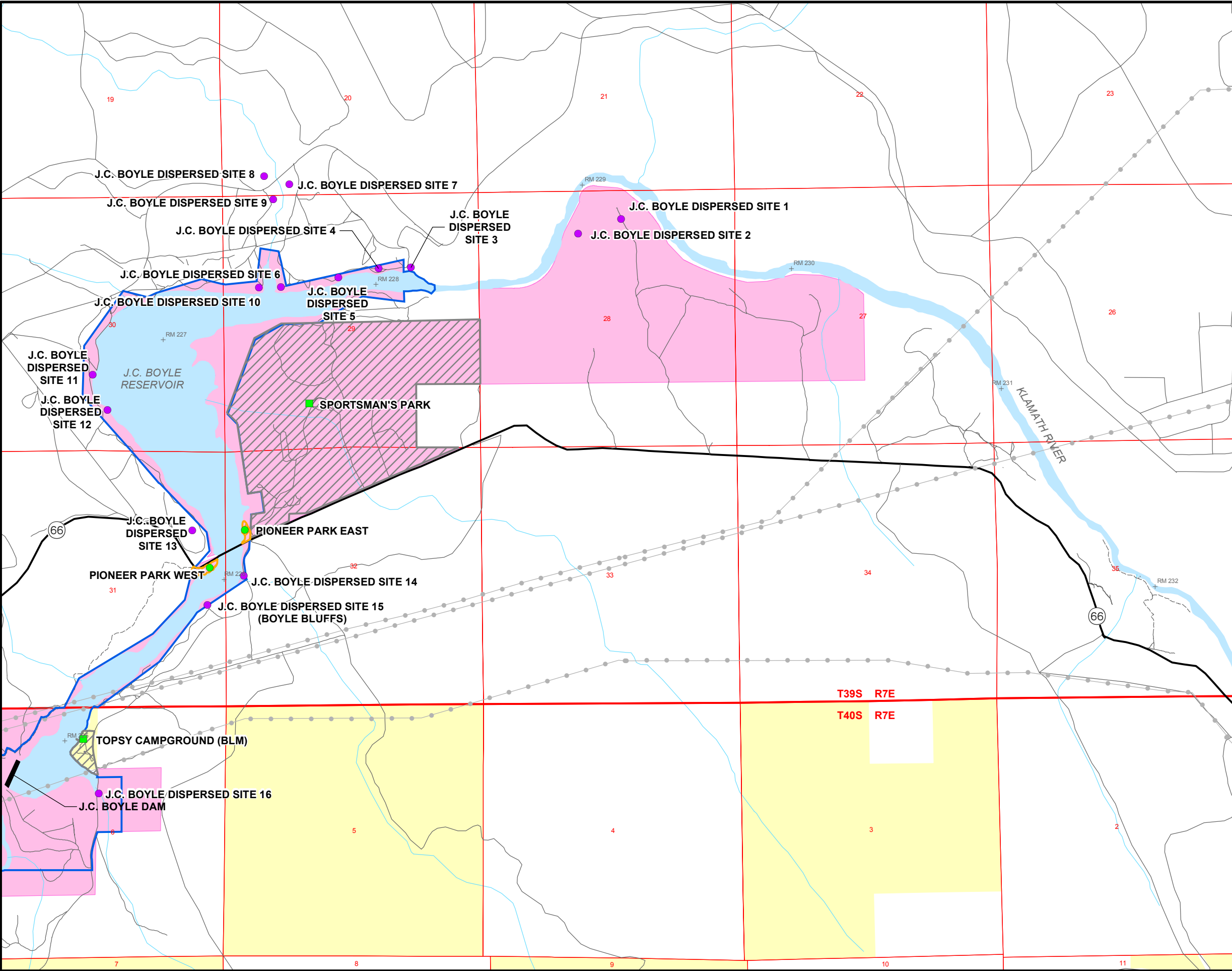
E7.1 EXISTING RECREATION RESOURCES AND FACTORS AFFECTING RECREATION RESOURCES

Five recreation studies were conducted during relicensing and are presented in the Recreation Resources Final Technical Report (FTR). These studies are as follows:

- Recreation Flow Analysis
- Recreation Visitor Surveys
- Regional Recreation Analysis
- Recreation Needs Analysis
- Recreation Resource Management Plan (Draft) Annotated Outline

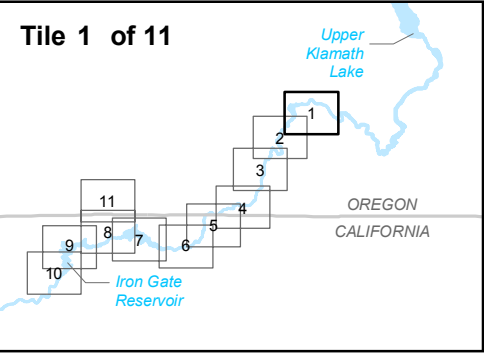
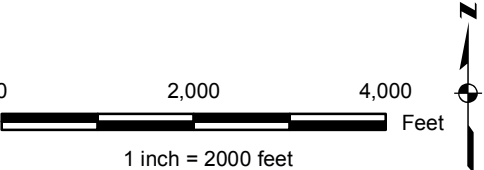
The recreation resource study area included all Project-related recreation facilities, sites, and use areas (developed and dispersed undeveloped); Project reservoirs; the Klamath River corridor connecting the Project reservoirs; and a general ¼-mile buffer around each reservoir (Keno reservoir/Lake Ewauna, J.C. Boyle reservoir, Copco reservoir, and Iron Gate reservoir) (Figure E7.1-1). Recreation resources within this study area were categorized into seven resource areas, though the Lower Klamath River Corridor was not analyzed to the same level of detail as the other six resource areas. The seven resource areas are as follows:

- Link River/Lake Ewauna/Keno reservoir
- J.C. Boyle reservoir
- Upper Klamath River/Hell's Corner reach
- Copco reservoir
- Iron Gate reservoir
- Below Iron Gate dam
- Lower Klamath River Corridor



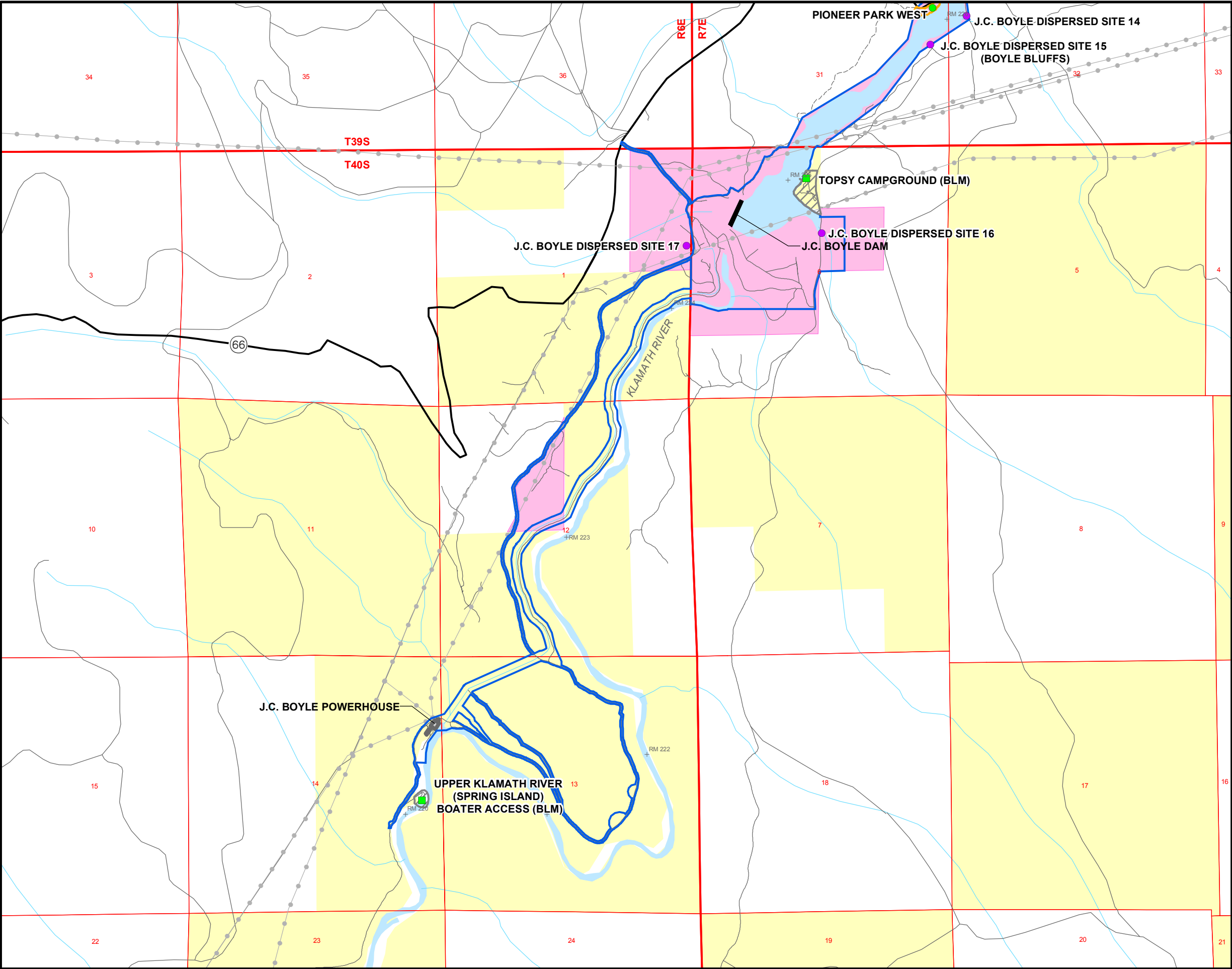
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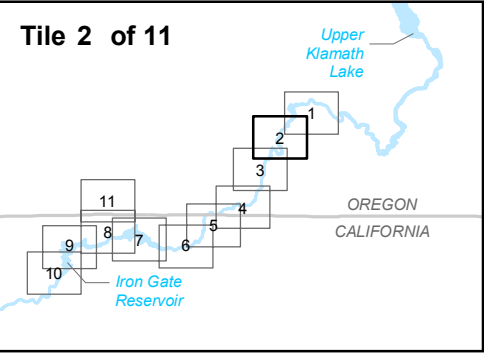
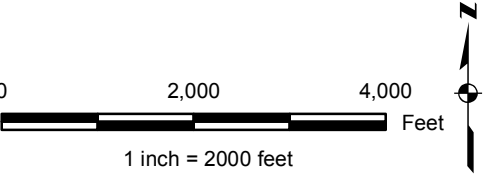
Klamath Hydroelectric Project

Figure E7.1-1 (1 of 11)
Project Recreation Sites



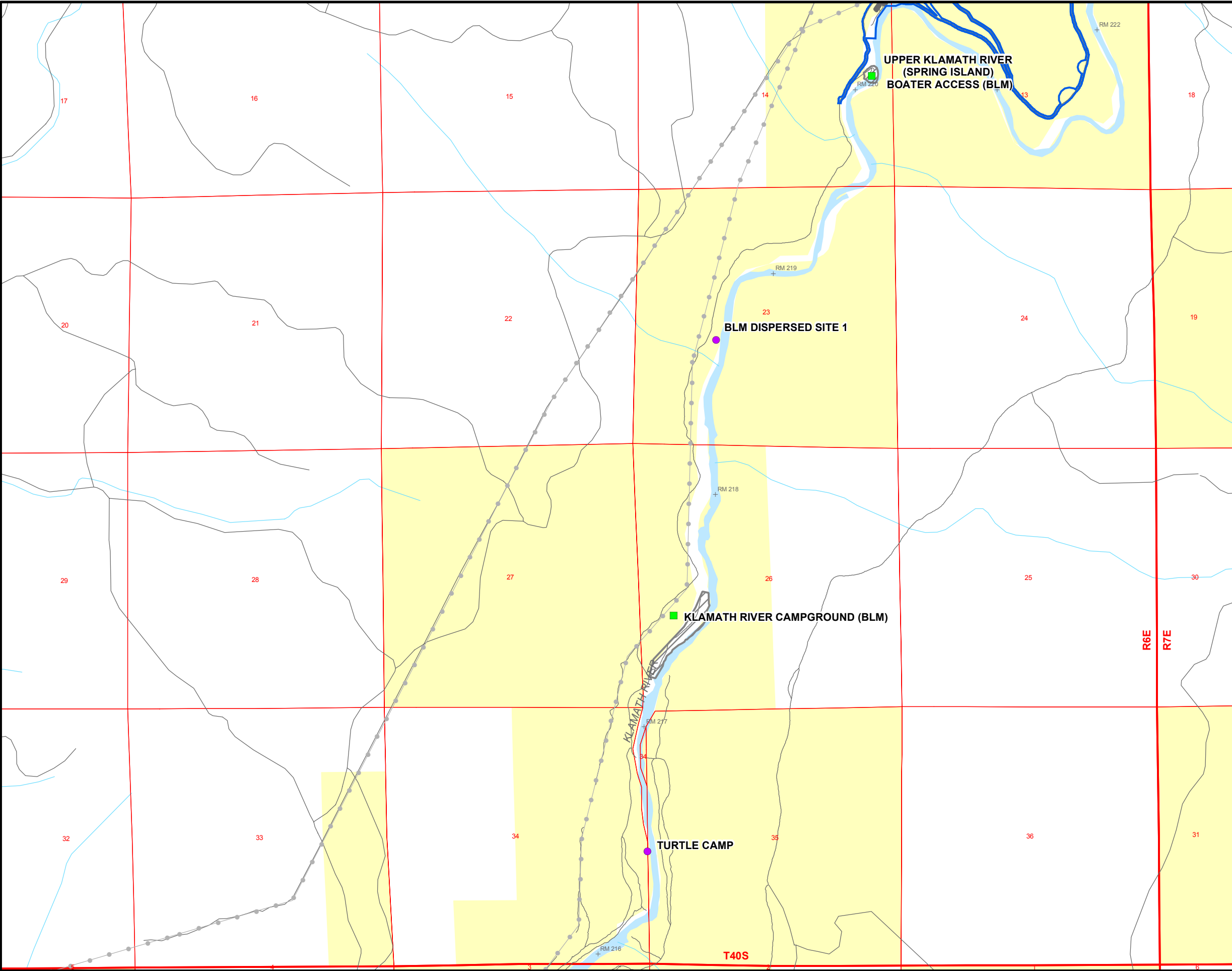
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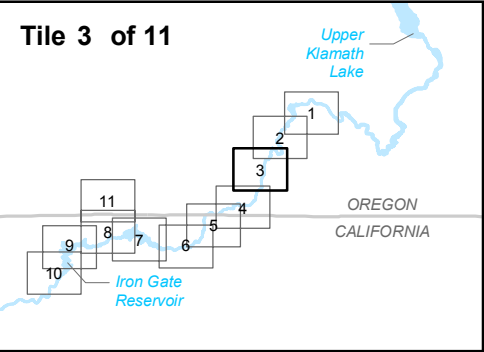
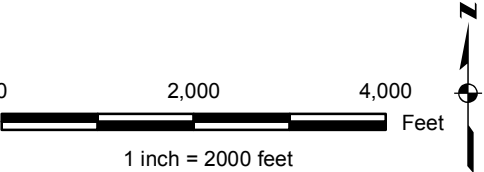


Klamath Hydroelectric Project

Figure E7.1-1 (2 of 11)
Project Recreation Sites

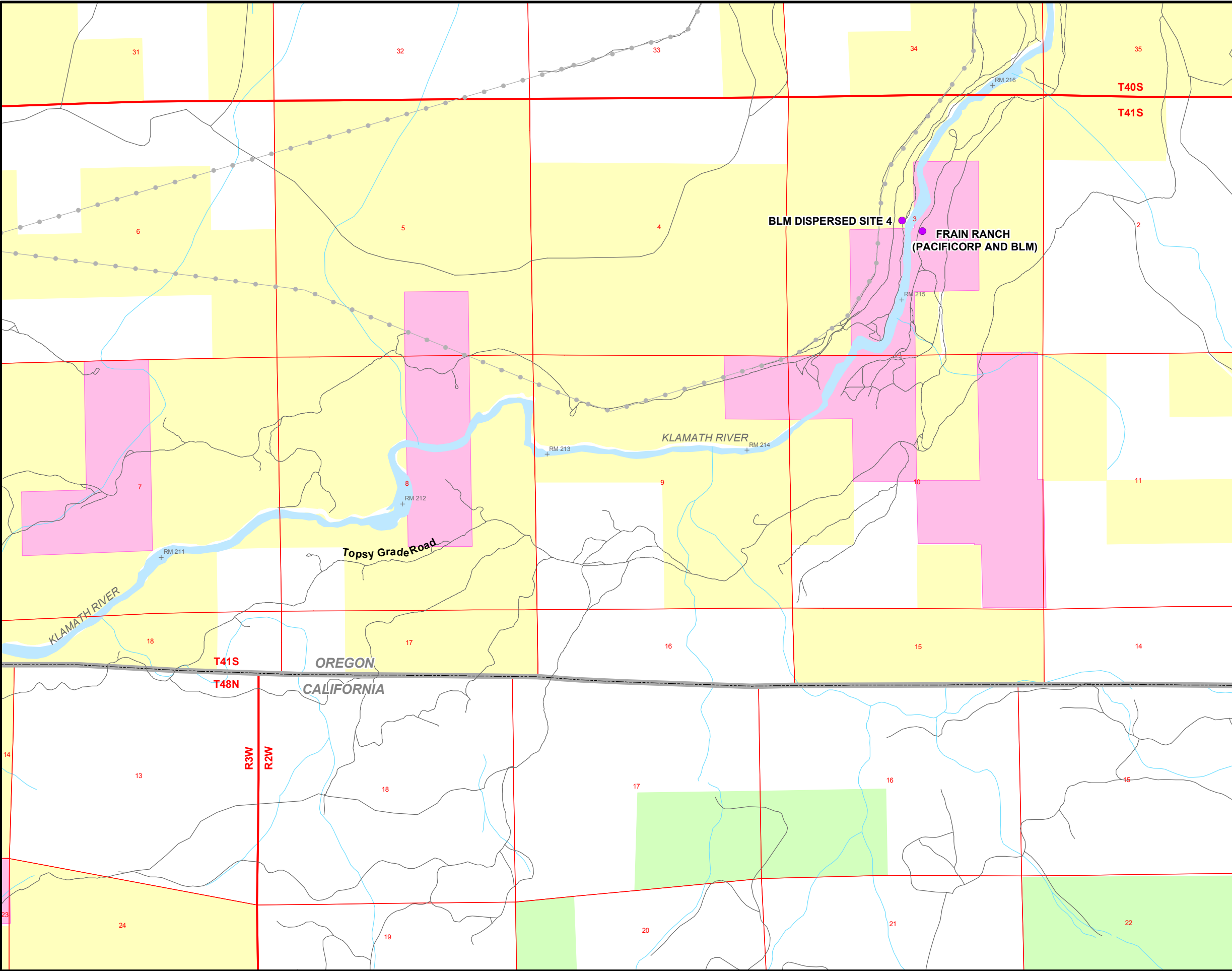


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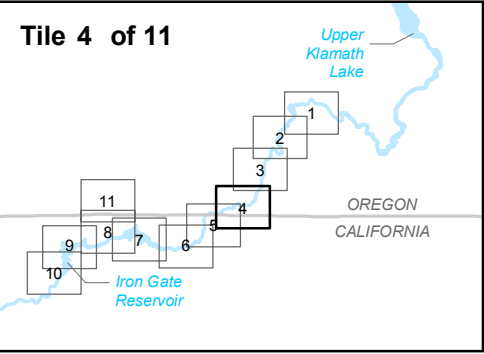
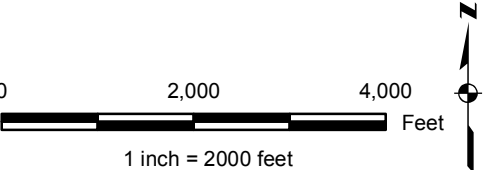


Klamath Hydroelectric Project

Figure E7.1-1 (3 of 11)
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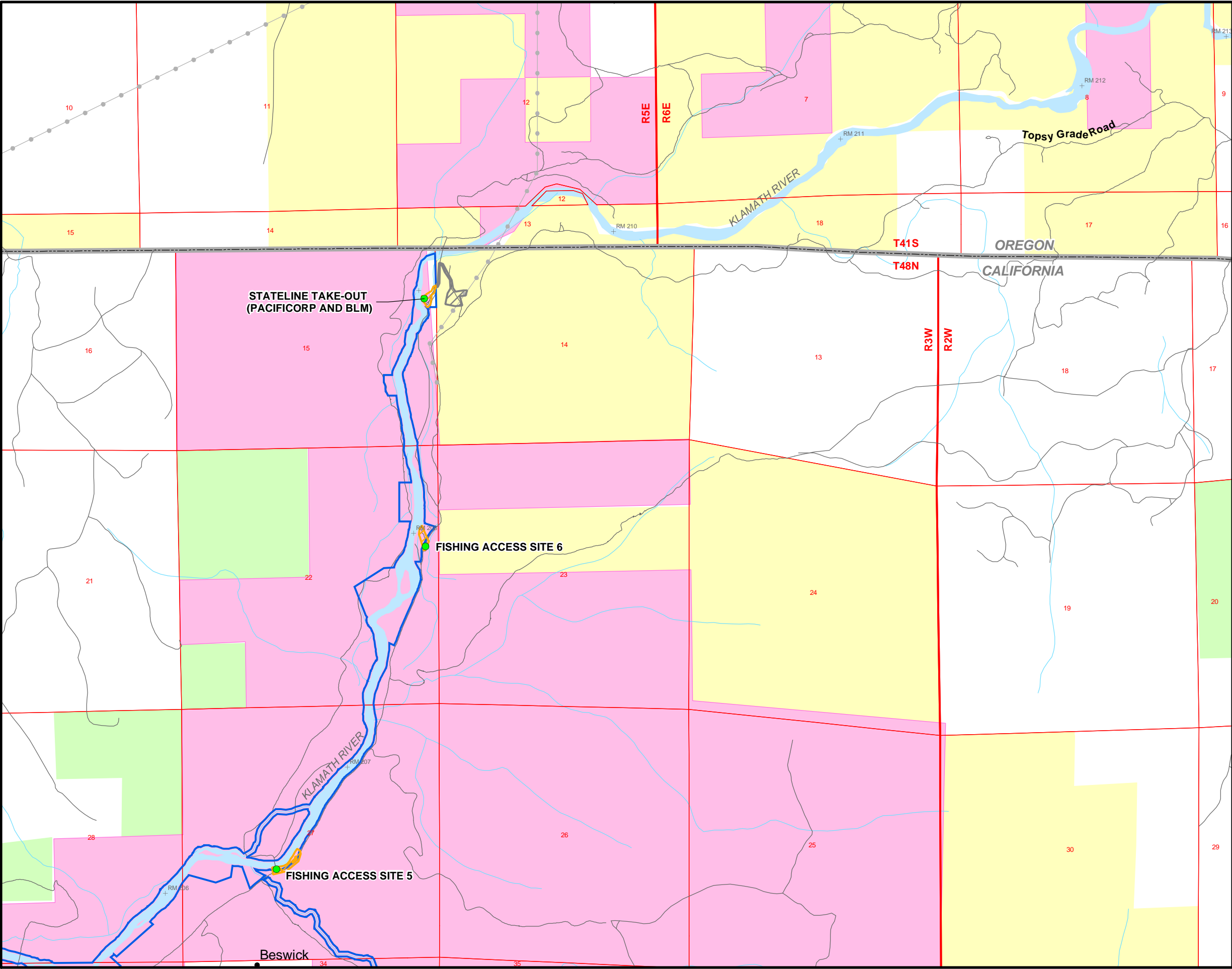


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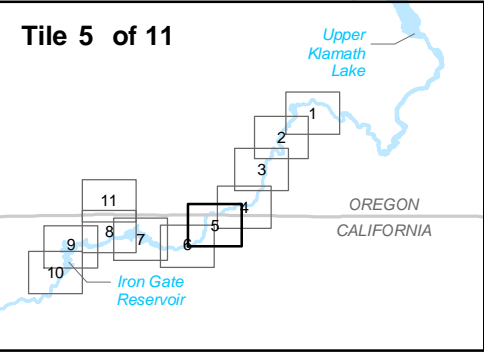
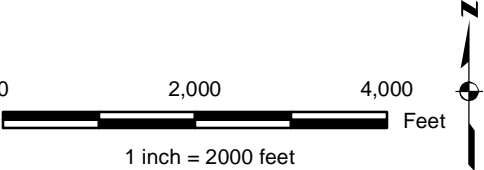
Klamath Hydroelectric Project

Figure E7.1-1 (4 of 11)
Project Recreation Sites



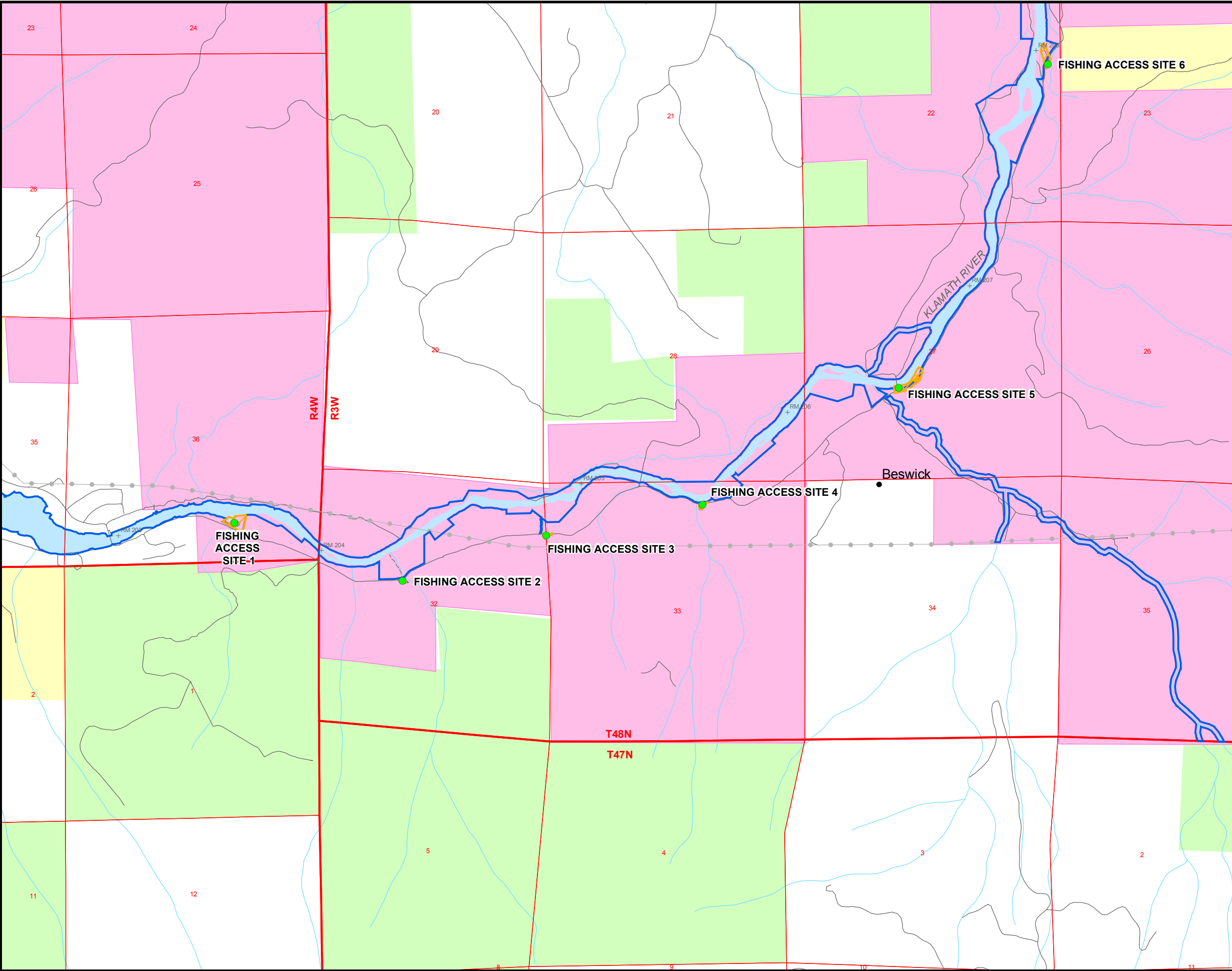
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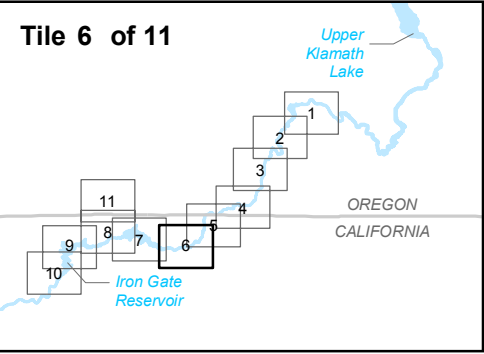
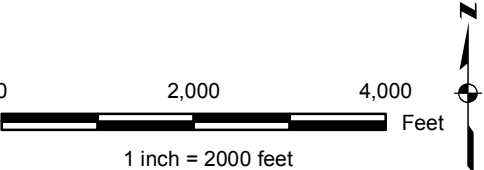
Klamath Hydroelectric Project

Figure E7.1-1 (5 of 11)
Project Recreation Sites



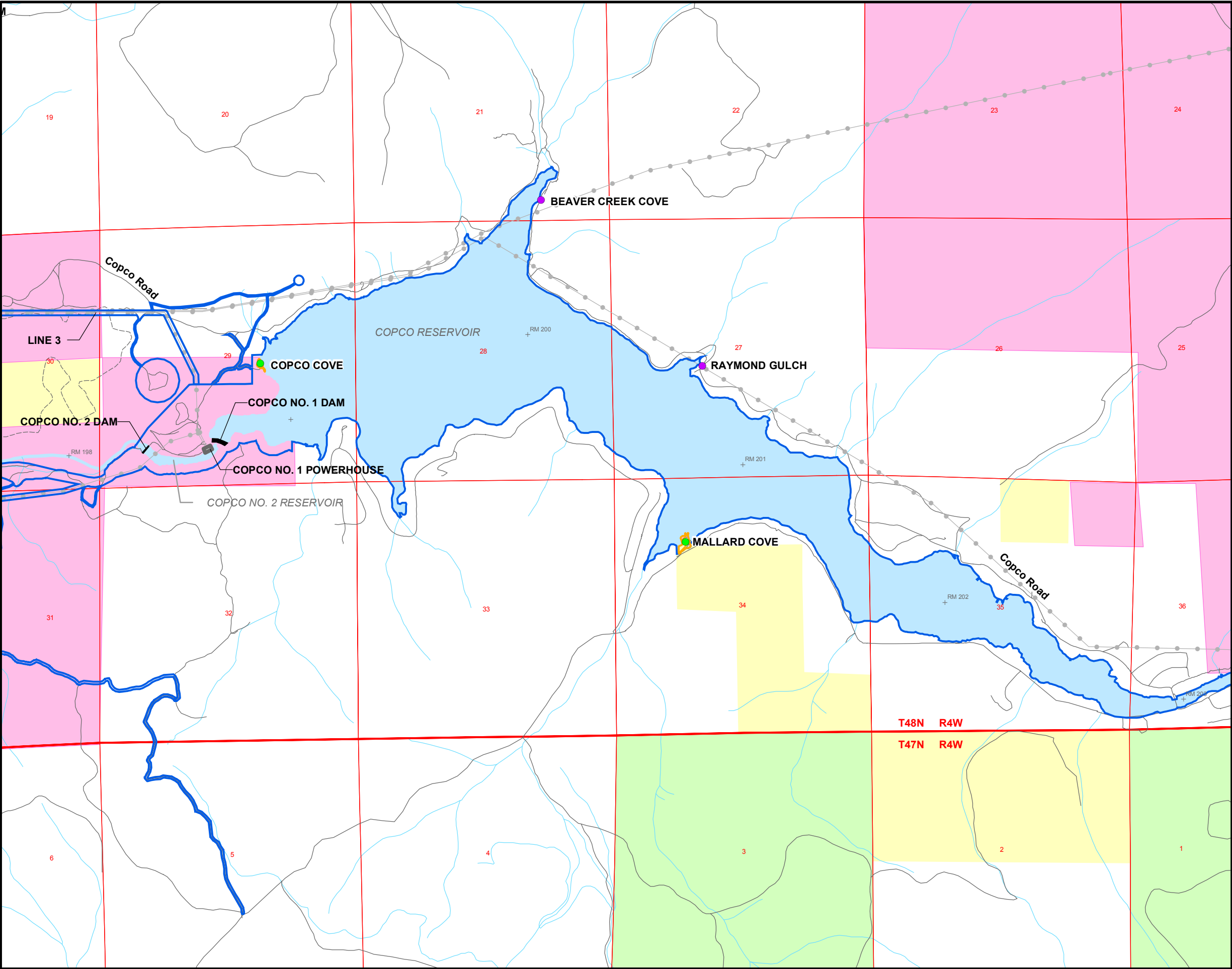
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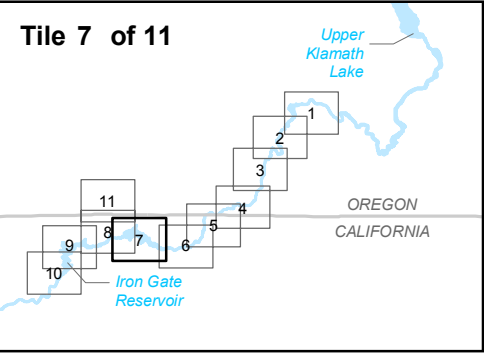
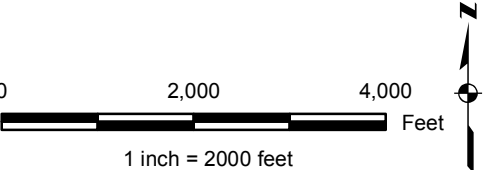


Klamath Hydroelectric Project

Figure E7.1-1 (6 of 11)
Project Recreation Sites

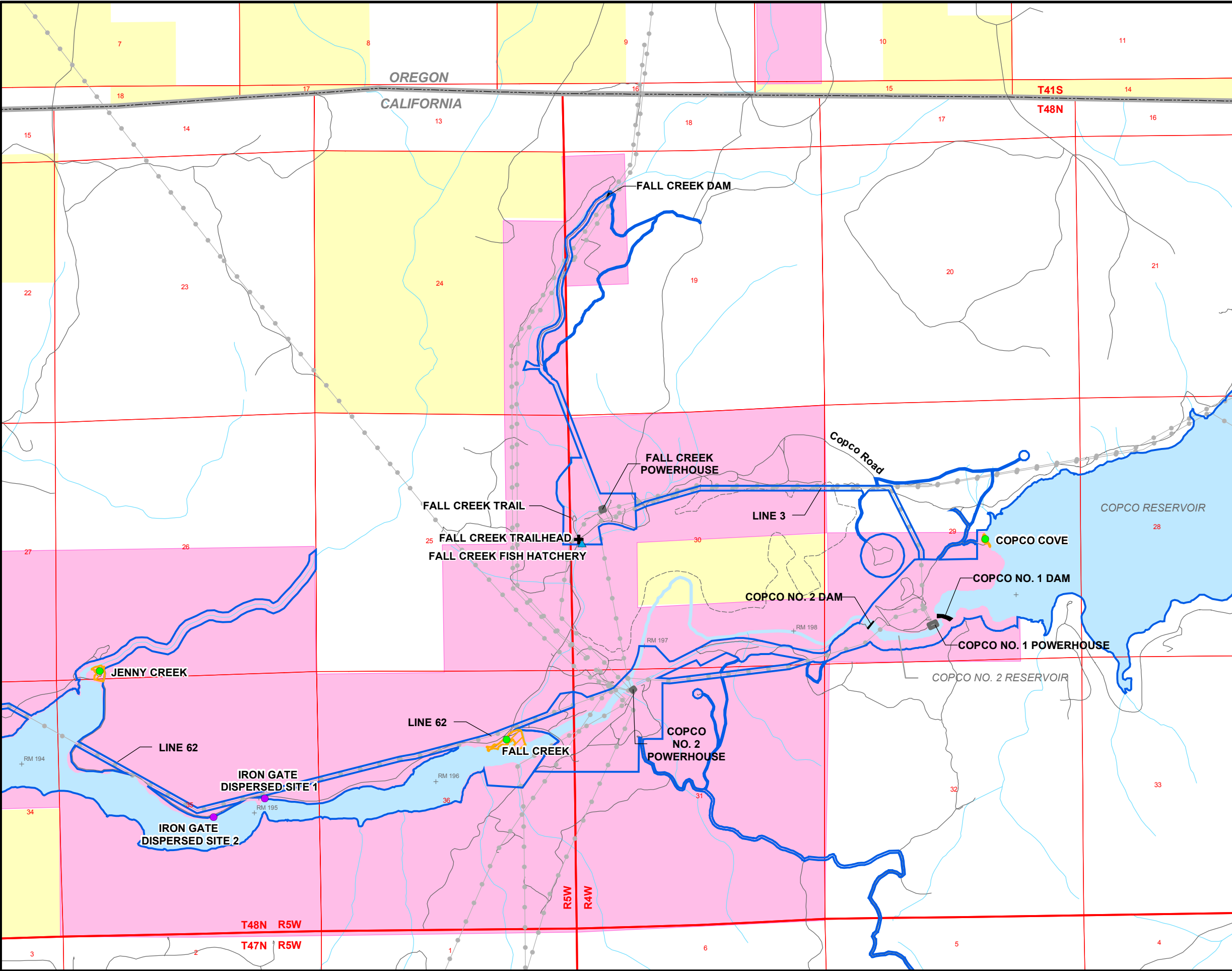


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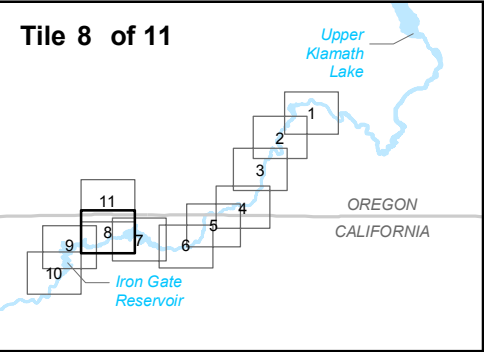
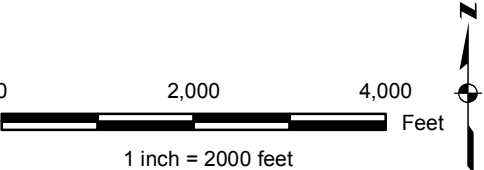


Klamath Hydroelectric Project

Figure E7.1-1 (7 of 11)
Project Recreation Sites

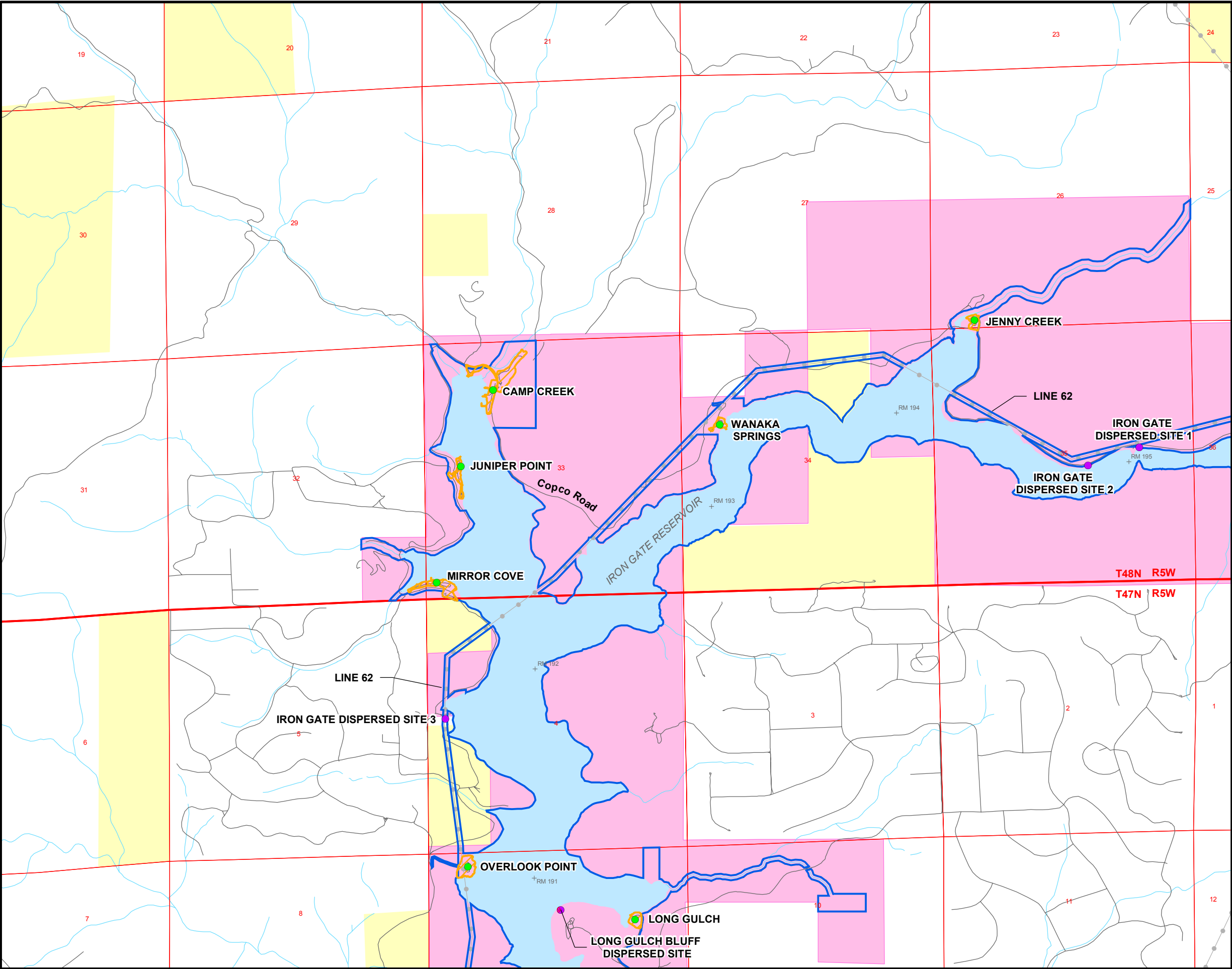


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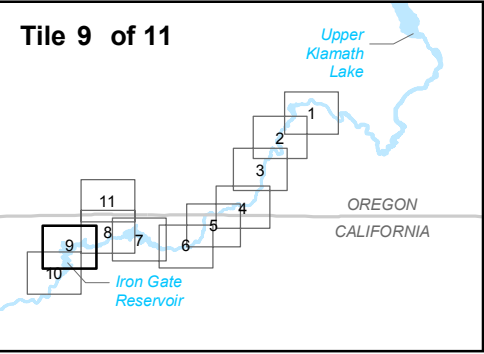
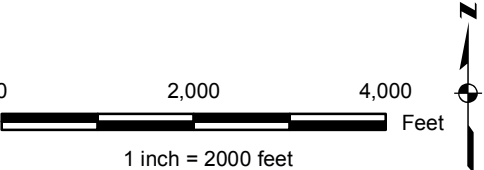
Klamath Hydroelectric Project

Figure E7.1-1 (8 of 11)
Project Recreation Sites



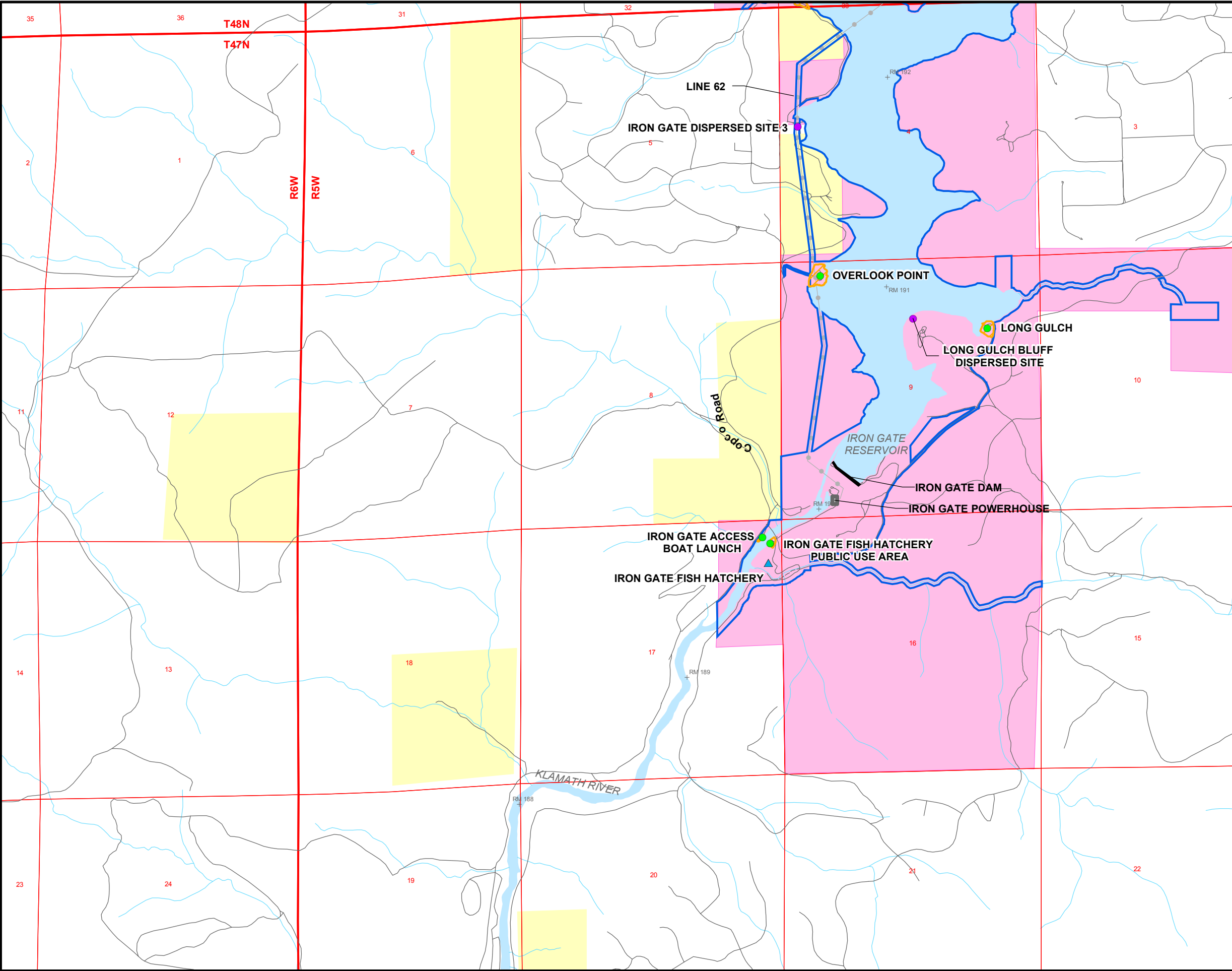
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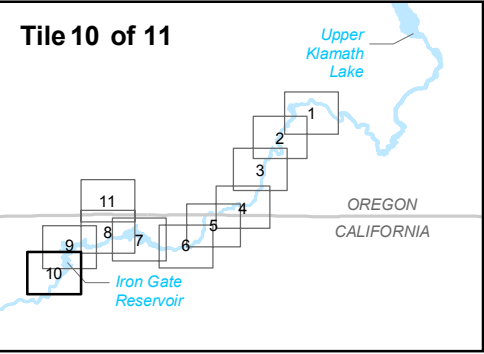


Klamath Hydroelectric Project

Figure E7.1-1 (9 of 11)
Project Recreation Sites

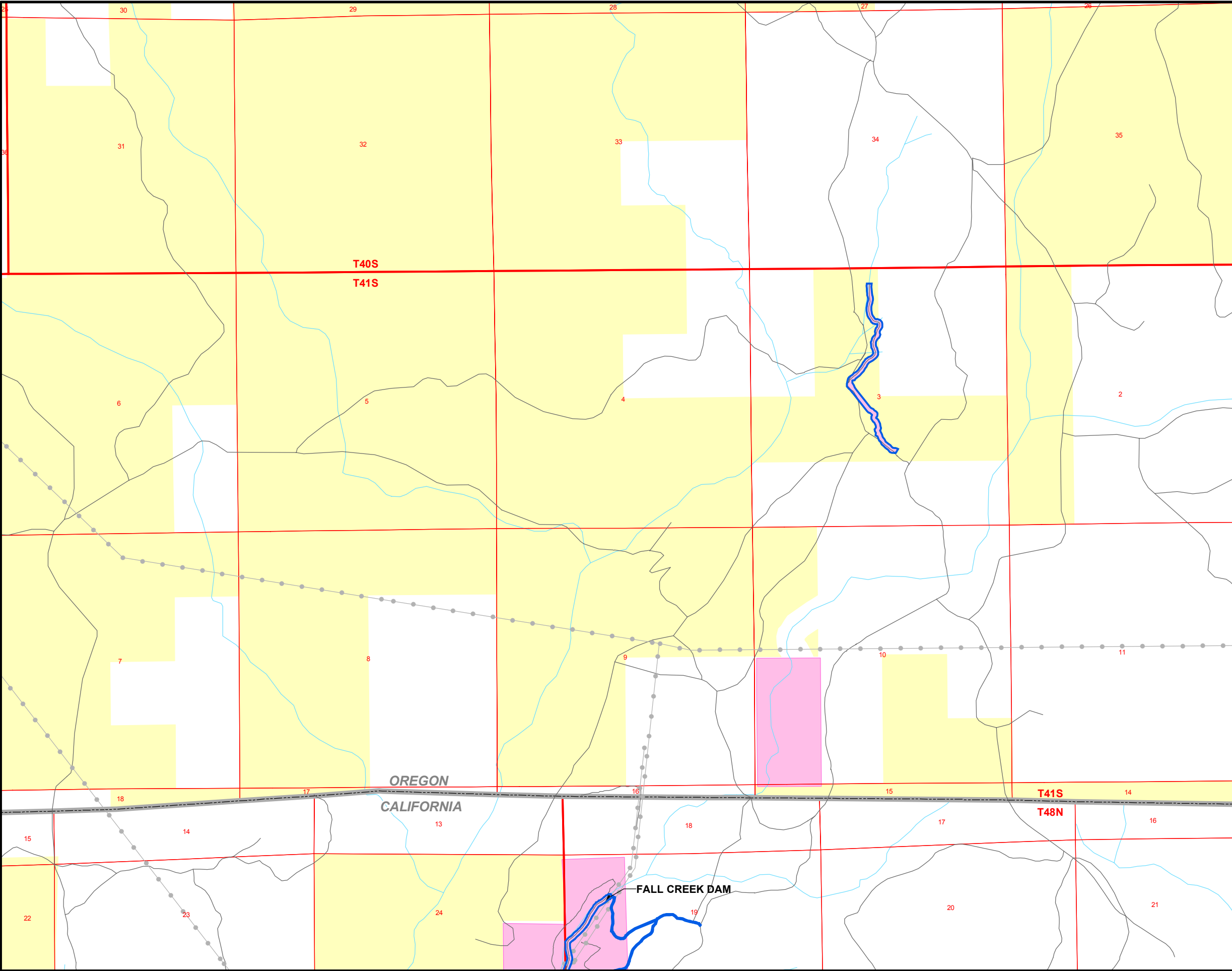


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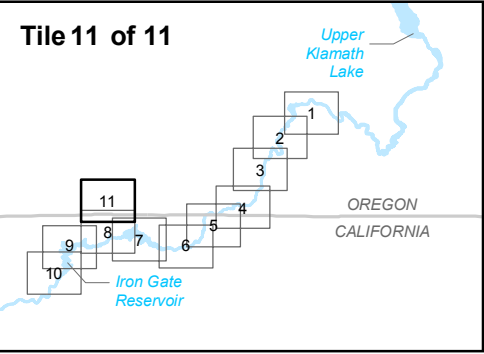
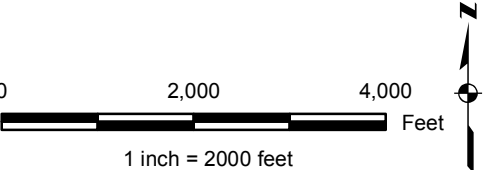


Klamath Hydroelectric Project

Figure E7.1-1 (10 of 11)
Project Recreation Sites



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Klamath Hydroelectric Project

Figure E7.1-1 (11 of 11)
Project Recreation Sites

In the course of study and in the interim between the draft license application and this final application, PacifiCorp has made several changes to the proposed Project. The proposed Project as described in Exhibit G begins at the J.C. Boyle Development and continues downstream to the Iron Gate Development. The Spring Creek diversion is now included in the Fall Creek Development. The East Side, West Side, and Keno developments are no longer part of the proposed Project. Keno dam will remain in operation, but is not included in the proposed FERC Project because the development does not have generation facilities, and its operation does not substantially benefit generation at PacifiCorp's downstream hydroelectric developments. The East Side and West Side developments are proposed to be decommissioned. Recreation study results presented in Exhibit E of the final license application are generally limited to this new proposed Project (complete study area results are available in the Recreation Resources FTR).

Within the broader Project region, there are many public lands that are used in part for recreational purposes. Public lands within a few hours' drive of the proposed Project include:

- Klamath National Forest
- Winema National Forest
- Fremont National Forest
- Six Rivers National Forest
- Lava Beds National Monument
- Crater Lake National Park
- Klamath Forest National Wildlife Refuge
- Lower Klamath National Wildlife Refuge
- Bear Valley National Wildlife Refuge
- Upper Klamath National Wildlife Refuge

E7.1.1 Recreation Facilities on Project Lands and Impoundments and Downstream Water Affected by the Proposed Project

Recreation facilities, sites, and use areas at each of the seven recreation resource areas were inventoried as part of the Recreation Needs Analysis (Section 5.0 of the Recreation Resources FTR).

E7.1.1.1 Recreation Resource Areas

A summary of the five resource areas in the proposed Project area examined during relicensing is provided below. While not within the proposed Project area, summary information for the Lower Klamath River Corridor is also provided below. Summary information on the Link River/Lake Ewauna/Keno reservoir resource area is available in the Recreation Resources FTR.

J.C. Boyle Reservoir Resource Area

The J.C. Boyle reservoir resource area (420 surface water acres) has three developed recreational facilities, one of which is a Project-related facility (Pioneer Park). Pioneer Park (East and West units) is owned and operated by PacifiCorp and is located off State Highway 66 east and west of Spencer Bridge. Pioneer Park is a day use area featuring picnicking and boat launching. An improved boat ramp is located on the east shore just off State Highway 66, while a picnic area

and unimproved boat launch are located on the west shore. Popular activities for this location include boating, fishing, and picnicking. The Oregon Department of Transportation (ODOT) is planning to realign the State Highway 66 bridge that currently spans J.C. Boyle reservoir between the Pioneer Park West and East units. Preliminary realignment plans would eliminate Pioneer Park East, though Pioneer Park West could likely be expanded to compensate for this loss. The draft Recreation Resource Management Plan (RRMP) (Appendix E7-A) provides more information on this potential bridge realignment.

The remaining developed recreation sites in the J.C. Boyle reservoir resource area include Sportsman's Park and the U.S. Bureau of Land Management's (BLM) Topsy Campground. Located north of State Highway 66, Sportsman's Park is a multi-use recreation area owned by PacifiCorp and leased long term to Klamath County. This facility is not in the Project boundary and does not provide developed reservoir access. The park contains shooting ranges, dirt racetracks, and a model aircraft flying field. An individual can purchase an annual membership to the park for \$25.00 or pay \$3.00 per day for access and use of the facilities. A camp host is present on site year-round. Sportsman's Park is operated by an independent lessee, and PacifiCorp does not monitor recreation use at this facility. BLM's Topsy Campground is located south of State Highway 66 off Topsy Grade Road, a gravel road maintained on an as-needed basis by BLM, private owners, timber companies, and PacifiCorp. This site, managed by BLM, features a campground, day use area, and boat launch. The fee for camping is \$7.00 per night (plus \$4.00 for an additional vehicle), and \$2.00 for day use.

Upper Klamath River/Hell's Corner Reach Resource Area

This section of the Klamath River extends from the J.C. Boyle dam to Copco reservoir. This river reach is about 26 miles in length along a deep, undeveloped canyon characterized by a relatively steep gradient (35 feet per mile). The northern (J.C. Boyle dam to just below the J.C. Boyle powerhouse) and southern (California state line to Copco reservoir) sections of this resource area are within the proposed Project.

In 1994, the river reach between the J.C. Boyle powerhouse and the California state line was federally designated a Wild and Scenic River (W&SR) by the U.S. Secretary of the Interior. The designation request was made by the Governor of Oregon under Section 2(a)(ii) of the National Wild and Scenic Rivers Act (NWSRA); under this designation, BLM, the current primary landowner, manages the river, in cooperation with the state of Oregon which has also designated this reach as an Oregon State Scenic Waterway (OSSW). The primary purpose of the W&SR system is to identify and "preserve free-flowing rivers in their natural condition for the use and enjoyment of the public" (NPS, 1994).

The W&SR reach of the Klamath River can be characterized as a swift river in a natural setting. As such, it receives significant use by commercial rafting companies and private whitewater boaters. BLM reports that estimated use for these activities is more than 5,000 visitor days annually. To accommodate this demand, BLM constructed the Upper Klamath River (Spring Island) Boater Access approximately 0.25 mile downstream of the J.C. Boyle powerhouse. Paved and gravel road ingress and egress provide convenient access to the put-in location, picnic sites, changing rooms, and comfort stations. There is no camping at this location. In addition, BLM operates the Klamath River Campground, a three-unit developed campground downstream from

the river boat put-in. Neither the Upper Klamath River (Spring Island) Boater Access nor the Klamath River Campground is located within the proposed Project boundary.

Farther downstream at approximately river mile 215 of the W&SR is an area known as Frain Ranch. This area is a large floodplain that serves as a popular stopping place for whitewater boating enthusiasts and other recreationists. Current recreation use takes place on non-Project PacifiCorp- and BLM-managed lands. This location is not within the proposed FERC Project boundary. The site is used primarily for primitive day use activities and dispersed camping. Prefabricated steel and user-constructed fire rings are present at a few dispersed campsites; however, no developed facilities are provided (a composting toilet was recently closed because of vandalism).

Dispersed camping and day use also occur in several other locations along the river on property managed by BLM, and on several parcels owned by PacifiCorp. Other popular activities along the river include fishing, hunting, and dispersed camping. BLM and PacifiCorp are currently working collaboratively to improve dispersed camping and developed day use opportunities at the California-Oregon state line area (Stateline take-out [PacifiCorp and BLM] through BLM's River Management Planning Process. Currently, the lower use area (managed by PacifiCorp) at Stateline take-out (PacifiCorp and BLM) is used as a whitewater boating take-out, while the upper use area (managed by BLM) is used for dispersed camping. BLM installed a single vault toilet building at the upper use area in 2003 (portable toilets are located at the lower use area). This lower site is within the proposed Project.

BLM's Klamath Falls Resource Area is the managing office for the W&SR reach and river reach from the state line to Copco reservoir that is eligible for W&SR designation. BLM and the Oregon Parks and Recreation Department (OPRD) have recently developed a Draft Upper Klamath River Management Plan (BLM, 2003) for the area from BLM's Topsy Campground to Fishing Access Site 1. One of the issues being addressed in the new river management plan is use and access to the river by commercial whitewater rafting outfitters. Pending the development and resolution of this issue, BLM has instituted a moratorium, implemented in April 1996, on the permitting of additional commercial outfitters. There are currently 22 commercial outfitter permittees. Private whitewater boaters do not require a permit.

In the early 1970s, the California Department of Fish and Game (CDFG) requested that PacifiCorp provide designated public fishing access points along the Klamath River between the Oregon/California state line and Copco reservoir. As a result of that request, PacifiCorp developed six Fishing Access Sites along the south side of the river and adjacent to the county's gravel access road (Ager-Beswick Road). Parking areas at each site are located on the south side of the road. Vault toilet buildings or portable toilets are provided at most sites. All Fishing Access Sites were provided voluntarily by PacifiCorp and are not associated with the current Project license, though they are now included in the proposed Project. Although use of these facilities is not formally recorded by CDFG, use levels have reportedly been declining over the past several years.

Copco Reservoir Resource Area

Copco Reservoir (1,000 surface water acres) has two day use facilities, Mallard Cove and Copco Cove, both of which are included in the current Project license and in the proposed Project.

Mallard Cove, currently managed by PacifiCorp, is the larger of these areas and was cooperatively developed by BLM and PacifiCorp. It is centrally located on the south side of the reservoir, off Ager-Beswick Road, at Keaton Cove and includes day use facilities and a boat launch. The facility is bounded on either side by residential development. The second day use area, Copco Cove, which is a PacifiCorp-owned facility, is located on the north side of the reservoir, off Copco Road. It is a small picnic area with a boat launch. Camping occasionally occurs at both locations.

Iron Gate Reservoir Resource Area

Iron Gate reservoir (944 surface water acres) has the highest concentration of recreation sites of all the developments associated with the Project. Its nine developed facilities include a trail, three campgrounds, and five day use areas, although camping does occur at all of these sites (except the trail). Three developed recreation sites (Fall Creek Trail, Jenny Creek, and Long Gulch) are not included in the current Project license, though they are included in the proposed Project. The popularity of bass tournaments, waterskiing, and camping at Iron Gate reservoir, along with no user fees, has resulted in moderate to high summer weekend use. Overnight campers frequently use the day use areas at Iron Gate reservoir since sites are not designated. Most sites are accessed via Copco Road. This road, which is maintained by the county, is paved along Iron Gate reservoir to the Copco No. 2 powerhouse and gravel along Copco reservoir.

Iron Gate reservoir has the highest number of recreation facilities on a reservoir in the Project area. The first recreation site, Fall Creek Trail, is a short trail located adjacent to the Fall Creek fish hatchery (CDFG). The trailhead was gated (locked) in 2002, significantly limiting the amount of use this site received. The second recreation site, Fall Creek, is a picnic area located at the upper end of Iron Gate reservoir. This site also receives overnight camping use. The third facility is Jenny Creek. Located on the north side of the reservoir, the creekside setting provides picnic and bank fishing opportunities for a limited number of day users and overnight campers. The fourth location, Wanaka Springs, offers picnicking, boating access, and camping. The fifth location, Camp Creek, is located along a narrow reach on the north side of Iron Gate reservoir. The surrounding hilly, semi-arid landscape and the reservoir provide pleasant views. Camp Creek has several campsites designed primarily for RV campers, with a large overflow RV camping area. Additional facilities include a swimming beach and boat ramp. Juniper Point, the sixth facility, is located diagonally across the lake from Camp Creek. The park has several picnic areas that are occasionally used as campsites. The seventh facility on Iron Gate reservoir is Mirror Cove, centrally located on the west side of the reservoir. The site offers several picnic sites that are occasionally used as campsites and boating access. This particular location is popular for group camping and is used extensively by local waterski clubs. This boat launch is the nearest access to a competitive waterski course placed in the western area of the reservoir. The last two recreation sites on Iron Gate reservoir are Overlook Point and Long Gulch. Overlook Point is located on the west side of the reservoir approximately 0.75 mile upstream from the dam. The facility has picnic sites on moderately steep topography, providing a good view of the reservoir and surrounding landscape. Long Gulch is located on the east side of the reservoir directly across from Overlook Point. Facilities at this location include picnic sites and a boat launch. Land along an adjacent ridge is occasionally used for dispersed camping and day use.

Below Iron Gate Dam Resource Area

While generally included in the Iron Gate reservoir resource area, recreation opportunities are also available at the Iron Gate fish hatchery, located downstream from Iron Gate dam. As a requirement of the existing FERC license, PacifiCorp funds 80 percent of the fish hatchery's annual operating expenses. CDFG operates the hatchery. Although construction and operation of the hatchery remain a condition of the existing Project license, recreation facilities are not a specific requirement. There are picnicking facilities here and a handicap-accessible trail to the riverbank and Bogus Creek, a nearby tributary. Hatchery staff conduct interpretive tours for local elementary schools during salmon spawning runs.

Located across the river from the Iron Gate fish hatchery on PacifiCorp-owned land, a primitive river access site provides launching for rafts and drift boats. Similar to the Fishing Access Sites between J.C. Boyle and Copco reservoirs, this facility is not identified in the current Project license, though it is included in the proposed Project. This facility is used by recreationists in the summer for fishing access, swimming, and tube floating on the river. It is also a popular boat launch during the late summer and fall for salmon and steelhead fishing.

Lower Klamath River Corridor

The Klamath River downstream of Iron Gate dam is the second longest river within the state of California and is known for its salmon fishing and whitewater boating opportunities. This river reach is not within the current or proposed Project, though it was investigated during the relicensing recreation studies. Below the Iron Gate fish hatchery, this river reach is designated as the Lower Klamath W&SR and is managed by the U.S. Forest Service (USFS), Klamath and Six Rivers National Forests, and the National Park Service (NPS). The swift flow of water offers excellent kayak, canoe, and rafting opportunities, and the presence of a wide variety of fish attracts fall and winter anglers. The river is also a popular wayside for migrating birds, including blue and green herons, eagles, cormorants, and pelicans. For additional information on the river reach downstream of Iron Gate dam, refer to the Recreation Flow Analysis (Section 2.0 of the Recreation Resources FTR) and the Regional Recreation Analysis (Section 4.0 of the Recreation Resources FTR).

E7.1.1.2 Recreation Facilities in Each Recreation Resource Area

The Recreation Needs Analysis (Section 5.0 of the Recreation Resources FTR) included a detailed inventory and Americans with Disabilities Act (ADA)-related assessment of each recreation facility in the study area. Below is a brief inventory summary of each recreation facility associated with the proposed Project.

J.C. Boyle Reservoir Resource Area Recreation Facilities

A small reservoir (420 surface water acres) located downstream from Keno reservoir, J.C. Boyle has three developed recreation sites and approximately 17 identified undeveloped dispersed recreation sites along its shoreline. One of the three developed recreation sites (Pioneer Park) is included in the proposed Project. Popular activities in this resource area include resting/relaxing, swimming, fishing, boating, picnicking, camping, target shooting, and all-terrain vehicle (ATV) use, among others. The key elements of these recreation sites are summarized below. Recreation sites discussed in this subsection include (Figure E7.1-1):

- Sportsman's Park
- Pioneer Park (East and West)
- BLM's Topsy Campground
- Dispersed undeveloped sites

There are no developed nonmotorized trails in this resource area.

Sportsman's Park. Located on the southeastern shoreline of J.C. Boyle reservoir, Sportsman's Park is a 345-acre, multi-use facility on land owned by PacifiCorp with a long-term lease to Klamath County, which manages the property via the Klamath Sportsman's Park Association. It is not included in the current Project license and is not considered a Project-related facility. The park contains a rifle and pistol range, sporting clay range, archery ranges, ATV/motocross and dirt drag-strip racetracks, a model aircraft flying field, and toilet facilities. Annual membership passes and single-day passes to use the park are available to the general public for a fee. An on-site caretaker lives at Sportsman's Park and is responsible for monitoring use at the site and for routine maintenance. In general, most facilities associated with Sportsman's Park are in good condition. None of the recreational facilities associated with this site are ADA-accessible.

Pioneer Park (West and East Units). Managed by PacifiCorp, Pioneer Park is the only existing developed recreation site in the proposed Project. The site is located off State Highway 66 at Spencer Bridge. The site consists of two separate day use areas on the western and eastern shoreline of J.C. Boyle reservoir. Both sites have access from the highway and are located on each side (west and east) of Spencer Bridge over a narrow point of the reservoir. The shoreline at Pioneer Park (West) is used for picnicking and fishing, and it has an undeveloped dirt boat ramp used primarily to launch car-top boats. There are two portable toilets at the western Pioneer Park site. Pioneer Park (East) has a two-lane boat launch made of concrete ties. A gravel shoreline area also provides car-top boat launching and shoreline fishing opportunities. An interpretive sign is located nearby. A portable toilet at this site is ADA-accessible.

ODOT is planning to realign the State Highway 66 bridge that currently spans J.C. Boyle reservoir between the Pioneer Park West and East units. Preliminary realignment plans developed by ODOT would eliminate Pioneer Park East, though Pioneer Park West likely could be expanded to compensate for this loss. The draft RRMP (Appendix E7-A) provides more information on this potential bridge realignment.

BLM's Topsy Campground. Owned and managed by BLM, Topsy Campground is located on the southeastern shoreline of J.C. Boyle reservoir and can be accessed via Topsy Grade Road off State Highway 66. This site is not within the proposed Project area, though it does provide access to J.C. Boyle reservoir (a Project feature). The site consists of a 15-unit campground, a small day use picnic area, a concrete boat launch, and an ADA-accessible fishing platform. The campground has two vault toilets and potable water. BLM charges fees for day use and camping at this facility. ADA-accessible facilities include the fishing pier, one campsite, one picnic table in the day use area, and a parking space near a vault toilet.

Dispersed Undeveloped Sites. There are approximately 17 identified dispersed undeveloped sites along the J.C. Boyle reservoir shoreline, located mainly along the northern shoreline in the vicinity of Spencer Creek. Most sites appear to receive light to moderate use. One exception is a site located on a bluff across from Pioneer Park (West) on PacifiCorp and adjacent private land.

At this site, visitors jump from a bluff into the reservoir. This site receives relatively heavy use. The site also extends towards BLM's Topsy Campground and has several fire rings and heavy amounts of accumulated litter. Almost all of the dispersed sites have user-defined fire rings. Sites that do not have fire rings show evidence of fires in the past. Eleven of the sites are considered large, while four sites or areas have several fire rings or clusters of sites.

Upper Klamath River/Hell's Corner Reach Resource Area Recreation Facilities

The Upper Klamath River/Hell's Corner reach resource area encompasses the Klamath River between the J.C. Boyle dam and Copco reservoir. The J.C. Boyle bypass reach (extending from the dam to the powerhouse) is just over 4 miles long, while the river reach from the J.C. Boyle powerhouse to Copco reservoir is approximately 22 miles long.

The J.C. Boyle bypass reach has steep banks and cliffs with a few sheer walls, some of which rise a few hundred feet above the river. At base flows (100 cfs is released from the dam and springs add about 220 cfs), the upper mile of the bypass reach has some small braided channels, but otherwise is a narrow single thread channel with a pool/drop character. The rapids are quite steep, with large car- to house-sized boulders that sometimes create sieves. Access to the bypass reach is primarily from immediately downstream of the dam and adjacent to the powerhouse via user-defined trails. The area is primarily used by anglers and whitewater boaters.

The river reach just downstream of the J.C. Boyle powerhouse and the California state line was designated an OSSW in 1988 and a National W&SR in 1994. The W&SR designation request was made by the Governor of Oregon under Section 2(a)(ii) of NWSRA. Under this designation, BLM manages the river in cooperation with the state of Oregon (NPS, 1994). Downstream of the Oregon-California state line, the river is eligible for designation as a W&SR and is also managed by BLM to the point where it flows into Copco reservoir.

This reach of the Klamath River can be characterized as a swift river in a natural setting. As such, it receives significant use by commercial whitewater rafting outfitters and private whitewater boaters. BLM reports that estimated existing boating use is approximately 5,000 visitor days annually; however, use has declined in recent years. To accommodate this demand, BLM constructed the Upper Klamath River (Spring Island) Boater Access approximately 0.25 mile downstream of the J.C. Boyle powerhouse.

Developed recreation sites along the Upper Klamath River/Hell's Corner reach include primitive campsites, day use/fishing access areas, and whitewater boat put-ins/take-outs. None of the developed recreation sites described below are included in the current Project license. Additionally, there are four identified dispersed recreation sites or use areas along the Upper Klamath River/Hell's Corner reach. A large dispersed use area is located at Frain Ranch. Key elements of these recreation sites are summarized below.

Recreation sites discussed in this subsection include (Figure E7.1-1):

- BLM's Upper Klamath River (Spring Island) Boater Access
- BLM's Klamath River Campground
- Stateline Take-out (PacifiCorp and BLM)
- Fishing Access Sites 1-6

- Dispersed undeveloped sites

There are no developed nonmotorized trails in this resource area; however, several small user-defined trails exist and dirt roads are used for trail access.

BLM's Upper Klamath River (Spring Island) Boater Access. Managed by BLM, the Upper Klamath River Boater Access is located on the Klamath River adjacent to (downstream of) the J.C. Boyle powerhouse (this site was recently renamed the Spring Island Boater Access). This site is not within the proposed Project. The site provides car-top and trailered boat launching (whitewater rafts and kayaks) and provides access for shoreline fishing. Most of the recreation facilities associated with BLM's Upper Klamath River Boater Access are in good condition. The access route from the parking area to the toilets/changing rooms and the toilets are ADA-accessible.

BLM's Klamath River Campground. Managed by BLM, this small Klamath River Campground is located on the Klamath River, approximately 3 miles south (downstream) of the J.C. Boyle powerhouse. This site is not within the proposed Project. The small campground has three developed campsites, each with a picnic table and fire ring, and the shoreline is used for fishing and boater access. Additionally, there is a single vault toilet building at the campground. The access road to the campground is primitive and rocky.

Stateline Take-out (PacifiCorp and BLM). Located on the Klamath River at the Oregon/California state line, Stateline take-out (PacifiCorp and BLM) has upper and lower use areas that are co-managed by BLM and PacifiCorp and are not within the current FERC boundary, though the PacifiCorp-owned portion is included in the proposed Project. The lower use area provides an unimproved boater put-in/take-out, parking, and access to the shoreline for fishing. The put-in/take-out and parking areas are on PacifiCorp lands. The access road to the lower use area is on land that is managed and maintained by BLM. Camping is not permitted at the lower use area and several signs communicate this rule to the public. The upper use area is on land that is managed by BLM and consists of a large, open area with a single vault toilet building recently installed by BLM. Camping is not encouraged at the upper use area either (not signed), though the area has several user-defined campsites and several user-defined fire rings. None of the recreational facilities associated with this site are ADA-accessible.

Fishing Access Sites 1-6. Fishing Access Sites 1-6 are all maintained by PacifiCorp and are located downstream from Stateline take-out (PacifiCorp and BLM). The six sites consist primarily of gravel parking areas with dirt trails providing access across private lands to the Klamath River shoreline. Two sites also function as whitewater boater put-ins or take-outs. The six sites were constructed and are maintained voluntarily by PacifiCorp and are included in the proposed Project.

Fishing Access Site 6 consists of a small gravel parking area adjacent to Ager-Beswick Road (Topsy Grade Road changes to Ager-Beswick Road in California). A gate system allows public pedestrian/angler access through private ranch lands. In the past 2 years, PacifiCorp has allowed commercial rafting outfitters to use this site as a take-out by special permit. A gated entry road provides vehicle access to the river shoreline. There is a single vault toilet building located adjacent to the parking area of this fishing access site.

Fishing Access Site 5 is located downstream from Fishing Access Site 6. The site is accessed from Ager-Beswick Road and has several user-defined trails through private ranch lands to the river shoreline. A small bridge located about 0.1 mile downstream from the parking area provides pedestrian access to the opposite shoreline.

Fishing Access Sites 2, 3, and 4 are located downstream of Fishing Access Site 5 along Ager-Beswick Road. A pedestrian trail provides access through private ranch lands to shoreline fishing opportunities. Recreation facilities include a vault toilet, trash receptacle, access road, and parking area.

Fishing Access Site 1 is located downstream of Fishing Access Site 2, near the area where the Klamath River flows into the Copco reservoir flatwater. Similar to the other fishing access sites, this site is located adjacent to Ager-Beswick Road and provides river access through private ranch lands. The site is also popular as a boater take-out and has a gravel turnaround for vehicles with trailers and two portable toilets. This is the last take-out for boaters on the Hell's Corner reach.

None of the recreational facilities associated with these six Fishing Access Sites are ADA-accessible.

Dispersed Undeveloped Sites. The four dispersed sites in the Upper Klamath River/Hell's Canyon Reach receive light to moderate use, primarily by boaters either as boater put-ins/take-outs or as boat-in rest areas/campsites. Frain Ranch, a large area with at least six dispersed sites, is also used as a group camp area and is sometimes occupied by nonrecreational squatters. There are historic building sites at Frain Ranch, as well as areas used by tribal members. A composting toilet building at Frain Ranch has been closed and locked because of severe vandalism.

Copco Reservoir Resource Area Recreation Facilities

Two developed recreation sites at Copco reservoir, both of which are included in the current Project license, provide day use and overnight camping opportunities, as well as boat launching. There are two identified dispersed undeveloped recreation sites along the Copco reservoir shoreline. The key elements of these recreation sites are summarized below. Recreation sites discussed in this subsection include (Figure E7.1-1):

- Mallard Cove
- Copco Cove
- Dispersed undeveloped sites

Mallard Cove. Located on the southern shore of Copco reservoir, off Ager-Beswick Road at Keaton Cove, Mallard Cove is maintained by PacifiCorp. The site consists of a day use/picnic area and a boat launch. The site also has two vault toilets. While not an official campground, this site is also used for camping. The site is bounded on either side by residential development. None of the recreational facilities associated with this site are ADA-accessible; however, recent activities may result in new ADA-accessible facilities being built here in the near future. Mallard Cove day use area is currently managed by PacifiCorp, but it was cooperatively developed by PacifiCorp and BLM (land manager of the entry area of the site only).

Copco Cove. Managed by PacifiCorp, Copco Cove is located on the western shoreline of Copco reservoir, off Copco Road. The facility is naturally wooded and has two picnic sites, a boat launch, and a portable toilet. While not an official campground, this site is also used for camping. None of the recreational facilities associated with this site are ADA-accessible.

Dispersed Sites. Two dispersed sites exist at Copco reservoir, one at Beaver Creek Cove and one at Raymond Gulch. A floating dock at Beaver Creek Cove belongs to a nearby resident, and there is a fire ring at this site. Neither site appears to receive much recreational use. Impacts at Raymond Gulch appear to be from cattle grazing.

Iron Gate Reservoir Resource Area Recreation Facilities

Iron Gate reservoir (944 surface water acres) has the highest concentration of recreation sites of all the resource areas within the Project. All sites are owned and maintained by PacifiCorp. Most facilities at Iron Gate reservoir are accessed via Copco Road. This road, which is maintained by the county, is paved along Iron Gate reservoir to the Copco No. 2 powerhouse, and is gravel along Copco reservoir.

Developed recreation sites at Iron Gate reservoir include trails, campgrounds, day use areas, and boat launches. Additionally, there are five identified dispersed recreation sites along the Iron Gate reservoir shoreline, including a large dispersed use area at Long Gulch. Key elements of these recreation sites are summarized below. Recreation sites discussed in this subsection include (Figure E7.1-1):

- Fall Creek Trail
- Fall Creek
- Jenny Creek
- Wanaka Springs
- Camp Creek
- Juniper Point
- Mirror Cove
- Overlook Point
- Long Gulch
- Dispersed sites

Fall Creek Trail. The Fall Creek Trail is located between Iron Gate reservoir and Copco reservoir, adjacent to a CDFG fish hatchery facility. The gated trail begins on the northern side of Copco Road and continues to Fall Creek Falls. The trailhead is managed by CDFG and can also be accessed via the road/parking area associated with the Fall Creek powerhouse. The lower portion of the trail is gravel, while the upper portion of the trail is dirt and generally not well defined. Parking and the portable toilet are ADA-accessible, although the toilet is behind a locked gate.

Fall Creek. Fall Creek is a recreation site managed by PacifiCorp that is located on the far northeastern shoreline of Iron Gate reservoir at the mouth of Fall Creek. The site is primarily a day use area with four picnic sites, though some overnight camping does occur. User-defined trails provide access to shoreline fishing opportunities. A gravel hand-launch boat access area is

provided. The site also has an old vault toilet building (closed in 2002) and one portable toilet. None of the recreational facilities associated with this site are ADA-accessible.

Jenny Creek. The Jenny Creek recreation site is located between Copco Road and Jenny Creek on the northern shoreline of Iron Gate reservoir. The Jenny Creek site is managed by PacifiCorp but is not included in the current Project license. The creekside setting provides a small day use and camping area, as well as parking and a single vault toilet building. Several user-defined trails provide shoreline fishing access to Jenny Creek. None of the recreational facilities associated with this site are ADA-accessible.

Wanaka Springs. This site is located on the northern shoreline of Iron Gate reservoir and is managed by PacifiCorp. The naturally wooded Wanaka Springs recreation site is used for day use and overnight camping and consists of a small upper use area and a larger lower use area. A dirt pedestrian trail provides access to a wooden dock/fishing pier with a concrete walkway on the reservoir shoreline. Two gravel turnarounds provide access to viewing areas above the reservoir. A short hiking trail leads from one turnaround, extends across the paved access road, and continues upslope to the actual site of Wanaka Springs. There are two vault toilet buildings and a portable toilet located adjacent to the main parking area. None of the recreational facilities associated with this site are ADA-accessible.

Camp Creek. The Camp Creek recreation site is located on Copco Road along the northern shoreline of Iron Gate reservoir and is managed by PacifiCorp. The surrounding hilly semi-arid landscape and reservoir provide pleasant views. The site accommodates camping, day use, and boat launching. This site is actually split into three use areas. The first use area is located on the shoreline and consists of developed campsites and a boat launch. The second use area is located across Copco Road from the first use area and is used as a day use and overflow RV camping and parking area. The third use area is located on the shoreline to the northwest of the first use area and provides for day use activities, including semi-ADA access to the shoreline, as well as overnight camping.

The first area at Camp Creek has 13 developed campsites each with a picnic table, a fire ring, and a parking space. Boulders separate the campsites. There is also a boat launch with a single-lane concrete ramp at this use area. Additionally, there are two wooden docks located to the north and south (on an existing jetty) of the boat launch. Each of these docks also provides shoreline fishing opportunities. The second use area is located directly across Copco Road from the first area. Overflow RV camping occurs at this site when the developed campsites in the first use area are full. There is a compost toilet building, a portable toilet, water faucets (potable water), RV dump station, and an interpretive display at this use area that provides a brief discussion of the Wilkes Expedition that stopped at this site in 1841. The third use area is located along the reservoir shoreline to the northwest. This site often receives use as a single or double overnight campsite and is occasionally used as a group campsite. There is a partially ADA-accessible concrete fishing pier and boat ramp for launching car-top boats at this third small area.

Juniper Point. Located on the northwestern shoreline of Iron Gate reservoir, the Juniper Point recreation site is managed by PacifiCorp and provides semi-primitive picnic sites and campsites. There is a wooden dock at this site that provides shoreline fishing opportunities and boat docking. There are two vault toilet buildings located across Copco Road from this site. The

access road into this site is very steep. None of the recreational facilities associated with this site are ADA-accessible.

Mirror Cove. The Mirror Cove recreation site, managed by PacifiCorp, is centrally located on the western shoreline of Iron Gate reservoir. The site has a day use and camping area and a concrete boat launch, as well as two vault toilet buildings and a portable toilet. This site is popular for group use and camping. The boat launch is the nearest access to a competitive water ski course placed in the western area of the reservoir and is popular with local waterski clubs, which often take over the complete site. None of the recreational facilities associated with this site are ADA-accessible.

Overlook Point. The Overlook Point recreation site is managed by PacifiCorp. It is located on the western shoreline of Iron Gate reservoir. This facility has two picnic sites, two old vault toilet buildings (closed in 2002), and a portable toilet and is accessed by a long, steep gravel road that provides access to the site. The moderately steep topography provides an interesting view of the reservoir and surrounding landscape. None of the recreational facilities associated with this site are ADA-accessible.

Long Gulch. The Long Gulch recreation site is managed by PacifiCorp, but it is not included in the current Project license. It is located on the southern shoreline of Iron Gate reservoir directly across from Overlook Point. The site has a picnic area that is occasionally used for camping and a concrete boat launch, as well as two old vault toilet buildings (closed in 2002) and a portable toilet. Access into the site is from a gravel road jointly maintained by the Iron Gate Estates Homeowners' Association and PacifiCorp. None of the recreational facilities associated with this site are ADA-accessible.

Undeveloped Dispersed Sites. The four identified undeveloped dispersed sites along the Iron Gate reservoir shoreline appear to receive moderate use, primarily as fishing access sites. Two sites have recently been cabled off to restrict access. This has resulted in decreased use at one site; however, visitors to the other site, Long Gulch, have made a route around the cable barrier.

Below Iron Gate Dam Resource Area Recreation Facilities

One public recreation area is located immediately downstream of Iron Gate dam (Figure E7.1-1) and is discussed below.

Iron Gate Fish Hatchery Public Use Area and Boat Launch. Located downstream of Iron Gate dam, the Iron Gate fish hatchery is operated by CDFG (PacifiCorp funds 80 percent of the fish hatchery's annual operating expenses). There is a day use area adjacent to the hatchery and an undeveloped boat launch across the river from the hatchery. While operation of the hatchery remains a condition of the existing Project license, public access and use areas are not a specific requirement. Fishing is prohibited in this area (to 3,500 feet downstream of the dam). The day use area has a covered picnic shelter, a small visitor center/interpretive kiosk (providing information on dam construction, salmon, and regional wildlife), flush toilets in a nearby hatchery building, and an ADA-accessible trail to the river shoreline (near Bogus Creek). Public visitation of the hatchery is heaviest in September, October, and November, when salmon spawning occurs. During this time, hatchery personnel conduct interpretive tours for local

elementary schools. ADA-accessible features at this site include parking and an interpretive kiosk, a spawning viewing area, and three picnic tables.

Across the river from the Iron Gate fish hatchery is an undeveloped river access site. This site is used primarily to launch smaller watercraft such as tubes, rafts, and driftboats. The launch site does receive some trailered boat use. It is used by recreationists in the summer for fishing access, swimming, and tube floating on the river. It is also a popular boat launch during the late summer and fall for salmon fishing and driftboat use.

Lower Klamath River Corridor

The reach below Iron Gate dam, though outside the existing and proposed Project area, was studied as part of the Recreation Flow Analysis (Section 2.0 of the Recreation Resources FTR) and the Regional Recreation Analysis (Section 4.0 of the Recreation Resources FTR). This river reach is approximately 190 miles long and encompasses a variety of terrain and recreation opportunities.

The Lower Klamath River (downstream of Iron Gate dam) is the second longest river within the state of California and has been characterized as having an abundance of fish and moderately challenging rapids for whitewater boating. The swift flow of water offers excellent kayak, canoe, and rafting opportunities.

The Lower Klamath River runs through the Klamath National Forest and Six Rivers National Forest and on to the Pacific Ocean. Within the Forests there are three major rivers or segments of rivers that have been designated as W&SR: the Klamath, Scott, and Salmon rivers. In 1981, the Klamath River was designated a national W&SR, based on its outstandingly remarkable values (ORVs), including fisheries, recreation, and scenery. Recreation activities along the three rivers and within the Klamath and Six Rivers National Forests include swimming, whitewater boating, hiking, mountain biking, bird watching, horseback riding, skiing, fishing, snowmobiling, mountain climbing, caving, golfing, and camping.

The Lower Klamath River from 3,500 feet below Iron Gate dam downstream to the river's mouth is open to fishing year-round. This reach attracts and supports several fishing outfitter services that focus on fishing for salmon, steelhead, and trout.

A significant developed recreation facility below Iron Gate dam is R Ranch. R Ranch is a large private recreation complex used by RV campers and day users who are part owners of the facility and members of the R Ranch Landowners' Association. While privately owned by its membership, this recreation facility merits acknowledgment as a regional recreation resource because of its size and proximity to the proposed Project area. R Ranch was founded in 1971 and sells individual grant deeds to a 1/2,500 undivided interest in the entire ranch. This ownership allows owners access to and use of R Ranch's 5,119 acres and recreation facilities. There are two separate campgrounds at R Ranch. Cottonwood Campground is located just off of I-5 farther away from the Project and offers full RV hookup sites and an RV dump station. This RV campground is more family oriented and is centered on an Olympic-size swimming pool. Klamath Campground is located a few miles east of Cottonwood and I-5 and 2 miles downstream of Iron Gate dam along 1.7 miles of the Lower Klamath River. This campground contains a large lodge and is more oriented to adults because it provides opportunities to fish and

hunt and has a lounge/adult recreation center. Owners are allowed to stay at R Ranch for up to 210 consecutive days a year. In addition to the amenities listed above, R Ranch has many trails, a horse stable and riding arena, tennis courts, a recreation center, a playground, fishing access, restrooms, a bunkhouse with 56 rooms, a private hunting reserve, a shooting range, and a total of 857 RV and tent campsites (Seniors-Site website, 2002; R Ranch website, 2002).

E7.1.2 Regional Overview of Public Lands Near the Project

The following recreation facilities are located within several hours' drive of the proposed Project in Oregon or California. The overall area is considered to be the most northwesterly extent of the basin and range geologic formation and gradually extends to the high plateau. This area is characterized by a scrub shrub/pine forest and is dry in the summer, and cold and snowy in the winter at elevations above 4,000 feet. This region lies east of the Cascade Mountains and perpendicular to the Siskiyou Mountains in California. A brief description is provided of the facilities available in the area, their general locations, and operating information. Additional information for each site is provided on the following websites: <http://www.gorp.com> (search on "Klamath") and <http://www.klamathnwr.org/>. Larger tracts of public land are discussed below.

E7.1.2.1 Klamath National Forest

Klamath National Forest (KNF) is located in northern California near the California/Oregon state line. The KNF encompasses 1.7 million acres of land and has more than 300 miles of rivers, including 152 miles that are designated as W&SR. The diverse environment includes creeks, mountain lakes, and grasslands where it is possible to view antelope, wild horse herds, raccoons, porcupines, deer, coyotes, bears, and mountain lions. Butte Valley is a major stopping-off place for waterfowl in the Pacific Flyway. During October at the peak of migration, the bird population within the forest is estimated at between 3 and 4 million. Recreation and education activities within the Forest include (but are not limited to) fishing, wildlife hunting, swimming, whitewater rafting, canoeing, kayaking, golf, hiking, mountain biking, bird watching, horseback riding, skiing, snowmobiling, mountain climbing, and caving. The Forest contains many developed recreation sites, including 28 campgrounds. Two sites are ADA compliant and camping fees range from \$6.00 to \$30.00 per night, depending on the size of the site and its location. Dispersed camping is allowed along various creeks within the forest, typically a cleared area, and fire rings are provided. No parking or access fees are charged.

E7.1.2.2 Winema National Forest

The Winema National Forest (WNF) is located within Klamath County in south-central Oregon on the eastern slopes of the Cascade Mountain range. The forest adjoins Crater Lake National Park near the Cascade crest. The lower slopes border Upper Klamath Lake. The WNF encompasses 1.1 million acres of land and is known for its diverse landscape of marshes, lakes, forested slopes, and wide basins. These habitats support a variety of fish and wildlife species, including but not limited to deer, black bears, mountain lions, bobcats, and elk. The forest is also home to large populations of water-oriented birds, including ospreys, pelicans, and eagles. The pine and mixed conifer forest provides a natural setting for recreationists. Activities include trail hiking, camping, picnicking, fishing, and boating. The WNF has 82 miles of existing hiking/packer trails and in the wintertime, snowmobiling, snowplay, and cross-country skiing are popular activities. Fees are charged for use of developed campsites and range from \$6.00 to

\$12.00 or more per night, depending on the location and the facilities provided. Dispersed camping is allowed within the forest, provided campers have fire-fighting equipment.

E7.1.2.3 Fremont National Forest

The Fremont National Forest (FNF) is located east of the Cascade Mountains in the high-elevation lava tablelands of south-central Oregon and includes 1,198,301 acres of land. A gentle to moderate terrain characterizes most of the forest. Elevation ranges between 4,000 and 8,000 feet above sea level. The FNF is a wide semiarid highland belt that is home to drought-tolerant vegetation such as juniper, ponderosa pine, white fir, and lodgepole pine. Recreation opportunities include fishing, hunting, hiking, backpacking, cross-country skiing, camping, and leisure driving. Approximately 160 miles of trails in the forest are open to equestrians, mountain bikers, and hikers. A fee of \$8.00 per night is charged at East Bay Campground, Silver Lake, the only fee campground within the forest. All other USFS facilities in the FNF are free. Dispersed camping is allowed throughout the Forest.

Three national W&SRs east of Klamath Falls are the North Fork of the Sprague River, located within Fremont National Forest; the Sycan River, located within both the Fremont and the Winema national forests; and the Chewaucan River, located within the FNF. The Sprague River flows through broad, high-elevation meadows, and scenery is its ORV. The river is 15 miles long and the entire stretch has been designated as scenic. The Sycan River's uniqueness is attributed to its distinctive scenery, which varies from steep canyon walls to broad meadows. The Sycan River is 59 miles long, of which 50.4 miles have been designated as scenic and 8.6 miles have been designated for recreation. The headwaters for both rivers start within the Fremont and Winema forests and there is little to no whitewater available for recreation activities. Also, swimming in the Sprague River is discouraged because of the strong undertow documented for the river.

E7.1.2.4 Six Rivers National Forest

Six Rivers National Forest offers nearly one million acres of land for the public's enjoyment. The Forest is located in northern California, approximately a 6-hour drive from San Francisco. Six Rivers offers four camping areas featuring vault or flush toilets, fire rings and/or stoves, tables, parking for two vehicles, and potable water. Showers are available at select facilities. Camping fees for the services provided range from \$7.00 to \$15.00 per night. River swimming and fishing are also available within the Forest. Day use fees are posted and pets on leashes are permitted (<http://www.fs.fed.us/2003>).

Six Rivers National Forest includes segments of the Lower Klamath (approximately 20 miles), Trinity, and Smith rivers and adjacent corridors of land classified as W&SR-Recreational under the National Wild and Scenic Rivers Act of 1968. The classification applies to those river segments that are readily accessible by public roads and have experienced substantial human modification to the scenery. Recreation activities within W&SR corridors include camping, whitewater boating, and fishing.

E7.1.2.5 Lava Beds National Monument

Lava Beds National Monument (LBNM) is located in northern California near the California/Oregon state line. The Monument is distinguished by an incredibly rugged landscape punctuated

by cinder cones, lava flows, spatter cones, lava tube caves, and pit craters. Recreation and education activities offered at LBNM include camping, walking tours, cave trips, and campfire programs. Summer camping fees are \$10.00 per day per site; winter camping fees are \$6.00 per day per site. Entrance fees into the Monument are \$4.00 per private vehicle per week, or \$2.00 per person for bicyclists and nonprivate groups.

E7.1.2.6 Crater Lake National Park

Crater Lake National Park (CLNP) is located approximately 25 miles north of Klamath Falls, Oregon, and is widely known for its spectacular views. The peaceful appearance of Crater Lake belies its violent beginning. More than 7,700 years ago, Mt. Mazama erupted and collapsed in on itself, forming a large cauldron. Lava flows sealed the bottom. After a long period of cooling, rain and snowmelt filled the cauldron, forming the sapphire blue lake. It is the deepest lake in the United States and the seventh deepest in the world. Recreation and education activities within the park include biking, hiking, fishing, swimming, snowshoeing, snow camping, cross country skiing, and winter ecology walks. More than 20 overlooks are located along the 33-mile rim road, each providing unique and spectacular views. The park is open year-round, but the lodge is open only in the summer, mid-May to mid-October. Two campgrounds and a motor inn are also available. A \$10.00 entrance fee valid for 7 days is required.

The Volcanic Legacy Scenic Byway All American Road stretches approximately 500 miles and connects Crater Lake National Park in Oregon with Lassen Volcanic National Park in California. Between Crater Lake and Lassen Volcanic National Parks, the road traverses the Winema, Klamath, Shasta-Trinity, Plumas and Lassen National Forests, as well as Lava Beds National Monument.

E7.1.2.7 Klamath Forest National Wildlife Refuge

The Klamath Forest National Wildlife Refuge (KFNWR) is located 25 miles north of Chiloquin, Oregon, in the Winema National Forest. The refuge encompasses 31,207 acres of marsh lands and wooded uplands. This area is an important nesting site for greater sandhill cranes and other waterfowl. It also serves as a primary wintering ground for bald eagles. Recreational and educational activities offered include wildlife observation, study, and photography and waterfowl hunting and fishing. The contact station is intermittently staffed; however, basic information can be obtained via a website (<http://www.gorp.com>) or by contacting the Klamath Basin National Wildlife Refuge Complex in Tulelake, California.

E7.1.2.8 Lower Klamath National Wildlife Refuge

The Lower Klamath National Wildlife Refuge (LKNWR) is located 24 miles south of Klamath Falls on the Oregon/California border. This facility is close to the Tulelake National Wildlife Refuge. The Refuge encompasses 53,598 acres of water, marshland, agricultural crops, and uplands. The LKNWR is a major waterfowl production area. Predominant nesting species include gadwall, mallards, cinnamon teal, ruddy ducks, and Canada geese. Summer populations include (but are not limited to) white pelicans, cormorants, herons, egrets, terns, and killdeer. The Refuge supports the largest wintering concentration of bald eagles in the lower 48 states combined. Recreational and educational activities offered include wildlife observation, study, and photography; an automobile touring route; and waterfowl and pheasant hunting. The Refuge

charges a fee of \$3.00 per day per car for the auto route and \$5.00 per day per hunter for hunting privileges (this is in addition to all appropriate hunting licenses and stamps). Camping is not permitted in the Refuge.

E7.1.2.9 Bear Valley National Wildlife Refuge

The Bear Valley National Wildlife Refuge (BVNWR) is located 12 miles southwest of Klamath Falls, Oregon, and is part of the Klamath Basin National Wildlife Refuge complex. The primary objective of the Refuge is to protect a major nighttime roosting site for wintering bald eagles. Each winter, the Klamath Basin supports the largest wintering concentration of bald eagles within the lower 48 states, and this refuge in particular has supported as many as 300 eagles in one night. The Refuge takes in 4,120 acres of land and is composed primarily of pine and fir plus juniper and grasslands. Recreation and education activities available include wildlife observation, study, and photography. The Refuge is closed to all public access each year from November through March. Eagles can be observed flying into and out of the Refuge, and viewing areas are available off-site.

E7.1.2.10 Upper Klamath National Wildlife Refuge

The Upper Klamath National Wildlife Refuge (UKNWR) is located 25 miles northwest of Klamath Falls, Oregon, and is accessible only by boat. Suggested access points are at the Rocky Point Resort and Malone Spring, a USFS recreation site. The Refuge is a marsh that provides excellent habitat for several species of ducks, white pelicans, herons, egrets, and other nesting birds. The Refuge covers 14,917 acres and lies along the north end of Upper Klamath Lake. Recreation and education activities include wildlife observation, study, and photography; waterfowl hunting; boating; canoe trail; and fishing.

E7.1.3 Recreational Use and Demand

In 2001 and 2002, recreation studies were conducted to assess recreation use, visitor perceptions, and activity demands in the study area. Field researchers conducted user count observations and administered visitor surveys to visitors to the study area (Section 3.0 of the Recreation Resources FTR).

The 2001 field observation period began in late June and continued through late September, while the 2002 field season began in early May and continued through early September. PacifiCorp employees regularly monitored and recorded recreation use in the study area from October 2001 through the end of April 2002. Existing recreation use was estimated in recreation days (RDs), FERC's preferred unit of recreation measurement.

For the recreation visitor survey, a questionnaire was used to assess the attitudes, preferences, and characteristics of the visitors to the study area (Appendix 3A of the Recreation Resources FTR). The questionnaire revealed basic information about the respondents' visit, including areas visited, length of visit, and other trip characteristics. The survey also determined visitor demand for water-based recreation facilities and conflicts with other users. Visitors were contacted from July 2001 to September 2002 at the recreation sites and facilities in the study area. Sites surveyed included developed campgrounds and day use areas (both Project and non-Project sites), as well as undeveloped dispersed sites in the study area. A summary of some of the study results specific

to the proposed Project area is provided below (complete study area results are available in the Recreation Resources FTR).

E7.1.3.1 Regional Recreation Demand Analysis

The regional recreation demand analysis summarizes regional demand for various proposed Project-related recreation activities, followed by a discussion of demand for various recreation settings and a discussion of regional demand for whitewater boating and fishing.

Regional Demand for Proposed Project-Related Recreation Activities

The analysis of regional demand is based primarily on data from published California and Oregon Statewide Outdoor Comprehensive Recreation Plan (SCORP) documents (CDPR, 1998; OPRD, 2003).

The results of the California Department of Parks and Recreation (CDPR) study showed that several activities that take place in the Project area have existing “high” demand that would most likely see an increase in participation if there were an increase in opportunities or access. These higher demand activities include:

- Developed camping
- Trail hiking/walking
- Swimming (nonpool)
- Nature study/wildlife viewing
- Primitive camping
- General use of open space
- Freshwater fishing
- Picnicking

The 2003-2007 Oregon SCORP reports estimated existing demand for common outdoor recreation activities (OPRD, 2003). Demand for recreation activities in Oregon is similar to demand in California. Nature study is in high demand and bicycling is in moderate demand in both Oregon and California. Both surveys indicate a lower demand for hunting, motorcycling/ATV use, 4-wheel-drive vehicle use, powerboating, waterskiing, horseback riding, target shooting, and sailboating/windsurfing.

The following activities have higher existing demand in Oregon:

- Sightseeing/driving for pleasure (note: lower in California)
- Walking for pleasure
- Visiting cultural/historic sites
- Nature study/wildlife viewing

Regional Demand for Outdoor Recreation Settings

It is also important to assess the types of physical, social, and managerial settings that visitors choose for outdoor recreation. The CDPR and Oregon SCORP results show that, in general, respondents prefer settings less developed than those that they actually visit. Various user groups

also seek different types of settings based on their facility needs, willingness to pay, and personal preference.

Two-thirds (69 percent) of California residents prefer to use either undeveloped areas or nature-oriented parks and recreation areas (CDPR, 1998). However, relatively few residents actually use these areas on a consistent basis, primarily because of travel time or distance, cost, or lack of time. On the basis of many California residents' desire for a less developed recreational setting, overall demand can be characterized as generally high for the type of natural setting that is available in the Project area. Demand tends to be much lower for highly developed parks and recreation areas. Ten percent of California residents tend to prefer highly developed parks and recreation areas; however, more than 20 percent actually use this type of setting.

Oregon residents rated preferred and actual recreation settings in terms of specific recreation activities. In general, the people surveyed prefer less developed settings than those they actually choose, regardless of the recreation activity. The discrepancy between actual and preferred recreation settings was the highest for boating activities. Twenty percent of those surveyed boated in an urban setting with natural features, although less than 1 percent actually preferred this setting.

These results tend to indicate that the more primitive and less developed settings provided in the proposed Project area are desired by many residents of Oregon and California. This desire, however, is tempered by issues of access, personal time, travel time, and distance.

Regional Demand for Whitewater Boating

According to the Oregon SCORP (2003) and the CDPR report (1998), whitewater boating activities have lower existing statewide demand compared with some other activities. Whitewater boating use on Hell's Corner reach has averaged an estimated 5,250 RDs over an 8-year period. Use levels have dropped from a 1995 high of 6,365 RDs (Weidenbach, pers. comm., 2002). However, rivers that are closer to urban centers (such as the American River in California) generally receive continued high use levels.

While there are many whitewater boating opportunities in the region, the proposed Project area vicinity does provide a variety of opportunities to whitewater boating enthusiasts with varying skills. The Upper Klamath River Hell's Corner reach is a W&SR reach that provides challenging Class IV and V runs. Below Keno dam, a lightly used Class III run exists. There are also less challenging water reaches in the vicinity of the proposed Project area, in particular certain reaches below Iron Gate dam. Additional information is provided in the Regional Recreation Analysis (Section 4.0 of the Recreation Resources FTR).

Regional Demand for Fishing

The Oregon SCORP (2003) rates fishing as having moderate demand, while the CDPR report states that fishing has high existing demand. Both states have a variety of fishing opportunities, as each state has many river systems as well as significant lake and reservoir shoreline.

The region provides an array of fishing opportunities that serve the needs of diverse angler groups. The Project area provides a setting that attracts river anglers seeking solitude. This is

especially true of the Klamath River Hell's Corner reach, which has limited access. The forested canyon is an attraction to individuals who seek scenic beauty and solitude while fishing.

Most anglers in the proposed Project area are residents of local communities. Of the local anglers, most are from nearby communities within the particular state in which the river is located. The quality of nearby fisheries is generally good enough that residents of Oregon are not typically willing to pay for an additional license or travel to fish in California, and vice versa (Trophy Waters Fly Fishing Shop, pers. comm., 2002). However, some anglers travel to the region to fish, especially from the San Francisco Bay and Portland areas. Some pay for fishing guides or charter services to enhance their outdoor experience.

E7.1.3.2 Existing Recreation Demand in the Proposed Project Area

This section summarizes recreation demand specific to the proposed Project area. This includes a discussion of what areas visitors are using most while in the proposed Project area, and existing recreation use levels. This discussion is followed by an analysis of proposed Project area demand for whitewater boating and fishing and concludes with a discussion of demand from information contained in the Recreation Flow Analysis (Section 2.0 of the Recreation Resources FTR).

Existing Use by Activity in the Proposed Project Area

A visitor recreation survey was conducted in 2001 and 2002 to obtain information regarding the views and perceptions of users from throughout the study area. Visitor surveys were also used to assess existing activity use within the study area.

The following activities were the most commonly cited primary activities in the proposed Project area (all study area results are available in the Recreation Resources FTR):

- Fishing (boat)
- Fishing (bank)
- Waterskiing
- Resting/relaxing
- RV camping

When asked to indicate all activities that they participated in while visiting the proposed Project area, more than half (59 percent) of the visitors surveyed indicated resting/relaxing as one of those activities. The following data summarize the results:

- 59 percent of the visitors to the proposed Project area stated resting/relaxing as an activity that they participated in while in the proposed Project area.
- Resting/relaxing was the most common activity for visitors at the J.C. Boyle reservoir resource area and Iron Gate reservoir resource area.
- Whitewater boating was the most common activity among respondents in the Upper Klamath River/Hell's Corner reach resource area.
- Fishing from a boat was the most common activity among respondents in the Copco reservoir resource area.

Demand for Recreation Sites in the Proposed Project Area

In general, sites within the proposed Project area that have relatively numerous facilities and proximity to paved roads receive higher use. Iron Gate reservoir is the most popular reservoir area to visit within the proposed Project area (half of survey respondents). When given only one choice, survey respondents indicated that Iron Gate reservoir was the recreation area they most often visited. This statement is not surprising because Iron Gate reservoir is the closest reservoir in the proposed Project to I-5 and has more developed day use areas and campsites than any other reservoir. The Upper Klamath River/Hell's Corner reach was also a popular area (quarter of respondents).

Sites with the highest use (measured in RDs) in the proposed Project area are listed below in descending order:

- Pioneer Park (East/West)
- Camp Creek
- Sportsman's Park
- Mirror Cove

Recreation Use Levels in the Proposed Project Area

As part of the Recreation Visitor Surveys (Section 3.0 of the Recreation Resources FTR), annual visitation was estimated for the entire study area, as well as by site. These data are estimated in RDs (an RD is defined as a visit to a recreation area for any reason in a 24-hour period). Summarized results are provided below for the proposed Project area (all study area results are provided in the Recreation Resources FTR).

In total, it is estimated that annual recreational use of the proposed Project area is approximately 96,000 RDs. Overall use of the proposed Project area can be characterized as moderate, though heavier use occurs during the peak season, particularly at Iron Gate reservoir. An overall characterization by season includes:

- Peak season use represents more than 60 percent of annual recreational use of the proposed Project area.
- Early shoulder season use is approximately 12 percent.
- Late shoulder season use is approximately 17 percent.
- Off-season use is approximately 8 percent.

In each resource area, peak season use accounts for a majority of use, with peak season use representing the highest percentage of annual use at the Upper Klamath River/Hell's Corner reach resource area (83 percent—assuming approximately 70 percent of annual use at BLM sites occurs during the peak season); and lowest at the Iron Gate reservoir resource area (65 percent).

The Iron Gate reservoir resource area received the highest number of annual RDs (approximately 52,000). By contrast, the Copco reservoir resource area, which has less convenient access and

only two developed recreation sites, accounted for the lowest number of annual RDs (approximately 9,000).

Demand for Whitewater Boating in the Proposed Project Area

Whitewater boating is an important activity within the proposed Project area and is discussed in further detail in the Recreation Flow Analysis (Section 2.0 of the Recreation Resources FTR). The Upper Klamath River draws visitors from a very broad area for whitewater boating recreation, extending from central California to Washington and beyond.

A majority of the Upper Klamath River within the proposed Project area is not suitable for whitewater recreation because it has been inundated. However, there are three reaches containing just over 30 miles of whitewater within the proposed Project area; and a sixth reach containing 122 miles downstream of the proposed Project that also provides whitewater boating opportunities. The most popular whitewater boating is found in Hell's Corner reach between the J.C. Boyle powerhouse and Copco reservoir (portions of which are within the proposed Project area).

An 8-year average for whitewater boating use on the Upper Klamath River/Hell's Corner reach is 5,250 RDs. The 8-year high was 6,395 RDs in 1995. Use levels since 1995 have dropped. A large drop in use was noted in 2001 as a result of flows affected by drought conditions and emergency responses to the California energy crisis (Weidenbach, pers. comm., 2002).

Demand for Fishing in the Proposed Project Area

There are several fishable reaches of the river within the proposed Project area. Recreation Visitor Survey results indicate that, overall, a third (33 percent) of visitors to the proposed Project area participate in fishing (reservoir and river).

Bank anglers in the proposed Project area tend to remain fairly close to home. Typically, the southern river reaches near Copco reservoir and Iron Gate reservoir in California are not as popular with anglers from Klamath Falls and other Oregon communities, and vice versa. The reason for this is likely the travel time required to get to these reaches in the upper or lower proposed Project areas, the cost of either a second California or Oregon out-of-state fishing license, and acceptable fishing opportunities close to home at both ends of the proposed Project.

In general, fishing for trout on river reaches within the proposed Project area is considered good (Miranda, Ramirez, and Trophy Waters Fly Fishing Shop, pers. comm., 2002).

E7.1.3.3 Projected Future Recreation Demand in the Proposed Project Area

This section presents a summary of the projected recreation demand and use within the proposed Project area. Projections are made on the basis of published regional reports and population projections, and on site conditions documented in relicensing study results. Projected use is addressed in detail and complete study area results are presented as a component of the Recreation Visitor Surveys (Section 3.0 of the Recreation Resources FTR).

Trends in Population Growth

The majority (about 58 percent) of visitors surveyed in the proposed Project area are from Oregon. An additional 39 percent of visitors are from California. Three counties (Klamath and Jackson, OR, and Siskiyou, CA) in the proposed Project vicinity account for approximately 60 percent of all visitors to the proposed Project area, indicating that more than half of the recreational use of the proposed Project area is by local county residents. Approximately 26 percent of visitors are from Klamath County, OR, the most visitors from a single county. Jackson County (about 18 percent), OR, and Siskiyou County (about 17 percent), CA, account for the second and third most visitors from a single county. The counties of origin of the remaining visitors that were surveyed are distributed over several other counties, primarily in Oregon and California.

Both California and Oregon are projected to experience significant population growth over the estimated license period, with Oregon projected to experience a population increase of about 52 percent, while a 51 percent increase is expected in California by 2040.

Additionally, rapid growth occurring in many of the counties of visitor origin is projected to continue through 2040. The five counties with the highest existing use by visitors in the proposed Project area (Klamath, Jackson, Siskiyou, Josephine, and Shasta counties) are projected to increase by between 40 percent (Siskiyou County, CA) and 80 percent (Shasta County, CA) by 2040.

Overall, an increase in state and county populations will likely increase the demand for and use of recreation facilities in the proposed Project area. In general, population increases in the counties closest to the proposed Project area tend to increase demand more for day use facilities and related activities. Population increases in counties farther from the proposed Project tend to increase demand more for overnight recreation opportunities plus day use facilities used by these campers. Oregon and California SCORP document projections assumed that these types of population increases would be occurring.

Trends in Recreation Activities

Using regional, statewide, and proposed Project area data, the following recreation activities are projected to increase at an annual rate of greater than 1.2 percent:

- Powerboating/personal watercraft (PWC) use
- Sightseeing
- Wildlife viewing
- RV camping
- Resting/relaxing
- Hiking
- Waterskiing

In addition, not only are these activities currently popular in the proposed Project area, but also they will become increasingly popular at a faster rate than many other activities. It is important to note that a decrease is not projected for any activity currently occurring in the proposed Project area.

Projected Recreation Use in the Proposed Project Area

Future recreation use in the proposed Project area was estimated for the anticipated term of the new license (assumed to be through 2040 for planning purposes). Recreational use of the proposed Project area is projected to reach approximately 138,000 RDs by 2040. This represents approximately a 44 percent increase from existing use levels in the proposed Project area (96,000 RDs). Projected use results for the entire study area are provided in the Recreation Resources FTR.

E7.1.3.4 Latent (Unmet) Demand

Latent demand is often defined as unmet demand. The proposed Project area provides a diverse amount of recreation opportunities from whitewater boating to hiking to swimming. It is important to note that activities which are not available in the proposed Project area may be available in the region; therefore, the demand for these activities may be met regionally. Both Oregon and northern California have extensive public outdoor recreation resources. This is reflected by the high number of national forests, BLM-managed land, wildlife refuges, Monuments, National Parks, and wilderness areas, among other resources.

On the basis of data in the Oregon and California SCORPs, as well as on results from the relicensing studies conducted in the study area, the following five activities likely have some existing latent (unmet) demand in the proposed Project area, varying from area to area:

- Nonmotorized biking – few bike paths, routes, and trails
- Interpretation – few interpretive facilities (other than signboards)
- ADA-accessible activities – few accessible facilities
- Group use – no formal group facilities available

E7.1.4 National Wild and Scenic Rivers, Wilderness Areas, and Trails

Within the region are public lands and waters that are designated or eligible as federal Wild and Scenic Rivers and/or federal Wilderness Areas because of their exceptional values. Designated (and Eligible) Wilderness Areas and Wild and Scenic Rivers are protected from most types of development that could potentially affect their ORVs. Also, one national trail traverses through the region.

E7.1.4.1 Federal Wild and Scenic Rivers

In 1968, Congress passed the NWSRA declaring that certain selected rivers that possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values should be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. Significant portions of the Upper and Lower Klamath River have been designated Wild and Scenic; they are described below.

Upper Klamath River/Hell's Corner Reach

An 11-mile segment of this reach from below the J.C. Boyle powerhouse to the California/Oregon border was designated an OSSW in 1988 and then was designated a W&SR in 1994.

Designation assigned federal management responsibilities to BLM, Klamath Falls Resource Area, which manages considerable federal land in the corridor. The W&SR is also co-managed with the State of Oregon because of its OSSW designation. BLM and OPRD have recently developed a Draft Upper Klamath River Management Plan (BLM, 2003). Downstream of the Oregon/California state line, the river reach is considered eligible for W&SR designation, but it has not been designated to date.

The river was designated for its “outstandingly remarkable” recreation, fish, wildlife, historic, prehistoric, scenic, and traditional Native American values. Relevant resources for flow and recreation focus on fishing, whitewater boating, and the aesthetics of the river, as briefly summarized below.

The fishery on the Hell’s Corner Reach is considered excellent; the Wild and Scenic River Report describes it as “one of the better fly fishing rivers in Oregon” (BLM, 1990). The rapids on the reach can be quite steep, with basaltic rocks that are notoriously angular and are generally resistant to erosion. Resultant rapids can create chaotic hydraulics and unusual rock placements in the drops. According to the Wild and Scenic River Study (BLM, 1990), there are 25 Class II, 16 Class III, 3 Class IV, and 2 Class V rapids on the river.

The reach’s landscape features limited development associated with the hydroelectric project and some ranching activity. Below the vicinity of the J.C. Boyle powerhouse, the only signs of development are gravel roads, ranching buildings or fences (some active; others historical), and a few remnant bridge pilings or low-head diversion weirs on the lower river. There are also several recreation facilities at boater and angler access sites on the river (e.g., toilets, informal parking and camping areas, fire rings,).

Lower Klamath River

The second largest river in California, the Klamath River begins in Oregon and then flows through northern California and the Klamath National Forest, Six Rivers National Forest, and Redwood National Park, as it drains more than 4,000 square miles on its way to the Pacific Ocean. In 1981, Congress designated 286 miles of the Lower Klamath River (including portions of the Salmon River, Scott River, and Wooley Creek) from 3,600 feet downstream of Iron Gate dam to its river mouth as a federal W&SR. This designation classifies 12 miles as a “wild” resource, 24 miles as a “scenic” resource, and 250 miles as a “recreational” resource. The only identified outstandingly remarkable value at the time of designation was anadromous fisheries (steelhead and salmon). These river segments are all downstream of the Project and are managed by the Klamath and Six Rivers National Forests and the National Park Service.

E7.1.4.2 Federal Wilderness Areas

Public open space lands designated by Congress as Wilderness Areas are granted protection from most types of motorized use and development. Wilderness Areas within the Klamath National Forest surround portions of the Project area, but they do not abut the Project area. The Klamath National Forest encompasses more than 1.7 million acres in Siskiyou County, California, and Jackson County, Oregon. This Forest is located downstream of Hell’s Corner reach and extends westward to the crest of the Pacific Coast Range in northwestern California. The Klamath National Forest contains five Wilderness Areas (Marble Mountain, Russian, Trinity Alps, Red

Buttes, and Siskiyou). These Wilderness Areas contain many lakes. Marble Mountain Wilderness Area, for example, contains 89 lakes, most of which are less than 10 acres in size. Ukonom (67 acres), Cliff (52 acres), Hancock (44 acres), and Campbell (33 acres) lakes within the Marble Mountain Wilderness Area are larger than 10 acres. Lakes in Wilderness Areas are used primarily for hiking, camping, fishing, wildlife viewing, and nature photography. All lakes in Wilderness Areas and most lakes in the Klamath National Forest are for nonmotorized use only.

E7.1.4.3 Federally Designated Trails

Congress established the National Trails System to establish trails that provide for maximum outdoor recreation potential and for the conservation and enjoyment of the nationally significant scenic, historic, natural, or cultural qualities of the areas through which such trails may pass (NPS, 2003). The Pacific Crest National Scenic Trail (PCT) spans 2,650 miles from Mexico to Canada through California, Oregon, and Washington and is open to horse and foot traffic. The PCT passes within 15 miles of the Upper Klamath River, but it remains outside the proposed Project area.

E7.1.5 Factors Affecting Recreation

Recreation resources within the proposed Project area are potentially affected by the following activities or influences (excluding PacifiCorp's Project and its operations):

- Upper Klamath River flows controlled by the U.S. Bureau of Reclamation (USBR).
- Upper Klamath River water quality, including agricultural runoff entering the river system above the Project.
- Management decisions, policies, and prescriptions that may be adopted in BLM's Draft Upper Klamath River Management Plan (BLM, 2003) for Hell's Corner reach from BLM's Topsy Campground to Fishing Access Site 1.
- BLM management decisions regarding recreation facilities and use areas that are owned and/or maintained by BLM, such as Topsy Campground and others.
- Topography that limits road access from one end of the proposed Project to the other, including a steep river canyon from J.C. Boyle reservoir to Copco reservoir. This results in limited, rugged road access in many areas.
- Climate and weather conditions that limit recreational use primarily to the peak summer months, because of snow and rainfall conditions and temperature extremes (hot and cold). Drought conditions also limit available water and reduce river flows.
- Other water-based recreational opportunities in the region, including other reservoirs, lakes, and rivers, that also provide similar recreation experiences compared with the proposed Project and alternative destinations for visitors.

- The national and local economy affects recreational use. When the economy is robust, visitors tend to have more disposable income and to recreate more. At the current time, however, an economic downturn exists, but it is improving.
- Available time to recreate affects visitor choices regarding where to go, how far to travel, how long to stay, etc. With busy schedules, many visitors appear to be more constrained compared with decades ago. Shorter, quicker trips that are closer to home seem to be more the norm.
- Visitors tend to prefer more primitive recreational settings than they actually use. This appears to be a function of available time, travel distance, and costs.

E7.2 RECREATION RESOURCES MANAGEMENT FRAMEWORK

This section describes federal and state agencies that have management responsibilities that affect or potentially affect recreation resources in the study area. The first subsection describes pertinent agencies and their proximity to the study area; the second subsection describes relevant agency land and resource management plans.

E7.2.1 Federal and State Agencies and Tribes with Recreation Management Responsibility in the Proposed Project Vicinity

Federal and state agencies are responsible for managing public land within and adjacent to the proposed Project area. Several federal and state agencies have management responsibilities that affect recreation resources within the proposed Project area and are discussed below. No Native American tribes have public recreation management responsibility in the proposed Project area.

E7.2.1.1 Federal Agencies

Federal agencies responsible for managing or providing recreation resources in the vicinity of the proposed Project include:

- U.S. Bureau of Land Management
- National Park Service
- U.S. Forest Service
- U.S. Bureau of Reclamation
- U.S. Fish and Wildlife Service

Recreation management responsibilities for each of these agencies are described briefly below. Federal lands adjacent to or within the Project are managed by BLM through the Redding Field Office in California, the Klamath Falls Resource Area of the Lakeview District in Oregon, and the Medford District in Oregon. There are also federal lands managed by the USFS-Klamath National Forest near the lower end of the Project area and near Copco reservoir, but outside the proposed FERC Project boundary.

U.S. Bureau of Land Management

As an agency of the U.S. Department of the Interior, BLM manages more than 250 million acres of federal land in the United States, with more than 95 percent of these lands in the western

United States. BLM, like USFS, also has a multiple-use management mandate, of which recreation is one component. For management purposes, BLM zones land into Special Recreation Management Areas (RMAs) and Extensive RMAs. In general, Special RMAs emphasize developed recreation opportunities. Extensive RMAs are usually relatively larger tracts of land and emphasize dispersed opportunities.

The proposed Project area includes BLM-managed land in both Oregon and California. In Oregon, BLM land falls under the jurisdiction of the Medford and Lakeview District offices. In California, the Redding Field Office is responsible for the management of BLM land, except where special agreements exist.

The Klamath Falls Resource Area (RA) (216,000 acres) lies within the Lakeview District of BLM; lands adjacent to J.C. Boyle reservoir and along the Upper Klamath River fall under this jurisdiction. Also, the Klamath Falls RA manages the Upper Klamath W&SR reach in cooperation with the state of Oregon Parks and Recreation Department. This W&SR/OSSW reach is below the J.C. Boyle powerhouse to the Oregon/California state line. In addition, the river reach below the Oregon/California state line that is eligible as a W&SR is also managed by the Klamath Falls RA of BLM through a cooperative agreement with the Redding BLM Field Office.

The Redding Field Office of BLM is responsible for the management of BLM lands in California, including the Project area. These lands are typically isolated parcels along the west side of Iron Gate reservoir and near Copco reservoir.

The new Cascade-Siskiyou National Monument is also managed by the Medford District of BLM that covers 52,947 acres in southern Oregon. Some of this BLM-managed land is in the vicinity of the Project, approximately 5 miles from Iron Gate reservoir. The Monument includes Soda Mountain and surrounding lands and resembles a checkerboard of tracts around its outer boundary.

National Park Service

The NPS is an agency within the U.S. Department of the Interior that emphasizes recreation and natural and cultural resource protection. The NPS manages more than 375 units throughout the United States, including historic sites, national battlefields, national monuments, and national parks, among others (Cordell, 1999). The NPS is a major provider of outdoor recreation opportunities in the United States. The NPS shares management responsibilities with the Klamath National Forest for the Lower Klamath W&SR (below Iron Gate dam). The closest national park to the proposed Project area is Crater Lake National Park in Oregon.

U.S. Forest Service

The USFS, a U.S. Department of Agriculture agency, manages more than 191 million acres of forest and grassland throughout the United States. More than 75 percent of the land managed by USFS is in the western United States. Much of this land is open to both developed and dispersed outdoor recreation opportunities. USFS provides recreation opportunities as a component of its multiple-use management mandate. USFS is a major nationwide provider of outdoor recreation opportunities, providing for more than 850 million annual visits (Cordell, 1999).

The Klamath National Forest, headquartered in Yreka, California, is responsible for managing tracts of federal land adjacent to portions at the southern end of the proposed Project, primarily in California in the vicinity of Copco reservoir. There are no developed recreation facilities on these lands. In addition, a large portion of the Lower Klamath W&SR is located within the Klamath National Forest. The Lower Klamath W&SR includes approximately 286 river miles (extending from 3,600 feet downstream of Iron Gate dam to the river mouth), of which the Klamath National Forest manages approximately two-thirds.

Downstream of the Klamath National Forest is Six Rivers National Forest. This Forest includes reaches of the Lower Klamath, Trinity, and Smith rivers, including W&SR reaches.

U.S. Bureau of Reclamation

Part of the U.S. Department of the Interior, USBR manages federal water projects primarily related to irrigation and municipal water use throughout the western United States. As a part of these federal water projects, recreation opportunities and facility management are often provided through a contract with state or local recreation providers. Less than one-fifth of the recreation facilities are managed by USBR. More than 300 designated recreation areas in 17 western states are managed by USBR (Cordell, 1999).

The USBR Klamath Basin Area Office (KBAO) is located in Klamath Falls, Oregon. KBAO manages the USBR Klamath Irrigation Project. This project provides irrigation for more than 200,000 acres in the Klamath Falls area. Upper Klamath Lake is operated by USBR and is a part of the Irrigation Project. The lake is upstream from the hydroelectric development at Link River. Upper Klamath Lake functions as a reservoir controlled by Link River dam and has a surface area of 91,000 acres and 98 miles of shoreline. The recreation facilities here are managed by a variety of public and private entities. USBR is responsible for meeting certain flow releases at Iron Gate dam. As such, USBR greatly controls the water flows used for recreation purposes at the proposed Project.

U.S. Fish and Wildlife Service

As a member agency of the U.S. Department of the Interior, USFWS emphasizes natural resource protection. USFWS is the primary federal agency responsible for the conservation of fish and wildlife in the United States. Nationwide, there are more than 25 million annual recreation visits to USFWS-managed lands. There are USFWS-managed lands in the region (Upper and Lower Klamath and Clear Lake National Wildlife Refuges). However, these lands do not have a significant effect on recreation resources in the proposed Project area.

E7.2.1.2 State Agencies

Oregon and California regularly assess recreation use and demand under the requirements of the Land and Water Conservation Fund Act (LWCFA – Public Law 88-578; 1965 as amended). Each state prepares a plan that serves as a SCORP, which is part of a national program to assist state and local governments with acquisition and development of outdoor recreation areas and facilities.

The following state agencies have management responsibilities that affect or potentially affect the management of recreation resources in the proposed Project area. These state agencies

include OPRD, ODFW, Oregon Water Resources Department (OWRD), Oregon State Marine Board (OSMB), CDPR, and California State Water Resources Control Board (CSWRCB). Their management responsibilities are discussed below, along with plans that affect recreation resources in the proposed Project area.

Oregon Parks and Recreation Department

OPRD is responsible for the management of more than 225 state park lands throughout Oregon. The agency also has a stated goal of promoting outdoor recreation in Oregon. There are no OPRD-managed lands in the proposed Project area. However, OPRD is the lead agency in statewide planning related to outdoor recreation and prepares Oregon's SCORP documents.

OPRD also co-manages the Hell's Corner reach of the Upper Klamath River with BLM. The state of Oregon has designated this river reach as part of the OSSW system to the Oregon/California state line.

Oregon Department of Fish and Wildlife

ODFW is the primary state agency in Oregon responsible for managing fish and wildlife resources. ODFW's overall policy is to manage fish and wildlife to prevent serious depletion of any indigenous species and to provide recreation and aesthetic benefits for present and future generations of Oregon citizens. ODFW manages the Klamath Wildlife Area, which is located in the vicinity of Lake Ewauna/Keno reservoir and includes the Miller Island Boat Launch and various trails. ODFW is also responsible for the distribution of fishing and hunting licenses in Oregon and the overall management of fish and wildlife in the state, including such programs as fish stocking, hatchery and wild fish programs, and bird and game species programs.

Oregon Water Resources Department

OWRD manages all of the groundwater and surface water in Oregon. The state of Oregon protects existing water uses that are beneficial, including recreation. In cooperation with OPRD and the Oregon Division of State Lands, OWRD helps manage the Hell's Corner reach of the Upper Klamath River as an OSSW. Certain activities are regulated in State Scenic Waterway corridors, including cutting of trees; mining; and construction of roads, railroads, utilities, buildings, or other similar types of structures.

Oregon State Marine Board

OSMB provides technical support for boating activities and facilities and Marine Patrol services, and manages on-water boating activities in Oregon through regulations, such as watercraft speed and authorization of motorized use.

California Department of Parks and Recreation

CDPR manages more than 270 park units in California. CDPR includes in its mission a goal of creating high-quality outdoor recreation opportunities. CDPR does not manage land within the proposed Project area. However, the CDPR is involved in statewide planning related to outdoor recreation and prepares the California SCORP, similar to OPRD in Oregon.

California State Water Resources Control Board

CSWRCB is responsible for water allocation and water quality within California. The CSWRCB is divided into nine regions. Each region has policy objectives that are appropriate to each region. The North Coast Regional Water Quality Control Board in Santa Rosa, California, manages the Klamath River area. CSWRCB defines certain waters within California as having “beneficial uses” ranging from municipal water uses to recreational uses.

E7.2.2 Federal and State Plans Affecting Recreation Resources in the Proposed Project Vicinity

The following section summarizes adopted federal and state plans that pertain to the management of recreation resources in the proposed Project area. Plans are discussed for the following agencies:

- U.S. Forest Service
- U.S. Bureau of Land Management
- Oregon Department of Fish and Wildlife
- Oregon Parks and Recreation Department
- California Department of Parks and Recreation
- California State Water Resources Control Board

E7.2.2.1 Federal Agencies

This section discusses adopted plans by federal agencies that affect or potentially affect recreation resources in the proposed Project area. Documents from USFS and BLM are summarized.

U.S. Forest Service

Klamath National Forest Land and Resource Management Plan. Klamath National Forest. Yreka, CA (USFS, 1995; amended 2001). In 1994-95 (amended 2001), the Klamath National Forest prepared a Forest Land and Resource Management Plan (FLRMP) for the Forest (USFS, 1995; amended 2001). The FLRMP guides all natural and cultural resource management activities that occur on this 1.7 million-acre Forest. Recreation management is included as one of the natural resource activities. Klamath National Forest-managed lands include 152 miles of rivers, creeks, and lakes, and extensive timberlands and grasslands. These lands are in proximity to the proposed Project area (within 2 miles), particularly near Copco reservoir. The tracts of federal lands are a patchwork and lie to the south of the river and Project reservoir.

A recreation-related issue in the Klamath FLRMP highlights the importance of maintaining trails that provide access to dispersed sites within the Forest. The Klamath FLRMP states that current use in the forest is moderate, and that developed recreation facilities are not at full capacity. The Klamath FLRMP discusses a broad array of recreational opportunities that are provided on the Forest within different Recreation Opportunity Spectrum (ROS) land classifications. ROS is a tool used by USFS in managing recreation opportunities and settings. USFS often seeks partners and cooperators.

The Klamath National Forest FLRMP also contains W&SR provisions pertinent to the Lower Klamath River downstream of Iron Gate dam. Parts of the Lower Klamath River below Iron Gate dam were designated under the California Wild and Scenic River Systems in 1972 and by the National Wild and Scenic Rivers System in 1981. Additionally, the FLRMP recommends designating several additional tributaries of the Lower Klamath River as W&SR and providing for the preservation of those tributaries.

The Klamath FLRMP provides “Response to Issues” (Chapter 1) and a “Summary of the Analysis of the Management Situation” (Chapter 3). Forest standards and guidelines are also discussed.

General recreation issues identified and documented in the Klamath FLRMP include:

- The demand for high-quality recreational experiences has increased in recent years.
- Many people believe the Forest has the potential to provide for both primitive and developed recreational opportunities.
- Management of other resources has the potential to affect recreation opportunities.
- These issues are national in scope and range from moderate to high in intensity.

The Klamath National Forest is surrounded by other national forests and several state parks that provide similar recreational opportunities located closer to population centers. This has been a factor in keeping recreational use on the Forest relatively low (USFS, 1995; amended 2001). Many areas receive little use, thus providing the user with uncrowded conditions and a wide variety of experiences. Anticipating recreational demand has been difficult and is often influenced by economic factors, recreationists’ preferences, and available recreational settings.

The FLRMP provided projected recreational demand for 11 activities (listed in order of importance). Ten of the activities were pertinent to the forest:

- Walking for pleasure
- Driving for pleasure
- Picnicking
- Stream, lake, or ocean swimming
- Family gatherings
- Wildlife observation and photography
- Other outdoor photography
- Boating
- Bicycle riding
- Day hiking

These demand projections were based on population growth and current recreational use. Overall recreation use is expected to increase to 866,000 recreation visitor days (RVDs) by 2000. [RVDs quantify recreation use in terms of person-hours. One RVD equals 12 person-hours.] By the end of the fifth decade (2040), total projected use will be 20 percent or a total of 1,297,000 RVDs

(USFS, 1995; amended 2001). Over a 50-year period, growth is projected to be steady, but not overwhelming.

Trends identified for recreational use in the Forest over the next decade include:

- A steady increase in traditional activities, including (but not limited to) camping, fishing, whitewater boating, horseback riding, hiking, hunting, nature watching, and photography.
- Greater demand for less physically demanding activities, such as walking, RV camping, and day hiking, as the population ages.
- An increase in the demand for special-purpose sites, including barrier-free facilities, trailhead development, improved river access, staging areas for bicycle trips, and horseback riding.
- Upgrades to, or movement of, many existing campsites to meet existing demand.
- Increasing demand for dispersed opportunities.
- Continuation of low “nonsnow” off-highway vehicle (OHV) use.
- Continued conflict, to some degree, between dredgers and other river users over “recreational” mining.

Within the Klamath National Forest, three major rivers or segments of rivers have been designated as Wild and Scenic: the Klamath, Scott, and Salmon rivers. The original designated ORV for the rivers was fisheries (anadromous fish). In 1986, ORVs for recreation and scenery were added. At present, there are no individual W&SR management plans for these rivers. However, the Klamath National Forest Land and Resource Management Plan (USFS, 1995; amended 2001) provides goals and objectives for managing wild and scenic rivers on the Forest.

Six Rivers National Forest Land and Resource Management Plan, Six Rivers National Forest, Eureka, CA (USFS, 1995). The Six Rivers National Forest (SRNF) management area includes reaches of the Klamath, Trinity, and Smith rivers and adjacent corridors of land classified as “recreational” by the National Wild and Scenic Rivers Act of 1968. The W&SR recreational classification applies to river reaches that are readily accessible by public roads and that have experienced substantial human modification to the scenery. Many reaches of these river corridors appear essentially natural when viewed from the river. Natural character will prevail within riparian reserve management areas that extend outward from each side of the river. Management activities, including timber harvesting, might be evident at some locations, but within the foreground view, these activities will meet partial visual quality objectives (VQOs) and will remain subordinate to the characteristic landscape. Recreational use is expected to increase and could trigger future restrictions to protect the recreational river values in some reaches of the river.

Corridor boundaries and management direction for W&SR recreational reaches of the Smith River were designated in the Smith River National Recreation Area (NRA) Act. Corridor widths and management direction for the south fork of the Trinity River were designated in the Lower South Fork Trinity W&SR Management Plan. Corridor widths for the remaining reaches of the

Klamath and Trinity rivers have been delineated to follow the riparian reserve management area boundaries, as those rivers were designated for their outstanding anadromous fisheries value.

The goals for the SRNF are to:

1. Protect the recreational rivers and their immediate environments for the benefit and enjoyment of present and future generations.
2. Maintain and enhance the ORVs for which the rivers are designated, while providing for public recreational and resource uses that do not adversely affect or degrade those values.
3. Manage recreational use to ensure that the character and quality of recreational use will not cause adverse impacts on the resource values for which the rivers were designated.

The SRNF has established minimum standards and guidelines for nine areas:

1. Fire and fuels management
2. Geology, soils, and watershed management
3. Minerals
4. Pest management
5. Recreation
6. Timber
7. Transportation and facilities management
8. Visual resources
9. Wildlife resources management

Stated objectives for all resources are general, and no specific details have been developed. The following areas and objectives are of particular importance:

- Recreation Resources. Manage for ROS classes of roaded, natural, semiprimitive motorized, and semiprimitive nonmotorized. Campgrounds and picnic areas may be established close to the river.
- Visual Resources. Manage to achieve a VQO of retention within the W&SR river corridor and partial retention in middle-ground areas, up to 4 miles from the W&SR river corridor area.
- Wildlife Resource Management. Where timber harvest occurs, retain vegetation management components.

U.S. Bureau of Land Management

The following BLM-adopted plans apply to recreation resource management in the proposed Project area.

Medford District Record of Decision and Resource Management Plan. Bureau of Land Management. Medford, OR (BLM, 1994). This resource management plan (RMP) provides broad guidelines for BLM-managed land, including the following policies addressed in the RMP:

1. Promote recreational development that protects riparian and late successional reserves.
2. Protect developed recreation sites from wildfire damage.
3. Encourage timber management in developed settings, which reduces hazards and provides space for recreational activities and development.
4. Address special and extensive recreation management area issues, as well as the designation of National Back Country Byways.

Klamath Falls Resource Area Record of Decision and Resource Management Plan and Rangeland Program Summary. Bureau of Land Management. Klamath Falls, OR. (BLM, 1995). This document is a comprehensive management plan for the BLM Klamath Falls RA covering 212,000 acres in Klamath County, Oregon. A significant portion of the proposed Project area is in this RA, including the Hell's Corner reach of the Upper Klamath River. Recreation is discussed as a section of the RMP and provides interim guidelines (until a new river management plan is developed) for management of the W&SR. These guidelines provide for protecting the "free flowing values," of which recreation is a value.

The RMP provides objectives for recreation management. BLM seeks to designate most of the land within the RA as an extensive recreation management area consistent with the BLM's Recreation 2000 Plan. The Klamath River Complex Special RMAs will continue to be managed for semiprimitive motorized recreation opportunities. BLM will seek to provide diverse developed and dispersed recreation opportunities, including motorized and nonmotorized uses. Managing scenic, cultural, and natural resources to provide for visitor enjoyment is also an objective of the RMP. Another objective is to enhance tourism opportunities in the local area, and to cooperate with other private (including PacifiCorp) and public entities in the region.

The RMP designates BLM's Topsy and Klamath River Campgrounds as developed and semi-developed facilities, respectively. The RMP also states that a designation of National Back Country Byway may be sought for Topsy Grade Road.

To help define and guide its management responsibilities, BLM produced the Klamath Falls Resource Area Record of Decision and Resource Management Plan and Rangeland Program Summary (BLM, 1995). The record of decision (ROD) responds to the need for a healthy forest ecosystem with habitat that will contribute toward and support populations of native species, particularly those associated with late successional and old growth forests. The ROD also responds to the need for a sustainable supply of timber, other forest products, recreation, and livestock grazing that will help maintain the stability of local and regional economies (BLM, 1995).

Recreation is one of BLM's responsibilities under the ROD. The stated objectives for this responsibility include:

1. Provide a wide range of developed and dispersed recreation opportunities that contribute to meeting projected recreation demand.
2. Manage scenic, natural, and cultural resources to enhance visitor recreation experience expectations and satisfy public land users.

3. Support local tourism initiatives and community economic strategies by providing recreation projects and programs with short- and long-term benefits.
4. Manage off-road vehicle use to protect natural resources, provide visitor safety, and minimize conflicts among various users.
5. Enhance recreation opportunities provided by existing and proposed watchable wildlife areas and National Back Country Byways.
6. Continue to provide nonmotorized recreation opportunities and create additional opportunities that are consistent with other management objectives.
7. Manage special and extensive recreation management areas in a manner consistent with BLM's Recreation 2000 Implementation Plan and the Oregon-Washington Public Lands Recreation initiative.
8. Continue to provide barrier-free or universally accessible recreation facilities and trails as they are constructed or reconstructed.

BLM has identified general and specific management actions for each objective. Examples of general management actions include: (1) developing a resource area recreation guide and travel map for public distribution, (2) providing additional opportunities to enhance visitors' experiences and increase their knowledge of the use and protection of natural resources, (3) defining and describing BLM's management role, and (4) defining visitor responsibilities to public lands. An additional example of a specific management action is to address special recreation management area issues, such as those associated with the Klamath River Complex Special Recreation Management Area, and prioritize projects in watershed analyses, then prepare project plans as needed (BLM, 1995).

Redding Field Office Resource Management Plan and Record of Decision. Bureau of Land Management. Redding, CA (BLM, 1993). The Redding Field Office includes scattered upland portions of the proposed Project area, on the California side. The RMP states that the W&SR eligible reach of the Upper Klamath River will be managed as a scenic corridor from the high water mark out ¼ mile. As previously stated, the BLM Klamath Falls RA is the lead entity for management of this reach through a cooperative agreement with the Redding Field Office. It also states that the Horseshoe Management Area will be managed to offer semi-primitive nonmotorized recreation opportunities.

Draft Upper Klamath River Management Plan/Environmental Impact Statement and Resource Management Plan Amendments. Klamath Falls Resource Area, Lakeview District. Bureau of Land Management (BLM, 2003). The plan replaces previous plans for the W&SR reach of the Upper Klamath River (Hell's Corner reach) and includes some proposed Project area lands. The Draft River Management Plan outlines various alternatives for the Upper Klamath River, but it is not a decision document. The Final River Management Plan, once adopted, will be based on decisions made regarding the environmental consequences information described under each alternative in the Draft. In total, four alternatives are described in the Draft River Management Plan. These alternatives include "no action," improvement of resources and opportunities, natural resource enhancement/restoration, and expansion of human use opportunities alternatives.

While the Draft River Management Plan describes four alternatives, each of the alternatives is based on four overall goals. The overall goals of the Draft River Management Plan are:

- Maintain and restore river-related scenic and natural resources.
- Provide diverse recreation experiences.
- Promote visitor understanding and enjoyment.
- Protect and enhance cultural resources.

It is estimated that the Final River Management Plan, once adopted, will be fully implemented in 10 years, with additional maintenance provided thereafter. The estimated term of the new plan is 20 years. In the interim, the Klamath Falls Resource Area Resource Management Plan (BLM, 1995) provides interim guidelines for the management of this reach of the Upper Klamath River. OPRD is also a co-author of this new plan because the river reach is designated an OSSW.

Cascade-Siskiyou National Monument Draft Resource Management Plan/Environmental Impact Statement. Medford, OR (BLM, 2002). This Draft RMP and environmental impact statement (EIS) provides guidelines for management of the new National Monument. Recreation management within Monument lands is discussed in the Draft RMP. Recreation management guidelines for the Monument do not appear to affect recreation resources within the proposed Project area.

Environmental Assessment for a Proposal to Amend the Redding Resource Management Plan Regarding the Horseshoe Ranch Wildlife Area. Bureau of Land Management (BLM, 2001). This environmental assessment is an amendment of the Redding Field Office RMP to provide a site-specific management plan appropriate to the multiple-agency management that is present at this site. This amendment discusses the affected environment within the Horseshoe Ranch Wildlife Area and states that the goal is to manage the region for semi-primitive, nonmotorized recreation opportunities. One identified issue is regarding the management of OHVs. CDFG has pockets of state-managed land within this area and does not allow OHV use on CDFG-managed lands.

E7.2.2.2 State Agencies

This section discusses adopted state agency plans that affect or potentially affect recreation resources in the proposed Project area. Documents are summarized from the following state agencies: ODFW, OPRD, CDPR, and CSWRCB.

Oregon Department of Fish and Wildlife

Klamath Wildlife Area Long Range Management Plan. Portland, OR (ODFW, 1993). The Klamath Wildlife Area includes four units of land in the vicinity of the proposed Project area. All of the land in the wildlife area is managed for the benefit of waterfowl and also provides hunting opportunities to area residents and visitors. The management plan cites five management goals, two of which are recreation related. The first goal is to provide opportunities for recreational harvest of waterfowl, upland game, and furbearers. The second goal is to provide opportunities for nonconsumptive recreation opportunities, including wildlife viewing and public awareness.

Oregon Parks and Recreation Department

Oregon Statewide Comprehensive Outdoor Recreation Plan. Salem, OR (OPRD, 2003). The Oregon SCORP is made up of several documents and bulletins and is the primary statewide outdoor recreation planning tool for Oregon. The document addresses existing statewide supply and demand for outdoor recreation resources. It also addresses projected demand for these resources until 2008. The report divides the state into 11 regions; the proposed Project area (Oregon portion) lies in Region 8. The Oregon SCORP states the following needs for this region: (1) additional youth recreation facilities; (2) multiple-use trails connecting small communities; and (3) the need to secure additional access to public land and waters.

When OPRD recently revised its earlier 1994-1999 SCORP (Oregon Outdoor Recreation Plan 1994-1999), recreation participation was examined at three levels; Level 3 is the most applicable to the Klamath Project. Pertinent findings include:

1. Recreation programs at the community level. This level included traditional outdoor programs such as park concerts, wildlife and nature education, and indoor recreation programming such as arts and crafts.
2. Community-based recreational activities. This level included activities typically provided at the community level, such as park activities, and sports and games. OPRD also examined perceived barriers to participating in these activities and how far individuals lived from the facilities providing the activities.
3. Dispersed recreational activities. This level measured participation in activities that occur beyond the local community such as fishing, boating, camping and skiing. For each activity evaluated, the quality of the physical setting used and preferred was identified. As with local activities, perceived major barriers were also identified.

Dispersed recreation activities evaluated included (but were not limited to) sightseeing, swimming (nonpool), motorized boat fishing, bank/dock fishing, tent and RV camping, hiking, nonmotorized boating, and hunting/shooting. OPRD determined there was greater participation in these activities by individuals under 50 years of age and within households whose income was greater than \$35,000 per year. Principal barriers to participation identified by all respondents included “no time” and “too far from home.” Equipment expense, fees, and crowded facilities also warranted consideration. It was also suggested that many of Oregon’s dispersed recreation resources were experiencing overuse.

OPRD determined that recreational use was more than a demand for a specific activity. A physical setting conducive to the activity and a particular experience were also desired. The results of the evaluation indicated that recreationists more often preferred a natural or primitive setting. This was particularly true for those activities that focused directly on a natural resource, such as hunting, fishing, nonmotorized boating, and hiking. In conclusion, OPRD determined that the most popular dispersed recreation activities were sightseeing and driving for pleasure; swimming or wading at the ocean, lakes, or rivers; boat fishing; tent camping; and nature study and wildlife viewing. These results indicate that greater planning and management emphasis is warranted to protect Oregon’s scenic qualities, along with the resources that provide opportunities for camping, boating, fishing, trail use, and wildlife observation.

California Department of Parks and Recreation

California Outdoor Recreation Plan 1993. California Department of Parks and Recreation. Sacramento, CA (CDPR, 1994). This Plan provides a guide for state and local government outdoor recreation planning. It is not the goal of the document to provide guidance to federal and private recreation providers as the state does not have jurisdiction over these entities. The document addresses major issues facing park and recreation providers, and provides actions to address these issues. Nine major issues are identified in the Plan:

1. Improving resource stewardship
2. Serving a changing population
3. Responding to limited funding
4. Building strong leadership
5. Managing aging facilities
6. Expanding legislative support and minimizing legal setbacks
7. Improving recreation opportunities through planning and research
8. Responding to the demand for trails
9. Halting the loss of wetlands

Issues 1 and 8 are the most applicable to the Project relicensing process. Under “improving resource stewardship,” CDPR determined that the majority of Californians were clearly concerned about the health of the state’s natural and cultural environment, and identified this as an important factor when considering outdoor recreation. The results of CDPR’s evaluation suggested that a healthy environment is a basic requirement for a high-quality experience in all outdoor recreation activities. In spite of the strong public support for protection of the natural and cultural environment, these resources are the ones most at risk because of overuse by the recreationists themselves. Too many people can overburden and depreciate the natural and cultural resource base. To deal with these concerns, CDPR made several recommendations for dealing with this issue. The primary recommendations focused on the concept of stewardship, resource management plans, reduction of overuse, and increased public awareness of the resource.

Issue 8, responding to the demand for trails, was based on CDPR’s survey results that demonstrated increased public participation in activities such as walking, hiking, jogging, bicycling, and horseback riding. In the same survey, an overwhelming number of respondents approved of the idea of developing more nonmotorized trails. While the demand for trails is increasing, conversion of California’s open space to urban and suburban uses continues. As such, open space and trail considerations are closely connected. Ways to address this issue include protecting significant open-space corridors through land use planning, developing multi-use trails, and coordinating between transportation and recreational trail programs (CDPR, 1994).

Public Opinions and Attitudes on Outdoor Recreation in California 1992; and Public Opinions and Attitudes on Outdoor Recreation in California 1997. California Department of Parks and Recreation. Sacramento, CA (CDPR, 1992; 1998). These documents were developed as a part of the California Outdoor Recreation Planning Program. These documents provide information on existing statewide demand for outdoor recreation. This is important because the lower portion of the proposed Project area lies within California. The documents also provide information

regarding user satisfaction, as well as latent (unmet) demand. The documents indicate that there is moderate to high existing demand for several proposed Project area recreational activities.

In 1998, CDPR published the results of a survey conducted the previous year to collect data for updating the 1993 Plan. The survey focused on two topics: (1) public attitudes, opinions, and values with respect to outdoor recreation in California, and (2) demand for and current participation in 43 selected types of outdoor recreation activities. CDPR found that Californians in general can be characterized as individuals who think outdoor recreation areas and facilities are very important to their quality of life and are satisfied with available public outdoor recreational areas and facilities. CDPR also compared the data from this survey with previous surveys and found little change. Several activities, such as walking, camping in developed sites, kayaking, picnicking, and fishing, exhibited growth but then declined to levels documented in 1987. No new objectives or recommendations were proposed at this time as a result of this survey (CDPR, 1998).

California State Water Resources Control Board

Water Quality Control Plan for the North Coast Region. State Water Resources Control Board. Santa Rosa, CA. (CSWRCB, 1993; amended (1994, 1995, 1996, 2001)). This Plan provides guidelines for the management of water resources in the North Coast Region (the California portions of the proposed Project area). The California Water Quality Control Plan for the North Coast Region designates Iron Gate and Copco reservoirs as having existing beneficial uses that are to be protected. The recreation-related beneficial uses include commercial or sport fishing, water contact recreation (e.g., swimming, waterskiing, fishing, whitewater boating), and noncontact water recreation (e.g., picnicking, sunbathing, hiking, hunting, sightseeing).

E7.3 CONSULTATION WITH APPLICABLE AGENCIES, TRIBES, AND THE PUBLIC ON RECREATION RESOURCES

PacifiCorp began its relicensing consultation effort for the Klamath Hydroelectric Project using the basic approach established by the Traditional Licensing Process. The Traditional Licensing Process was initiated in December 2000 by the distribution of the First Stage Consultation Document, in which PacifiCorp provided an overview of the Project and resources in the Project area (as well as the study area), and proposed certain studies needed to support development of the license application. The formal comments of stakeholders on this document produced more than 175 letters and conveyed broad-ranging concerns about the adequacy of the study plans, PacifiCorp's decision not to study dam decommissioning, and the level of collaboration in developing study plans.

In response to these comments, PacifiCorp revised its proposed study plans and redistributed them in the form of a draft Second Stage Consultation Document. Stakeholder response was again vigorous and reiterated the concerns expressed in the first round of comments. In response to such strong stakeholder interest and concerns, this initial process has evolved into a robust collaborative effort. More than 40 stakeholders have been engaged in a long-term collaborative effort to develop and approve study plans, review and interpret results, and potentially agree on PM&E measures. Details of the consultation effort to date are provided in the Consultation Record (Appendix E-1A).

Beginning in February 2002, stakeholders developed a Process Protocol to guide the long-term collaborative effort and a collaborative structure composed of a Plenary Group (all interested stakeholders) and seven technical working groups that convene each month for facilitated meetings. The Plenary Group serves as the managing body of the Collaborative Process and is composed of all participants in the Collaborative Process. The assignment and approval of all study plans to support relicensing and all related final consensus decisions are the responsibility of the Plenary Group.

One of the technical working groups is the Recreation Work Group. The focus of the Recreation Work Group meetings has been to develop and approve final study plans related to recreation resources as presented in this chapter of Exhibit E. Studies include recreation flow analysis, recreation visitor surveys, regional recreation analysis, recreation needs analysis, draft Recreation Resource Management Plan, land use and its consistency with agency comprehensive plans, an inventory of hydroelectric Project roads, and visual and aesthetic analysis. The Recreation Work Group has met 14 times between December 2001 and December 2003.

A total of five study plans related to recreation resources have been developed by the Recreation Work Group. All five of these study plans have been approved by the Plenary Group. The study plans (and their approval dates) are as follows:

- Study Plan 3.1, Recreation Flow Analysis (Approval: August 2002)
- Study Plan 3.2, Recreation Visitor Surveys (Approval: August 2002)
- Study Plan 3.3, Regional Recreation Analysis (Approval: August 2002)
- Study Plan 3.4, Recreation Needs Analysis (Approval: August 2002)
- Study Plan 3.5, Draft Recreation Resource Management Plan (Approval: August 2002)

For additional information about consultation with applicable agencies, tribes, and the public regarding recreation, refer to Appendix E-1A.

E7.3.1 Recreation Opportunity Measures

The Recreation Work Group reviewed and commented on the Recreation Needs Analysis (Section 5.0 of the Recreation Resources FTR), as well as on the Draft Upper Klamath River Management Plan (BLM, 2003) that was out for public comment. On the basis of reviews of these two documents, as well as other stakeholder comments, PacifiCorp developed a draft set of proposed PM&E measures for recreation resources, which were presented to the Recreation Work Group in the fall and winter of 2003. These proposed PM&E measures included the creation, preservation, or enhancement of recreation opportunities at the proposed Project. Following consultation, a comprehensive list of all proposed PM&E measures was integrated into a draft Recreation Resource Management Plan (RRMP) (Appendix E-7A). Examples of proposed PM&E measures include enhanced or expanded camping and day use facilities, boat launches, trails, and whitewater boating and fishing-related improvements. New programs were also proposed related to resource protection, interpretation and education, visitor management controls, law enforcement, resource integration and coordination, operations and maintenance, and RRMP plan updates and revisions over the new license term.

E7.3.2 Recreation and Public Safety Measures

During the fall and winter of 2003, the Recreation Work Group reviewed a set of proposed PM&E measures and further discussed measures to help ensure the safety of the public in its use of proposed Project lands and waters. No significant concerns were expressed regarding recreation use and how the existing Project is operated, with the exception of the need to limit public use below Copco No. 2 dam because of the potential for spill events or sudden flow releases.

The main focus of attention regarding public safety related to the dual need of protecting sensitive resources, particularly cultural, and increased visitor management control/law enforcement. This was a particular need identified within the proposed Project (e.g., J.C. Boyle dispersed recreation sites), as well as at non-Project-related PacifiCorp lands in the vicinity of the proposed Project (e.g., Frain Ranch). A proposal for enhanced visitor management control/law enforcement is included in the draft RRMP (Appendix E-7A). A summary of Recreation Work Group comments is discussed in Appendix E-1A.

E7.4 RECREATION RESOURCE STUDIES

This section describes the recreation resource studies conducted by PacifiCorp in the recreation study area (Recreation Resources FTR). Only those results that are specific to the proposed Project area are presented below (all study area results are provided in the Recreation Resources FTR).

E7.4.1 Previously Conducted Studies

No recreation resource studies were previously conducted by PacifiCorp in the recreation study area.

E7.4.2 Completed Studies as Part of Relicensing

As part of the relicensing process, PacifiCorp conducted several recreation-related analyses in the recreation study area and vicinity. These studies included:

- Recreation Flow Analysis
- Recreation Visitor Surveys
- Regional Recreation Analysis
- Recreation Needs Analysis
- Draft Recreation Resource Management Plan (draft RRMP)

Each of these recreation-related analyses is presented in the Recreation Resources FTR. Summarized recreation study results presented below are limited to the proposed Project, where applicable. These studies will be appended to the draft RRMP as baseline information when the draft RRMP is finalized following license issuance and acceptance. The draft RRMP was developed between the draft and final license applications in consultation with the Recreation Work Group and other agencies, tribes, and stakeholders.

E7.4.2.1 Recreation Flow Analysis

The Recreation Flow Analysis identifies river-based recreation opportunities on the upper and middle reaches in the vicinity of the proposed Project, develops relationships between flows and the quality of those opportunities, and assesses the possible effects of existing and potential Project operations.

Table E7.1-1 displays flow requirements (acceptable and optimal flow ranges) for each river reach in the proposed Project, as well as the river reach below Iron Gate dam. In Table E7.1-1, flows based on less precise data are shown in italics, and some ranges are not specified (denoted by --) when uncertainty is too high. Recreation quality generally improves incrementally with more or less flow, so thresholds are oversimplifications of the precise point when a particular recreation experience becomes acceptable or optimal.

Table E7.1-1. Summary of acceptable and optimal flow ranges for Klamath River recreation opportunities.

Reach/Opportunity	Acceptable Range		Optimal Range	
J.C. Boyle Bypass Reach				
Fishing	200	1,000	300	400
Technical kayaking	800	1,300	900	1,200
Technical rafting	1,000	1,500	1,200	1,500
Standard whitewater boating	1,300	1,800	1,300	1,700
Big-water rafting	1,600	2,300	1,800	2,300
Big-water kayaking	1,700	3,000	2,000	3,000
General recreation	200	3,000	--	--
Hell's Corner Reach				
Fishing	200	1,500	300	500
Technical kayaking	400	1,500	900	1,400
Technical rafting	700	1,400	900	1,400
Low-flow commercial rafting	1,000	1,300	1,000	1,300
Standard whitewater boating	1,400	3,000	1,800	2,800
Standard commercial rafting	1,300	2,000	1,500	2,000
Big-water boating	1,700	3,700	2,300	3,100
General recreation	200	3,500	--	--
Copco No. 2 Bypass Reach				
General recreation	10	1,500	50	300
Fishing	50	600	50	300
Technical kayaking	200	600	300	600
Standard whitewater boating	600	1,500	800	1,200
Big-water whitewater boating	1,200	--	1,500	--
Middle Klamath Reach (below Iron Gate dam)				
Fishing	800	2,500	1,000	1,500
Technical whitewater boating	600	1,500	800	1,500
Standard whitewater boating	800	4,000	1,500	2,000
Big-water boating	2,500	30,000	5,000	20,000
General recreation	500	5,000	--	--

Source: CRC, 2003.

J.C. Boyle Reach

Current Project operations have generally enhanced fishing in the reach by providing a stable base flow (about 325 cfs) through most of the year. While fish habitat may be improved by

higher base flows (the focus of fishery studies), anglers prefer lower levels for wading-based fishing. Current operations have either enhanced or had no effect on general recreation. In contrast, upstream storage and diversions to the J.C. Boyle powerhouse have substantially changed the frequency and quality of boating opportunities in the bypass reach. Base flows are too low for whitewater boating, and spill flows are unpredictable, usually too high, and occur for a few days in the winter and early spring (if at all).

If Project operations were modified to provide additional whitewater boating opportunities, flows of about 1,300 to 1,500 cfs would probably attract the most use (providing high-quality standard rafting and kayaking opportunities), particularly if they occurred in summer or early fall when other regional whitewater boating opportunities are in short supply. If these were scheduled on weekends, many boaters would probably link trips on the J.C. Boyle bypass reach with those on the Hell's Corner reach (offering an overnight opportunity). Because of the relatively short length of the reach, providing flows for a 2- to 4-hour window from midmorning to early afternoon would probably be sufficient. These whitewater releases would probably eliminate fishing during those times, along with forgone power generation.

Hell's Corner Reach

Because of UKL storage, the Hell's Corner reach has smaller runoff flows and higher flows in summer and fall than without the PacifiCorp and USBR Projects. More important, peaking operations in the Hell's Corner reach vary flows each day through much of the year, generally increasing from base flows (350 cfs) to about 1,500 to 1,700 cfs (one turbine) during low and moderate flow periods, and increasing to about 2,800 cfs (two turbines) if there is sufficient outflow from UKL.

Daily peaking has small effects on general recreation, but it determines the frequency and quality of boating and fishing opportunities. In general, peaking flows of one turbine or more provide high-quality whitewater boating, while those same flows preclude quality fishing (and may have long-term effects on the fishery or short-term effects on fishing after a peak event). Fishing is enhanced by a peaking regime because current anglers prefer the low base flows, even as they dislike flows greater than about 700 to 1,000 cfs.

Predictable daily whitewater boating flows have fostered a substantial commercial whitewater boating industry on the river. If the Project did not exist, the Upper Klamath River would probably provide only technical or low-flow boating opportunities after midsummer. Changes in the timing of peaking flows in 2000 and 2001 (to generally occur later in the day) also had impacts on that industry, probably causing use decreases and affecting the quality and timing of trips (outfitters took shorter trips and/or returned clients to town later). Timing effects on fishing were the converse of those for whitewater boating. As peaking flows shifted later in the day, anglers had more fishing time in the morning, but less during the evening.

Fish habitat may improve with higher base flows or decreased variation from peaking (to be determined by fisheries studies), and anglers would probably adapt tackle and techniques to somewhat higher levels. However, most anglers prefer to fish the "artificially" low flows that exist during off-peak times. Similarly, whitewater boaters can run the Hell's Corner reach at lower flows than one Project turbine, but these provide a different boating opportunity and their quality declines substantially as flows drop below about 1,300 to 1,500 cfs. Commercial

whitewater rafting operations are likely to change substantially if peak flows are lower than this threshold (switching to smaller boats and fewer people per boat).

Under current flow regimes, boating and fishing are provided at near-optimal levels on most days in the summer and fall—just at different times of the day. Altered flow regimes with different timing or less variation because of Project peaking (including no variation or run-of-the-river regimes) would alter the frequency and quality of these opportunities. Future river flow management is tied to understanding the impacts and trade-offs of these choices, including power production.

Copco No. 2 Reach

Recreation in this segment is substantially affected by current Project operations, which generally provide 5 to 10 cfs throughout the year except during rare spill events. In general, base flows provide general recreation opportunities only; boating and fishing cannot occur at these levels.

If higher base flows are contemplated to establish a fishery or achieve other biological objectives, they are likely to improve recreation opportunities. Base flows up to 300 cfs would improve hiking, swimming, general recreation, and wading-based fishing (if a fishery existed). Higher base flows are not likely to provide standard boating opportunities unless they exceed 600 cfs, but quality technical kayaking would be available above 300 cfs.

Occasional higher releases might also be considered for whitewater boating. Demand for this short but challenging run is unlikely to be high, but local initial curiosity about the reach's scenery and rapids would sustain some use. Releases for a few hours on a day or two per year are probably sufficient to meet this demand. If these releases are considered, access to the currently available put-in will need management attention.

Regardless of flow regime changes, the Copco No. 2 reach has recreation potential from an aesthetic perspective. It has several interesting geologic formations and scenic vistas that would likely be appreciated by hikers, picnickers, anglers, or boaters if access were made safe and encouraged.

Middle Klamath Reach (Below Iron Gate Dam)

Recreation-related Project effects on the Middle Klamath (below Iron Gate dam) are difficult to quantify because they are confounded by base flow requirements currently released by USBR, according to ESA Biological Opinions (NMFS, 2002). Irrigation withdrawals, agricultural development, and increased evaporation from Project reservoirs all contribute to reduced total flows released from Iron Gate dam. Similarly, irrigation storage, withdrawals, and return flows have modified the timing of flows through the season (minimizing peak flows during winter storage at UKL and releasing steadier but higher base flows in summer and fall from UKL primarily). Without assigning responsibility to these individual components and requirements, however, it is possible to describe overall effects on recreation in this reach.

During wet years or most high-flow periods in average years, current flow regimes have generally not affected whitewater and fishing opportunities. When UKL is spilling, fishing and

whitewater boating opportunities occur about as often as they would have occurred without the Project.

In contrast, minimum flows, as directed by USBR to meet ESA requirements at Iron Gate dam, have substantial effects on fishing and boating in dry years or in the drier periods during average years (including the main summer season). Minimum flows below 1,500 cfs begin to affect standard boating opportunities; below 1,000 cfs, they also affect boat-based fishing. When minimum flows are below 800 cfs, both fishing and boating opportunities are substantially affected. In years where base flows are in the 600- to 700-cfs range, even technical trips are suboptimal, and below 500 cfs there may be reaches that become unraftable without extensive stops and drags.

Current flow regimes (even in very dry years) probably provide flows within the optimal range for general recreation and swimming, with more than adequate aesthetics. During periods of very low base flows (below 500 cfs), suboptimal swimming or water quality issues may occur in specific areas, but there are many miles of river where the swimming is optimal and water quality issues are not perceived by users as being problematic.

E7.4.2.2 Recreation Visitor Surveys

The purpose of this study was to analyze current and anticipated future recreation visitation and visitor perceptions in the study area. This study focused on visitors at existing developed recreation facilities and undeveloped dispersed sites in or adjacent to the existing FERC Project boundary. It also focused on understanding use levels and visitor characteristics and preferences in the study area. This study examined existing and future recreational use in the existing and proposed Project area through the use of a visitor survey questionnaire, field observations, and visitor counts. The study has three components: (1) visitor survey questionnaire, (2) estimate of existing recreation use, and (3) estimate of projected recreation use in the existing and proposed Project area. This section provides a summary of the results from these investigations specific to the proposed Project area. Complete study area survey results are presented in Recreation Visitor Surveys (Section 3.0 of the Recreation Resources FTR).

Visitor Survey Questionnaire Results Summary

Visitor surveys were distributed to visitors at study area recreation sites during the 2001 and 2002 field seasons. The visitor surveys were used to assess visitor demographics and characteristics, areas of use, activity participation, perceptions and reactions to crowding, and preferences for future recreation and development, among other factors. Brief summary results from the visitor survey are provided below specific to the proposed Project area.

General Visitor Demographics and Characteristics.

- A majority of visitor survey respondents were men (58 percent).
- The mean age of survey respondents was 43.
- Most survey respondents were either from Oregon (57.6 percent) or California (38.9 percent).

- Visitors from proposed Project vicinity counties (Klamath and Jackson, OR, and Siskiyou, CA) accounted for approximately 60 percent of all survey respondents.
- The average group size in the proposed Project area is approximately 7.3 visitors, while the median group size is 5 visitors.
- The average number of vehicles per group in the proposed Project area was 2.8.
- More than half of the survey respondents (65 percent) reported staying overnight in the proposed Project area.
- On average, overnight visitors spent 3.7 nights in the proposed Project area.
- Approximately 21 percent of survey respondents did not stay overnight in the proposed Project area, while an additional 14 percent reported living near the proposed Project area.
- On average, day users spent approximately 5.2 hours per visit in the proposed Project area.

Areas of Recreational Use.

- Approximately 50 percent of survey respondents indicated that Iron Gate reservoir was the most visited regional recreation area in the vicinity of the proposed Project area.
- Other popular regional recreation areas include Shasta Lake, Lake of the Woods, Rogue River National Forest, Klamath National Forest, and Crater Lake National Park.
- Slightly more than half of the survey respondents (52 percent) indicated that Iron Gate reservoir was their primary destination in the proposed Project area.
- Most survey respondents indicated that the resource area in which they were contacted was also their primary destination in the proposed Project area.

Study Area Recreation Activities.

- The activity with the highest overall participation in the proposed Project area was resting/relaxing (59 percent of survey respondents).
- The primary activities (top 3) of survey respondents in the J.C. Boyle reservoir resource area are resting/relaxing, picnicking, and swimming.
- The primary activities (top 3) of survey respondents in the Upper Klamath River/Hell's Corner reach resource area are whitewater boating, tent camping, and resting/relaxing.
- The primary activities (top 3) of survey respondents in the Copco reservoir resource area are boat fishing, RV camping, and resting/relaxing.
- The primary activities (top 3) of survey respondents in the Iron Gate reservoir resource area are boat fishing, resting/relaxing, and hiking.

Visitor Perceptions and Reactions to Crowding.

- The mean perceived crowding score of survey respondents was 3.2 (on a 9-point scale from 1—not crowded to 9—extremely crowded) (Shelby and Heberlein, 1986).

- A mean perceived crowding score of 3.2 is a low to moderate score and indicates that visitors to the proposed Project area generally do not feel overly crowded while participating in recreation activities.
- Iron Gate reservoir resource area had the highest mean perceived crowding score (3.7) in the proposed Project area, while the Upper Klamath River/Hell's Corner reach resource area had the lowest mean score (2.2).
- The majority of survey respondents (62 percent) felt that the number of people that they encountered was about what they expected.
- Many survey respondents (43 percent) felt that the number of people did not affect their enjoyment of their visit to the proposed Project area.
- Approximately 39 percent of survey respondents had changed their visits to the proposed Project area to help avoid crowding.
- The most commonly reported coping strategy to deal with crowding was avoiding holiday weekends.

Visitor Preferences for Future Recreation Development and Management.

- The majority of survey respondents (84 percent) felt that the recreation facilities provided in the proposed Project area were adequate to meet their needs.
- Those respondents (16 percent) who did not feel that existing recreation facilities were adequate to meet their needs indicated that facility needs in the proposed Project area included more restrooms/showers, more campsites, and improved boat ramps/docks.
- Approximately 91 percent of survey respondents felt that the existing facilities in the proposed Project area were adequately maintained to meet their needs.
- Those few respondents (9 percent) who did not feel that existing facilities were adequately maintained indicated that maintenance concerns in the proposed Project area included unclean restrooms and litter accumulation.
- The three potential management options that received the most support from survey respondents included provide additional shoreline access opportunities, provide more developed campgrounds, and provide more day use facilities in the proposed Project area.
- The three potential management options that received the most opposition from survey respondents included collect fees at day use sites to be used to improve quality, collect fees at campgrounds to improve quality, and implement a partial campground reservation system in the proposed Project area.

Estimate of Existing Recreational Use in the Proposed Project Area

Existing recreational use in the study area was estimated on the basis of field observation data, in conjunction with results from the visitor survey. Summary results of existing recreation use in

the proposed Project area are provided below. Complete study area results are presented in the Recreation Visitor Surveys (Section 3.0 of the Recreation Resources FTR).

- In total, the average number of peak season people-at-one-time (PAOT) in the proposed Project area was approximately 250 and the maximum was 650.
- The resource area with the most observed use (PAOT) at developed recreation sites in the study area was Iron Gate reservoir (141), while the Upper Klamath River/Hell's Corner reach had the least (21).
- In total, the average number of peak season vehicles-at-one-time (VAOT) in the proposed Project area was approximately 165.
- The resource area with the highest number of observed vehicles was Iron Gate reservoir.
- In total, it is estimated that annual recreational use of the proposed Project area is approximately 96,000 RDs.
- Approximately 64 percent of annual recreational use in the proposed Project area is attributable to the peak season, 17 percent to the late shoulder season, 11 percent to the early shoulder season, and 8 percent to the off-season.

Estimate of Projected Recreational Use in the Proposed Project Area

This study component examined future recreational use in the study area by projecting use through the end of the anticipated new license (assumed to be approximately 2040). Recreation use projections were based on existing use levels, county population changes, activity participation trends, and regional considerations. Summary results of projected recreation use in the proposed Project area are provided below. Complete study area results are presented in the Recreation Visitor Surveys (Section 3.0 of the Recreation Resources FTR).

- Oregon is projected to experience a population increase of approximately 52 percent and California is projected to increase approximately 51 percent by 2040.
- The five counties with the highest existing use in the proposed Project area (Klamath, Jackson, Siskiyou, Josephine, and Shasta counties) are all projected to grow by more than 40 percent by 2040.
- The increase in state and county populations will likely provide continued increases in demand for recreation facilities and activities in the proposed Project area.
- Many of the activities that are currently popular in the proposed Project area (waterskiing, resting/relaxing, hiking, sightseeing, picnicking, etc.) are projected to have high levels of participation in the future.
- The proposed Project area represents an important regional resource in terms of water-based resources and provides a significant amount of recreation facilities and opportunities.

- In total, recreational use of the proposed Project area is projected to increase by approximately half again as much (44 percent) by 2040.
- By 2040, peak season use of the proposed Project area is estimated to be approximately 92,000 RDs.
- By 2040, annual use of the proposed Project area is estimated to be approximately 138,000 RDs.
- Some new and/or expanded recreational facilities and use areas will likely be needed by the anticipated term of the new license to continue to address increasing visitor demand while protecting the natural resources in the proposed Project area.

E7.4.2.3 Regional Recreation Analysis

The purpose of this study was to analyze existing Project-related recreation information related to the supply and demand of regional recreation resources near the Project and to place the Project in proper context. The analysis focuses on water-based recreation activities that are relevant to the Project. This analysis is an important step in assessing the role of the various recreation resources and opportunities in the proposed Project area for meeting a portion of the regional demand, and in planning for potential future recreation developments on or near Project lands. This study capitalizes on existing information and focuses only on those primary activities that are related to the proposed Project, such as boating, shoreline camping, shoreline day use activities, and whitewater boating and fishing. Although this study obtained information from regional recreation providers, analysis of this information is strictly limited to proposed Project area recreation activities and their context in the region.

A separate objective of this analysis is to characterize the demand for various recreation activities and how this demand may change in the future. Information was obtained from various sources to determine predicted changes in demand for various outdoor recreation activities primarily associated with reservoirs and river reaches. This information was augmented with updated national and regional demand forecasts from other recent publications. Complete results for the study area are presented in the Regional Recreation Analysis (Section 4.0 of the Recreation Resources FTR).

Role of Proposed Project Area Recreation Resources in the Region

On the basis of an analysis of the similarities and differences between proposed Project area and regional recreation resources described above, the following subsection characterizes the role of the proposed Project area within the region.

The proposed Project area represents an important regional resource in terms of water-based resources and provides a significant amount of recreation facilities and opportunities. One exception, however, is developed camping opportunities. Tables E7.4-1 and E7.4-2, below, summarize the comparison between proposed Project area reservoirs and similar water-based recreation resources in the region. Table E7.4-1 is an approximate list of facilities at each of the recreation areas. With the exception of the very large Upper Klamath Lake to the north and Shasta and Trinity lakes to the south, the lakes and reservoirs in the proposed Project area and the regional Project area have a similar amount of surface water acreage available for water-

based activities. Because they are exceptions to a normal size range, Upper Klamath Lake (85,120 ac), Shasta Lake (29,550 ac), and Trinity Lake (16,535) are listed at the bottom of Table E7.4-1 and the number of recreation facilities at each is not included in comparison calculations.

Table E7.4-1. Recreation facilities comparison of Project reservoirs with lakes or reservoirs in the region.

Project Reservoirs	Surface Water (ac)	Number of Developed Campsites	Number of Developed/ Improved Boat Launches	Number of Developed Picnic Areas	Generalized Use Levels
J.C. Boyle	420	16	2	4	Low
Copco No. 1	1,000	0	2	2	Low
Copco No. 2	40	0	0	0	Low
Iron Gate	944	37	3	6	Moderate
Subtotal/% of Total		79 (6%)	7 (23%)	14 (61%)	
Lakes and Reservoirs of Similar Size					
Agency Lake	~5,500	43	3	0	Low
Lake of the Woods	1,113	190	3	1	High
Fourmile Lake	740	25	1	0	Low
Hyatt Reservoir	1,250	172	2	1	Moderate
Emigrant Lake	806	110	2	2	Moderate
Howard Prairie Reservoir	2,000	303	4	1	Moderate
Applegate Reservoir	988	66	3	1	Low
Medicine Lake	408	72	1	1	Low
Gerber Lake	3,830	50	2	1	Moderate
Whiskeytown Lake	3,200	139	3	1	Moderate
Subtotal/% of Total		1,170 (94%)	24 (77%)	9 (39%)	
Total/% of Total		1,249 (100%)	31 (100%)	23 (100%)	
Lakes and Reservoirs Much Larger in Size					
Shasta Lake	29,500	320	7	7	High
Trinity Lake Unit	16,535	500	7	2	Moderate
Upper Klamath Lake	85,120	269	6	1	Moderate
Total		1,098	20	10	

Source: EDAW, Inc.

When compared with regional lakes and reservoirs of similar size (surface acres), the proposed Project area has a comparable number of boat launches. However, the proposed Project area has a significant percentage of developed picnic areas for the region (61 percent of the total) and a much smaller percentage of developed campsites in the region (6 percent). If the number of campsites, boat launches, and picnic areas were factored in for the three larger lakes and reservoirs in the region, the percent of facilities that the proposed Project provides would drop significantly. Thus, they are factored in separately.

Although previously mentioned in the discussion about regional recreation areas, there are lakes and reservoirs of comparable size that are not included in the comparison table. The following water bodies were not included because they are beyond the regional Project area boundary; they are not a publicly owned and/or managed resource; or they are so different in character from proposed Project resources that a comparison is not meaningful. Although they are not included

in the comparison table, it is important to be aware of them because they are visited by people who also visit the proposed Project area reservoirs. These lakes and reservoirs are:

- Big Sage reservoir (~2,000 acres) in the Modoc National Forest
- Clear Lake (~20,000 acres) as part of the Klamath National Wildlife Refuge complex
- Goose Lake (size unknown)
- Iron Canyon reservoir (500 acres) in the Shasta-Trinity National Forest
- Lake Britton (1,200 acres) in the Shasta-Trinity National Forest
- McCloud reservoir (700 acres) in the Shasta-Trinity National Forest
- Miller Lake (514 acres) in the Winema National Forest
- Ruth Lake (1,100 acres) in the Six Rivers National Forest
- Siskiyou Lake (435 acres)
- Thompson reservoir (2,179 acres) in the Fremont National Forest

Table E7.4-2 compares recreation features such as physical setting, visitor origins, facility utilization, and water-based activities of regional lakes and reservoirs with proposed Project reservoirs.

Table E7.4-2. Comparison of recreation features on regional lakes/reservoirs with proposed Project reservoirs.

Lake/Reservoir	Similar Physical Setting	Similar Visitor Origins	Similar Facility Utilization	Similar Water-Based Activities
Agency Lake	Y	Y	Y	Y
Applegate Reservoir	N	Y	Y	N (primarily fishing, speed restriction)
Emigrant Lake	N	Y	N	Y
Fourmile Lake	N	Y	Y	N (primarily fishing, high elevation)
Gerber Lake	N	Y	Y	N (primarily fishing, speed restriction)
Howard Prairie Reservoir	N	Y	N	N (primarily fishing, high elevation)
Hyatt Reservoir	N	Y	N	N (speed restriction)
Lake of the Woods	N	Y	N	Y
Medicine Lake	N	N	Y	N (primarily fishing, high elevation)
Whiskeytown Lake	N	N	N	Y
Shasta Lake	N	N	N	N (houseboating most popular)
Trinity Lake Unit	N	N	N	N (houseboating most popular)
Upper Klamath Lake	Y	Y	N	N (primarily fishing)

Legend: Y = Yes, it is similar to proposed Project reservoirs; N = No, it is not similar to proposed Project reservoirs.

Source: EDAW, Inc.

Reservoir Physical Setting. In terms of the physical setting, the proposed Project area reservoirs are similar to only a few other lakes or reservoirs in the region. The proposed Project area

reservoirs are located among a number of different mountain ranges (Coast Range, Siskiyou, Sierras, and Cascades) and are thus a unique environment within the region. As the river slices through the ancient volcanic rock of this conglomeration of ranges, a variety of arid landscapes is encountered, from steep forested canyons to rolling brush-covered hills. Only nearby Upper Klamath and Agency lakes could be considered as having a similar physical setting to proposed Project reservoirs because of their proximity to the proposed Project, although even they are different. Each is much larger in size and both are adjacent to or near the city of Klamath Falls, agriculture/grazing lands, and a Wildlife Refuge.

Reservoir Visitor Origins. The majority of visitors to both the proposed Project area and regional recreation areas come from surrounding local communities and counties. Recreation areas farther north in the region typically receive a majority of visitors from southern Oregon counties and communities such as Medford, Ashland, and Grants Pass. Recreation areas farther south in the region typically receive a majority of visitors from northern California counties and communities. However, reservoirs or lakes that are close to major highways or have a unique attraction, such as an excellent fishery or houseboating, also tend to have a higher proportion of visitors from farther away, including the San Francisco Bay Area or Portland, Oregon, area.

Overall Facility Utilization. From a facility utilization perspective, the proposed Project area is similar to most other recreation areas in the region. Proposed Project area recreation facilities have similar visitor use patterns, although facilities are not utilized at the same high level as they are at Lake of the Woods, Emigrant Lake, Trinity Lake, or Shasta Lake. Peak season for the region is typically between Memorial Day and Labor Day, although somewhat fewer numbers of visitors come to the area to go whitewater boating in the spring, to hunt or view wildlife in the fall, and to participate in snow activities in the winter. It is typical for proposed Project area recreation facilities to experience moderate to high use during peak season weekends and holidays while the most popular destinations in the region are also reaching capacity or are at full capacity.

Water-based Activities. Water-based activities that are available in the proposed Project area include swimming, fishing, motorized boating, waterskiing, PWC use, nonmotorized boating, and whitewater boating. Houseboating does not occur in the proposed Project area, and boat-in camping seldom occurs compared with Shasta Lake and Trinity Lake. There are several lakes in the region that provide a more serene experience, either because they have boating speed restrictions, such as Applegate reservoir and Hyatt Lake, or because they allow no motorized boating altogether, such as the multitude of alpine lakes located within wilderness areas nearby. There are flatwater and whitewater fishing opportunities of varying quality throughout the region. Many of the alpine lakes have excellent trout fisheries and several lakes, such as Howard Prairie reservoir, are stocked with trout. Chinook and coho salmon; steelhead; and brown, cutthroat, and native trout are found in regional rivers.

The proposed Project area provides a unique setting to experience a variety of recreation activities that also occur throughout the region. There are limited camping opportunities in the proposed Project area compared with camping opportunities at lakes and reservoirs of similar size in the region. However, a significant percentage of the region's public boat launches that are on lakes and reservoirs similar in size are located in the proposed Project area. During peak season, proposed Project area facilities are not utilized to the extent that others in the region are, but they do experience the same pattern of use: busy during summer weekends and holidays.

Facilities that are close to the I-5 corridor (Shasta Lake and Trinity Lake); near larger towns such as Medford and Ashland (Emigrant reservoir); or at places that are historically popular with local county users (Lake of the Woods) tend to be more popular. One of the proposed Project reservoirs, Iron Gate, is more popular than the others because of its proximity to I-5, which is likely why more facilities are provided there.

Overall, reservoirs in the proposed Project area are an important water-based recreation resource in southern Oregon and northern California. They provide an extensive amount of surface water area and boat launch sites for water-based recreation, although some are more difficult to access from major state highways and I-5. In addition, with only 79 developed campsites, the proposed Project area contains only a small percentage (6 percent) of reservoir-related camping in the region. These factors, principally quick and easy access, have most likely kept proposed Project reservoirs from becoming as popular as some of the other lakes and reservoirs in the region.

Demand for Recreation Activities

The most common recreation activities on study area lands and waters are water-related such as swimming, beach activities (sunbathing), and fishing. Table E7.4-3 indicates that activities having a high demand statewide are activities that are also currently in demand and taking place in the study area. There are also activities that CDPR (1998) and OPRD (2003) rated as having a low demand that are popular in the study area.

Table E7.4-3. Comparison between statewide (CA and OR) demand and percent participation in activities within the proposed Project area.

Recreation Activity	Existing Demand for Selected Activities in California¹	Existing Demand for Selected Activities in Oregon²	Percent Participation in the Most Common Activities Indicated by Visitors to the Study Area in 2001 and 2002³
Developed camping	High	Low	35% (tent), 30% (RV)
Trail hiking	High	Moderate	31%
Swimming (nonpool)	High	Moderate	46%
Nature study/wildlife viewing	High	High	28%
Primitive camping	High	Low	35% (tent)
Beach activities	High	Moderate	46% (swimming)
General use of open space	High	Not listed	Not Applicable
Fishing (freshwater/bank)	High	Moderate	34% (bank) 31% (boat)
Picnicking	High	Moderate	39%
Bicycling	Moderate	Moderate	11%

¹ CDPR, 1998.

² OPRD, 2003.

³ Section 5.0 of the Recreation Resources FTR.

Source: EDAW, Inc.

CDPR rated kayaking, canoeing, rafting, powerboating, waterskiing, and sailing as having a low existing demand. According to visitor survey results, boat fishing is a primary activity of visitors to the study area. Waterskiing is the seventh most common activity in the study area, and 31 percent of visitors in 2001 and 2002 participated in boat fishing. Also, 26 percent of study area visitors participated in powerboating and 10 percent participated in whitewater boating. One activity that is not considered in either the California or Oregon SCORP is PWC use. This activity is expected to continue to grow in the region.

Because many of the recreation areas in the proposed Project area are relatively remote, many visitors are more likely to use camping facilities as part of their trip. For this reason, analyzing utilization of camping facilities is an efficient manner in which to characterize current use of recreation areas in the region. Sixty-six percent of visitors to the proposed Project area surveyed in 2001 and 2002 participated in tent or RV camping. Anecdotal information regarding most of the campgrounds located at proposed Project reservoirs indicates that, although utilization is moderate to high on peak weekends and holidays, the supply of campground facilities is generally meeting demand on a seasonal basis. However, current use levels during peak season weekends and holidays appear to be approaching capacity. This may be because the number of campsites available in the proposed Project area is far fewer than the number available at lakes and reservoirs of comparable size within the region. Utilization data from the recreation capacity analysis, a component of the Recreation Needs Analysis (Section 5.0 of the Recreation Resources FTR), confirms this observation.

In the proposed Project area, recreation demand will eventually exceed the existing recreation supply, as it will for the region. Growth projections in many of these existing activities indicate that the current supply of recreation facilities in the region will need to be increased to meet demand. Existing facilities that will likely need to be expanded to help meet demand include the following:

- Boat launches
- Boat-trailer parking
- Campgrounds (sites with and without RV hookups)
- Hiking trails
- Day use facilities (picnic tables, restrooms)
- Interpretive facilities

Both California and Oregon SCORP recreation setting preference data indicate that visitors prefer more primitive camping and boating settings than they currently use. This could indicate that some visitors would prefer additional primitive camping facilities as opposed to more developed campgrounds with full hook-ups. However, with the aging of the U.S. population and the continued high demand for RV campsites, developed campsites in the proposed Project area will likely continue to be popular in the future. This popularity should continue as long as the setting provides a natural outdoor character with an adequate buffer between campsites.

Overall, the existing supply of recreation facilities and experiences appears to be generally meeting demand at both the regional and proposed Project area levels when considering the entire season (May to September). However, as activity participation and population trends continue to rise, demand in the region will likely exceed the existing supply unless current

facilities are enlarged or new facilities are constructed. Peak use is now occurring during peak season weekends and holidays and in recreation areas that are more easily accessible, such as those along I-5.

Characterization of Future Activities and Demand

Recent trends in activity participation can be determined from activity participation rates from 1987, 1992, and 1997 statewide surveys in California conducted by CDPR (CDPR, 1988, 1994, and 1998) and in the Oregon SCORP conducted by OPRD (OPRD, 2003). These data can be used to assess recent trends in participation that may suggest future trends. Although it cannot be assumed that these trends will be consistent throughout the license period, they do provide some general direction. Activities common in the proposed Project area for which participation has been increasing in California over this period include the following:

- Nature study/wildlife viewing
- Motorcycling/ATV use

Two activities common in the proposed Project area for which participation has been increasing in Oregon over this period include the following:

- Nature study/wildlife viewing
- Motorcycling/ATV use

Regional recreation activities for which participation has not changed significantly over this period, but which represent activities in the proposed Project area, include the following:

- Mountain biking (unpaved surfaces)
- Primitive camping
- Kayaking, canoeing, and rafting
- Fishing (freshwater)

In general, participation has not decreased significantly for regional activities common in the proposed Project area; however, whitewater boating in the Hell's Corner reach has declined since 1995, most recently in 2001-2002 as a result of reduced flows and afternoon water releases caused by a drought and operational changes caused by the recent California energy crisis.

Future trends in recreation activity demand can also be determined from recent national and regional data. Table E7.4-4 indicates the projected change in participation in various activities that are common in the proposed Project area by the year 2030 in the Pacific Region, which includes California, Oregon, Washington, Alaska, and Hawaii. These projections are based on estimated regional changes in population as well as on changes in basic demographic variables that affect participation such as age, race, and income. In addition, these projections also factor in the changing supply of recreation opportunities in the future. While the regional area used in this analysis (Pacific Region) is much broader than the regional Project area or proposed Project area, this information provides further context for estimating the potential growth in activities common in the proposed Project area. Participation in many of the activities that are currently popular in the proposed Project area is expected to continue to increase in the future. In general,

this increase is expected to be larger in the Pacific Region than for the nation as a whole (Cordell, 1999).

Table E7.4-4. National and regional trends in outdoor recreation activity participation (2000 to 2030).

Activity	National Trend (2000-2030) (percent change)	Pacific Region Trend (2000-2030) (percent change)	Pacific vs. National Trend Difference (2000-2030) (percent change)
Sightseeing	+42	+49	+7
Rafting/floating	+47	+47	+0
Canoeing	+22	+45	+23
Motorboating	+28	+45	+17
Hiking	+31	+45	+14
Nonconsumptive wildlife	+37	+44	+7
Walking	+27	+41	+14
Developed camping	+28	+39	+11
Visiting a beach	+33	+38	+5
Nonpool swimming	+30	+37	+7
Picnicking	+33	+37	+4
Biking	+37	+35	-2
Family gathering	+32	+35	+3
Primitive camping	+5	+22	+17
Fishing	+20	+18	-2
Off-road vehicle riding	+6	+16	+10
Hunting	-8	-21	-13

Source: Cordell, 1999.

One additional component of future demand for recreation activities in the proposed Project area is current population data for the surrounding area where visitors originate, as well as forecasts for changes in the population of these areas. Table E7.4-5 details population projections for various counties in southern Oregon, northern California, and the San Francisco Bay Area. These areas were selected because they are the counties where the proposed Project area is located, as well as the place of residence for many of the visitors to the proposed Project area. The population projections shown in Table E7.4-5 are projected to continue through the year 2020.

Table E7.4-5. Population estimates and forecasts for selected areas of California and Oregon where visitors originated.

Project Area Vicinity Counties	2000 Population¹	1990-2000 Population Change (percent)¹	Estimated 2020 Population²	2000-2020 Population Change (percent)
Douglas County, OR	100,399	+6.1%	120,671	+20.2%
Josephine County, OR	75,726	+20.9%	93,669	+23.7%
Jackson County, OR	181,269	+23.8%	221,665	+22.3%
Klamath County, OR	63,775	+10.5%	78,369	+22.9%
Lake County, OR	7,442	+3.3%	8,530	+14.6%
Siskiyou County, CA	44,301	+1.8%	53,900	+21.7%
Trinity County, CA	13,022	-0.3%	15,400	+18.3%
Shasta County, CA	163,256	+11.0%	231,000	+41.5%
Modoc County, CA	9,449	-2.4%	11,500	+21.7%
Subtotal	658,639	+13.2%	834,704	+26.7%
Bay Area, CA Counties				
San Francisco County	801,400	+10.7%	755,800	(5.7%)
Contra Costa County	930,000	+15.7%	1,152,900	+24.0%
Alameda County	1,454,300	+13.9%	1,811,800	+24.6%
Sonoma County	459,258	+18.3%	628,400	+36.8%
San Mateo County	730,000	+12.4%	834,500	+14.3%
Marin County	249,700	+8.5%	273,800	+9.7%
Subtotal	4,624,658	+13.9%	5,457,200	+18.0%
States				
California	34,480,300	+15.4%	45,821,900	+32.9
Oregon	3,421,399	+20.4%	4,326,000	+26.4

¹ U.S. Census Bureau Data (<http://quickfacts.census.gov>).

² www.epa.gov/ttn/rto/areas/pop/pop_proj.htm.

Population within select Oregon and California counties nearest the proposed Project is projected to increase more than 26 percent by the year 2020. Residents from the San Francisco Bay Area are also an important component of visitors to the proposed Project area. The population of the counties in this area is projected to increase by 18 percent by the year 2020.

E7.4.2.4 Recreation Needs Analysis

The Recreation Needs Analysis, a synthesis study, consisted of: (1) examining the condition of existing recreation resources and use by exploring the supply of existing recreation facilities and their condition, as well as ADA accessibility; (2) determining the demand for recreation facilities and activities; (3) analyzing the recreation capacity of existing recreation sites and resource areas/reservoirs; and (4) developing a list of existing and future recreation needs in the study area

to be further considered in the development of a draft RRMP. This section provides a summary of the results from these investigations specific to the proposed Project area (all study area results are available in the Recreation Resources FTR).

Recreation Supply Analysis

The Recreation Supply Analysis, a component of the overall Recreation Needs Analysis, provides an inventory and evaluation of existing developed recreation sites and dispersed undeveloped sites and use areas in the proposed Project area. This analysis also describes the conditions of each of the facilities and sites in the proposed Project area. In total, there are 24 public developed recreation sites in the proposed Project area; however, Sportsman's Park, BLM's Topsy Campground, Upper Klamath River (Spring Island) Boater Access, and Klamath River Campground are not Project-related recreation sites. Additionally, 27 dispersed undeveloped recreation sites and areas were identified in the proposed Project area. Brief descriptions of the recreation sites in each resource area are provided below. For further details, refer to the Recreation Needs Analysis (Section 5.0 of the Recreation Resources FTR).

J.C. Boyle Reservoir Resource Area.

- There are a total of three developed recreation sites in this resource area. There are also 17 documented dispersed recreation sites or use areas in this resource area (see Figure E7.1-1).
- There is one developed campground in this resource area: BLM's Topsy Campground.
- There are three developed day use facilities in this resource area: Sportsman's Park (not a Project facility), Pioneer Park (East and West), and BLM's Topsy Campground (not a Project facility).
- There are two developed boat launches in this resource area: Pioneer Park (East) and BLM's Topsy Campground (not a Project facility).
- There are several ADA-accessible recreation features at the developed recreation sites in this resource area. ADA-accessible features include a portable toilet at Pioneer Park (West), a fishing pier, campsite, picnic table, and parking space, all at BLM's Topsy Campground (not a Project facility).
- In general, the condition of recreation facilities at developed sites in this resource area is good. However, specific amenities, including toilets and parking areas, at some of the developed recreation sites are in need of repair or replacement.

Upper Klamath River/Hell's Corner Reach Resource Area.

- There are a total of nine (semi-) developed recreation sites in this resource area. There are also four documented dispersed recreation sites or use areas in this resource area, including Frain Ranch (see Figure E7.1-1).
- There is one developed campground in this resource area: BLM's Klamath River Campground (not in the proposed Project).

- There are six developed fishing access sites along the river reach: Fishing Access Sites 1 through 6.
- There are four developed sites that accommodate car-top/hand launching and take-out of whitewater boats: BLM's Upper Klamath River (Spring Island) Boater Access (primary access for whitewater boating trips) (not in the proposed Project), Stateline take-out (PacifiCorp and BLM) (BLM-managed area not in the proposed Project), Fishing Access Site 6 (by permit only), and Fishing Access Site 1.
- Frain Ranch (not in the proposed Project), located along the southern bank of the river reach, is a unique dispersed use area with multiple dispersed sites, as well as several historic sites. This location is a popular stopping place for whitewater boaters and is occasionally used by large groups and long-term, nonrecreational squatters.
- The only ADA-accessible features in this resource area are the path from the parking area to the toilets/changing rooms and the toilets at BLM's Upper Klamath River (Spring Island) Boater Access (not in the proposed Project).
- In general, the condition of facilities at developed recreation sites in this resource area is considered variable. Many sites have facilities that are in good condition, though all of the sites have elements that are in need of maintenance, repair, or replacement.

Copco Reservoir Resource Area.

- There are two developed recreation sites in this resource area: Mallard Cove and Copco Cove. Both of these sites are occasionally used for camping. There are also two documented dispersed recreation sites or use areas in this resource area (see Figure E7.1-1).
- There are two developed day use areas in this resource area.
- Both Mallard Cove and Copco Cove have developed boat launches.
- There are no ADA-accessible features in the Copco reservoir resource area.
- Both developed recreation sites in this resource area are generally in good condition. Each site has specific amenities, however, that are in need of maintenance and repair.

Iron Gate Reservoir Resource Area.

- There are ten developed recreation sites in this resource area. There are also four documented dispersed recreation sites or use areas in this resource area (see Figure E7.1-1).
- There are three designated developed campgrounds in this resource area: Camp Creek, Juniper Point, and Mirror Cove.
- There are six developed day use areas in this resource area: Fall Creek, Jenny Creek, Wanaka Springs, Overlook Point, Long Gulch, and Iron Gate fish hatchery. Many of these day use sites are also used for camping.
- There are three developed boat launches in this resource area: Camp Creek, Mirror Cove, and Long Gulch.

- There is one developed trail in this resource area: Fall Creek Trail.
- There are several ADA-accessible recreation features at the developed recreation sites in this resource area. ADA-accessible features include a portable toilet at the Fall Creek Trail (behind a locked gate), parking at the Fall Creek Trail and Iron Gate fish hatchery, a fishing pier at Camp Creek (partially ADA-accessible), and paths at the Iron Gate fish hatchery.
- The condition of recreation facilities at the developed recreation sites in this resource area is variable. All of the developed sites have elements that are in good condition; however, all of the sites also have other facilities that are in need of maintenance, repair, and replacement.

Recreation Demand Analysis

The Recreation Demand Analysis, a component of the Recreation Needs Analysis, was developed to help define existing and future demand for recreation activities in the proposed Project area. The analysis consists of two components. The first component considers regional demand, using existing published SCORP data for Oregon and California and other existing published sources of regional data, to estimate existing and future demand for various recreational activities in the proposed Project area. The second component compares the results of the Regional Recreation Analysis with the results from the Recreation Visitor Surveys and other published and anecdotal information. Key results of these two components are summarized below. Further details are provided in the Recreation Needs Analysis (Section 5.0 of the Recreation Resources FTR).

- The CDPR report (CDPR, 1998) cited the following eight activities as having high existing demand in California: (1) developed camping, (2) trail hiking/walking, (3) swimming (nonpool), (4) nature study/wildlife viewing, (5) primitive camping, (6) general use of open space, (7) freshwater fishing, and (8) picnicking.
- The 2003-2007 Oregon SCORP (OPRD, 2003) estimated existing demand for common outdoor recreation activities. The following activities were found to have high existing demand in Oregon: (1) sightseeing/driving for pleasure, (2) walking for pleasure, (3) visiting cultural/historic sites, and (4) nature study/wildlife viewing.
- According to the Oregon SCORP (OPRD, 2003) and CDPR report (1998), whitewater boating activities have relatively low existing statewide demand. However, locally, whitewater boating in the proposed Project area is popular along the Upper Klamath River/Hell's Corner reach between J.C. Boyle powerhouse and Copco reservoir. The 8-year average for the number of RDs on this reach of river is 5,250. The 8-year high was 6,395 RDs in 1995.
- The Oregon SCORP (OPRD, 2003) rates fishing as having moderate demand, while the CDPR report (1998) states that fishing has high existing demand. A survey conducted as part of the Recreation Visitor Surveys indicates that, overall, 34 percent of visitors to the proposed Project area participate in bank fishing (reservoir and river). Angler use here is concentrated at six fishing access sites downstream of the Stateline take-out (PacifiCorp and BLM), at Frain Ranch, and at a few BLM sites upstream from there.

- In general, residents of both California and Oregon prefer more primitive or undeveloped settings than they are currently visiting (CDPR, 1998; OPRD, 2003). These results indicate that the more primitive and less developed settings provided in the proposed Project area are desired by many residents of Oregon and California.
- The number of fishing licenses sold in California has decreased considerably over the last 6 years (-12.5 percent), while Oregon has experienced a slight increase in the number of fishing licenses sold (1.6 percent).
- According to the Recreation Visitor Surveys, the following activities were the most commonly cited primary activities among visitors to the proposed Project area: (1) fishing (boat), (2) waterskiing, (3) resting/relaxing, (4) fishing (bank), and (5) RV camping.
- Peak season use represents more than 60 percent of annual recreational use of the proposed Project area; early shoulder season use is approximately 12 percent; late shoulder season use is approximately 17 percent; and off-season use is approximately 8 percent.
- The majority (57.6 percent) of visitors surveyed in the proposed Project area are from Oregon. An additional 39 percent of visitors are from California. Three counties within the vicinity of the proposed Project (Klamath and Jackson, OR, and Siskiyou, CA) accounted for approximately 60 percent of all visitors to the proposed Project area.
- Oregon is projected to experience a population increase of about 52 percent by 2040, and California is expected to experience a population increase of approximately 51 percent by 2040. Additionally, rapid growth occurring in many of the counties of visitor origin is projected to continue through 2040. The five counties with the highest existing use in the proposed Project area (Klamath, Jackson, Siskiyou, Josephine, and Shasta counties) are all projected to grow by more than 40 percent by the year 2040.
- Using regional, statewide, and study area data, the following recreation activities are projected to increase in the projected Project area at an annual rate of greater than 1.2 percent: (1) powerboating/PWC use, (2) sightseeing, (3) wildlife viewing, (4) RV camping, (5) resting/relaxing, (6) hiking, and (7) waterskiing.
- Future recreation use in the proposed Project area was estimated for the anticipated term of the new license (assumed to be through 2040 for planning purposes). Use of the proposed Project area is projected to reach approximately 138,000 RD by 2040. This represents approximately a 44 percent increase from existing use levels in the proposed Project area.
- Iron Gate reservoir currently has the second highest existing use among the reservoir resource areas and will likely continue to have higher levels of use because of its ease of road access, its proximity to I-5, and its extent of existing developed facilities.
- Copco reservoir currently has the lowest existing use among the reservoir resource areas. This is because of the limited road access (gravel and dusty conditions) to the reservoir, private ownership of most of the shoreline, and the limited number of developed facilities at the reservoir.

- J.C. Boyle reservoir currently receives moderate use, in large part because of Sportsman's Park (not a Project facility). Sportsman's Park provides a variety of recreational opportunities (hunting, target shooting, archery) not available at other sites within the proposed Project area.
- The Upper Klamath River/Hell's Corner reach is unique within the proposed Project area in that a large percentage (64 percent) of the visitors are involved in whitewater boating. Use levels are largely dependent on whitewater boating activity changes over time, as long as access remains primitive.

Recreation Capacity Analysis

The Recreation Capacity Analysis consists of two components: (1) Recreation Capacity Analysis, and (2) Nonmotorized Recreation Trail Feasibility Study. The capacity analysis component provides an assessment of recreation capacity at each developed recreation site in the study area based on an evaluation of four types of capacity (ecological, physical/spatial, facility, and social) that are commonly used for planning purposes. The trail feasibility study component provides an inventory of existing recreational trails in the study area and proposes new trails for potential development. Summary results from these two components are provided below specific to the proposed Project area. Further details for the entire study area are provided in the Recreation Needs Analysis (Section 5.0 of the Recreation Resources FTR).

Overall capacity conclusions for each resource area are summarized below on the basis of a review of the four capacity types (ecological, physical/spatial, facility, and social).

J.C. Boyle Reservoir Resource Area.

- *Biophysical Capacity*—Biophysical capacity is not considered a limiting factor at the developed recreation sites in this resource area. However, various ecological impacts were observed at the dispersed recreation sites along the reservoir shoreline. Observed impacts at dispersed recreation sites included vegetation damage and trampling, bare ground and soil compaction, large amounts of litter, and sanitation issues. Some of these impacts may not be related to recreation use, though, as several sites (especially those located near Spencer Creek) appear to be used by groups of long-term, nonrecreational squatters. While some of the observed ecological impacts at dispersed sites are localized, many appear to be widespread and pose a constraint to the overall biophysical capacity of the resource area. Because of the ecological concerns at dispersed sites, biophysical capacity is currently considered a limiting factor at this resource area.
- *Physical/Spatial Capacity*—Physical/spatial capacity is considered a limiting factor at Pioneer Park, where the potential for physical expansion is limited by roads and the reservoir. While this developed recreation site is physically constrained, there are a few PacifiCorp-managed shoreline areas with existing dispersed recreation sites that could be developed into hardened recreation sites if needed. Given this potential, physical/spatial capacity is currently not a limiting factor at this resource area.

At high pool elevations, there are approximately 420 surface water acres available for boating on J.C. Boyle reservoir (PacifiCorp, 2000). Given this number of available surface water acres and the water ROS classification of this reservoir (Rural Natural), it is estimated

that approximately eight watercraft could potentially be accommodated at one time on this reservoir. Current peak season boating use on the reservoir (3 BAOT) is lower than the theoretical maximum BAOT estimate. Based on this level of use, surface water capacity is not a limiting factor at this time. However, surface water boating capacity is currently exceeded during heavier use periods (the maximum BAOT observed during field investigations was 10); thus, overall surface water capacity is considered to be approaching capacity.

- *Facility Capacity*—Recreational use of this resource area accounted for approximately 23,285 RDs during the peak season, of which about 56 percent are attributable to weekends (approximately 13,000 RDs). This level of use results in a peak season percent occupancy of 28 percent and peak season weekend percent occupancy of 33 percent. This level of use is generally considered to be low. Additionally, facility capacity is currently considered a limiting factor at Sportsman's Park and BLM's Topsy Campground (neither is a Project facility). Given the level of recreation use at this resource area, facility capacity is not considered a limiting factor at this time.
- *Social Capacity*—Social capacity is not considered a limiting factor at any of the developed recreation sites in this resource area. Perceived crowding scores at the three developed recreation sites tended to be relatively low (< 3.2), though visitors may feel slightly crowded. The mean perceived crowding score for the resource area was 2.9. This crowding score was the second highest in the proposed Project area but is considered relatively low and indicates that visitors perceive slight levels of crowding. Social capacity is currently not considered a limiting factor at this resource area based on the mean perceived crowding score, but it may be sometime in the future.
- *Overall Resource Area Capacity Conclusion*—Overall, use levels in this resource area are considered to be below capacity. Currently, biophysical capacity is considered a limiting factor because of the extent of observed recreation and public use impacts at shoreline dispersed recreation sites and areas. Additionally, while social capacity is currently not considered a limiting factor, this resource area may be approaching its social capacity and should be monitored. Neither facility capacity nor physical/spatial capacity is considered a limiting factor at this time.

Upper Klamath River/Hell's Corner Reach Resource Area.

- *Biophysical Capacity*—Biophysical capacity is considered a limiting factor at some of the developed recreation sites in this resource area (Stateline take-out [PacifiCorp and BLM] and Fishing Access Sites 1–6). Observed ecological impacts at all sites included trampled vegetation, bare ground and soil compaction, erosion, and litter accumulation, among others. At the remaining developed sites and most of the dispersed sites, ecological impacts were minimal except for Frain Ranch (not in the proposed Project). Frain Ranch exhibits several ecological impacts from recreation and public use, including vegetation trampling and damage, bare ground and soil compaction, erosion, litter accumulation, sanitation problems, and vandalism to existing structures. The observed ecological impacts at Frain Ranch were most pronounced at dispersed camping areas, along the braided network of dirt roads, along user-defined river access trails, and at the closed toilet building. It should be noted that some observed ecological impacts at Frain Ranch are caused by long-term, nonrecreational squatters who occasionally use this remote site. Except at Frain Ranch, ecological impacts at

developed and dispersed sites along the river reach are fairly localized. Biophysical capacity is currently considered a limiting factor at this resource area because of the many localized impacts in this hard-to-access and hard-to-maintain river reach.

- *Physical/Spatial Capacity*—Physical/spatial capacity is considered a limiting factor at all of the developed recreation sites in this resource area except Stateline take-out (PacifiCorp and BLM), which has space in the upper use area, outside of the proposed Project. Steep topography and limited road access are the primary constraints to physical expansion of the existing developed recreation sites along the river reach. However, several areas may be suitable for certain types of recreational development, including trails and small day use sites. Overall, the remote, primitive natural setting and the lack of convenient road access to recreation sites on the river reach constrain the physical expansion potential of existing recreation sites. Whitewater boating use on the river reach is partially controlled by permits issued by BLM. Currently, only commercial whitewater boating operators must be permitted on the river reach; private boaters may voluntarily obtain a permit from BLM. The new BLM Draft River Management Plan (BLM, 2003) contains revised permitting guidelines. Given the constraints along the river reach, physical/spatial capacity is considered a limiting factor at this resource area.
- *Facility Capacity*—Facility capacity is only considered a limiting factor at BLM's Klamath River Campground (not a Project facility) because of its limited number of campsites (three) and the lack of other developed campsites along the river reach. At all sites in this resource area, use levels tend to be lower (below to approaching capacity) because of the remoteness of the resource area, limited road access, and primitive conditions.
- *Social Capacity*—Social capacity is not considered a limiting factor at any of the developed recreation sites in this resource area. Perceived crowding scores at all of the developed recreation sites, except BLM's Upper Klamath River (Spring Island) Boater Access, tended to be low (< 2). The mean perceived crowding score at BLM's Upper Klamath River (Spring Island) Boater Access is 2.7. This score is also relatively low, but it indicates that visitors may feel slight levels of crowding at this site. The mean perceived crowding score for the resource area is 2.2. This crowding score was the lowest in the proposed Project area and is considered low. Social capacity is currently not considered a limiting factor at this resource area based on the low mean perceived crowding scores of visitors to this area.
- *Overall Resource Area Capacity Conclusion*—Overall, recreational use of this resource area is considered to be approaching capacity. While two developed recreation sites in this resource area are considered to be below capacity, the remaining two are considered to be approaching capacity. The primary limiting factors at each of the developed recreation sites and at the resource-area level are biophysical capacity and physical/spatial capacity. Currently, biophysical capacity is considered a limiting factor because of the extent of observed recreation and public use impacts at Frain Ranch (not in the proposed Project) and at the other shoreline dispersed recreation sites and areas. Additionally, the more primitive and remote nature of the resource area makes it more susceptible to widespread ecological impacts because of difficult access for management and law enforcement. Physical/spatial capacity is a limiting factor because of the lack of expansion possibilities at many of the existing developed recreation sites, the general lack of large areas along the river reach for new developed recreation sites (not including Frain Ranch), and poor road access resulting

from site conditions. Facility capacity is currently not considered a limiting factor, but it may be in the future based on the limited capacity of the existing developed recreation sites. Social capacity is not considered a limiting factor at this resource area at this time.

Copco Reservoir Resource Area.

- *Biophysical Capacity*—Biophysical capacity is not considered a limiting factor at either of the developed recreation sites in this resource area. Observed ecological impacts at both sites were localized and do not constitute a widespread constraint to the biophysical capacity of the resource area. Additionally, observed impacts at the two dispersed sites on Copco reservoir were also minimal. Observed impacts at the dispersed sites appear to be caused primarily by cattle grazing rather than by recreational use. Biophysical capacity is currently not considered a limiting factor at this resource area because of the lack of widespread ecological impacts resulting from recreational use of the area.
- *Physical/Spatial Capacity*—Physical/spatial capacity is considered a limiting factor at both of the developed recreation sites in this resource area. Steep topography and land ownership patterns limit potential expansion of either developed recreation site at Copco reservoir. However, while these two developed recreation sites are physically constrained, there are other undeveloped shoreline areas where future recreation sites could potentially be developed. Land ownership and infrastructure issues would need to be investigated at these sites, and an improved access road along the northern shoreline would likely need to be provided prior to new site development. Given the potential option for future recreation development along the Copco reservoir shoreline, physical/spatial capacity is currently not a limiting factor at this resource area.

At high pool elevations, there are approximately 1,000 surface water acres available for boating on Copco reservoir (PacifiCorp, 2000). Given this number of available surface water acres and the water ROS classification of this reservoir (Rural Natural), it is estimated that approximately 20 watercraft could potentially be accommodated at one time on this reservoir. Current peak season mean boating use on the reservoir (2.3 BAOT) is much lower than the theoretical maximum BAOT estimate. Thus, surface water capacity is not a limiting factor at this time.

- *Facility Capacity*—Recreational use of this resource area is estimated to account for more than 6,130 RDs during the peak season and approximately 4,165 RDs during peak- season weekends. This level of use equates to an occupancy rate of 27 percent during the peak season and 38 percent during peak-season weekends. Neither of the developed recreation sites in this resource area is considered to have reached its facility capacity. While facility capacity is not currently a limiting factor at the developed recreation sites, and recreational use in the resource area is relatively low, facility capacity is an overall limiting factor at the resource-area level because of the small number of available developed sites and facilities at the reservoir. The small number of developed recreation sites (two) in this resource area may ultimately limit the amount of recreational use the area could receive, particularly as the Iron Gate reservoir resource area fills up.
- *Social Capacity*—Social capacity is not considered a limiting factor at either of the developed recreation sites in this resource area. Perceived crowding scores at both developed recreation sites tended to be relatively low; however, the resource area mean was assumed for Copco

Cove because of the limited number of completed surveys at this site. The mean perceived crowding score for the resource area was 2.7. This crowding score is considered relatively low and indicates that visitors perceive slight levels of crowding. Social capacity is currently not considered a limiting factor at this resource area based on the mean perceived crowding score.

- *Overall Resource Area Capacity Conclusion*—Overall, recreational use of this resource area is considered to be below capacity. The primary limiting factor for this resource area is facility capacity. Facility capacity is a limiting factor because of the small number of developed recreation sites and facilities in this resource area. These limited facilities will ultimately limit the amount of recreational use the area could accommodate. Additionally, this resource area is more difficult to access (e.g., lack of a paved road from Iron Gate reservoir, lack of signs indicating location of reservoir and recreation sites compared with other proposed Project reservoirs. Ecological, physical/spatial, and social capacity are not considered limiting factors at this resource area at this time. Surface water boating capacity is also not considered a limiting factor at this time.

Iron Gate Reservoir Resource Area.

- *Biophysical Capacity*—Biophysical capacity is considered a limiting factor at six of the ten developed recreation sites in this resource area: Fall Creek, Jenny Creek, Wanaka Springs, Camp Creek, Overlook Point, and Long Gulch. Observed ecological impacts included vegetation trampling and damage, bare ground and soil compaction, erosion, removal of downed wood, and litter accumulation. While many of these impacts were localized, several constitute a constraint to the overall biophysical capacity of the resource area.

Vegetation trampling, bare ground, erosion, and litter accumulation were also observed at several of the dispersed sites along the reservoir shoreline. However, some of the observed impacts (vegetation trampling, bare ground, and erosion) at the dispersed sites appear to be caused primarily by cattle grazing rather than by recreational use. Because of the observed impacts at developed and dispersed recreation sites, biophysical capacity is considered an overall limiting factor at this resource area.

- *Physical/Spatial Capacity*—Physical/spatial capacity is considered a limiting factor at eight of the ten developed recreation sites in this resource area, excluding Camp Creek and Long Gulch. One of the primary constraints to the physical expansion of existing recreation sites and the potential construction of future sites is the proximity of Copco Road to the northern shoreline of the reservoir. In many areas, the road runs directly adjacent to the shoreline and bisects several of the existing developed recreation sites on the northern shoreline. While areas to expand developed recreation sites may exist on the nonreservoir side of Copco Road, visitor safety (i.e., visitors must cross road to access portions of the site) must be considered if expansion on the nonreservoir side of the road is explored. Steep topography and land ownership also pose constraints to the expansion of existing sites and the development of future recreation sites. In general, while several areas for potential expansion of existing recreation sites or the development of new recreation sites exist, physical/spatial capacity is considered an overall limiting factor because of the physical constraints of this resource area.

At high pool elevations, there are approximately 944 surface water acres available for boating on Iron Gate reservoir (PacifiCorp, 2000). Given this number of available surface

water acres and the water ROS classification of this reservoir (Rural Developed), it is estimated that approximately 47 watercraft could potentially be accommodated at one time on this reservoir. Current average boat use on the reservoir (22 BAOT) is lower than the theoretical maximum peak season BAOT estimate. Based on this level of use, surface water capacity is not a limiting factor at this time. However, surface water boating capacity is currently exceeded during heavier use periods (the maximum BAOT observed during field investigations was 76); thus, overall surface water capacity is considered to be approaching capacity.

- *Facility Capacity*—Recreational use of this resource area is estimated to account for nearly 33,750 RDs during the peak season and approximately 19,550 RDs during peak-season weekends. This level of use equates to an occupancy rate of 60 percent during the peak season and 73 percent during peak-season weekends. Peak-season occupancy is considered to be at capacity, while peak-season weekend occupancy is considered to be approaching capacity. Facility capacity is a limiting factor at this resource area based on these levels of use. Additionally, facility capacity is a limiting factor at four of the ten developed recreation sites in this resource area and will likely be a limiting factor at several of the remaining sites in the future.
- *Social Capacity*—Social capacity is considered a limiting factor at two of the ten developed recreation sites in this resource area, Camp Creek and Mirror Cove. While social capacity is not considered a limiting factor at the other developed recreation sites, the perceived crowding scores at several sites indicate that visitors perceive at least slight levels of crowding. Additionally, the mean perceived crowding score for this resource area was the highest in the proposed Project area (3.7). This crowding score is generally considered fairly high and indicates that the social capacity of the resource area may be an overall concern and is a factor to monitor over time. Because of the resource area's mean perceived crowding score, social capacity is currently considered a limiting factor at this resource area.
- *Overall Resource Area Capacity Conclusion*—Overall, recreational use of this resource area is considered to be at or exceeding capacity. Four developed recreation sites are considered to be at or exceeding capacity individually, while an additional three developed recreation sites are approaching capacity in this resource area. All four capacity types are considered to be limiting factors in this resource area. Biophysical capacity is considered a limiting factor because of observed recreation and public use impacts at developed and dispersed recreation sites in this resource area. Physical/spatial capacity is a limiting factor in this resource area because of the general lack of land for new and/or expanded recreation development. Surface water spatial boating capacity is currently not considered a limiting factor, but boating use exceeds capacity during heavier use periods and will likely be a limiting factor in the future. Facility capacity is a limiting factor because of the levels of use the resource area receives and because of the higher levels of use several of the developed recreation sites receive. Additionally, the perceived crowding scores in this resource area were the highest in the proposed Project area, indicating that use is approaching the resource area's social capacity.

Nonmotorized Recreation Trail Feasibility Study

This section presents summary results of the trail feasibility study conducted in 2002-2003. Additional information is provided in the Recreation Capacity Analysis, a component of the Recreation Needs Analysis (Section 5.0 of the Recreation Resources FTR).

Existing Nonmotorized Trails in the Proposed Project. Existing nonmotorized trails in the proposed Project area were identified by reviewing relicensing recreation studies and existing trail-related plans and maps, and by conducting a site reconnaissance. Identified existing developed nonmotorized trails in and adjacent to the proposed Project boundary include the Fall Creek Trail. This trail is located between Iron Gate reservoir and Copco reservoir. The short trail begins on the northern side of Copco Road and continues to Fall Creek Falls.

Potential Nonmotorized Recreation Trail Routes in the Proposed Project Area. Potential new or enhanced trail routes identified during field research in each resource area are discussed below. Throughout the relicensing process, including the development of the draft RRMP, potential trail routes were dropped from consideration or modified.

- J.C. Boyle Reservoir Resource Area—New or enhanced trail opportunities include the Reservoir Loop Trail (new shoreline loop trail along the southern portion of the reservoir connecting BLM's Topsy Campground, Pioneer Park, and a new proposed site at the Boyle Bluffs).
- Upper Klamath River/Hell's Corner Reach Resource Area—Potential new or enhanced trail routes identified in the proposed Project area include: (1) J.C. Boyle Bypass Reach Angler Access Trails (formalized fishing access trails between the dam and powerhouse), (2) J.C. Boyle Powerhouse "Old Foundations" Area Trail (new trail connecting the old foundations area adjacent to the powerhouse with Spring Island), and (3) Fishing Access Sites 1-6 Trails (trail enhancements at existing Fishing Access Site locations).
- Copco Reservoir Resource Area—New or enhanced trail opportunities include the Fall Creek Trail (improvements and extension).
- Iron Gate Reservoir Resource Area—New or enhanced trail opportunities identified in the proposed Project area are Long Gulch to Iron Gate Hatchery Trail (potential new trail route) and Bogus Creek Trail (potential new trail route).

Recreation Needs Analysis

The Recreation Needs Analysis (Section 5.0 of the Recreation Resources FTR) is a synthesis of the results of several previous recreation studies conducted as part of the relicensing process. Results associated with the following recreation studies were used to formulate overall and site-specific recreation needs in the proposed Project area (all study area results are available in the Recreation Resources FTR):

- Recreation Flow Analysis
- Recreation Visitor Survey Analysis
- Regional Recreation Analysis

- Recreation Supply Analysis
- Recreation Demand Analysis
- Recreation Capacity Analysis

In addition to the results of these studies, other published reports and stakeholder comments were considered in the Recreation Needs Analysis.

The Recreation Needs Analysis consists of three components:

- An analysis of existing overall “big picture” recreation needs in the proposed Project area over time
- An identification of existing recreation needs on a site-by-site basis
- An identification of future recreation needs in the proposed Project area

It should be noted that the identification of recreational needs in the proposed Project area in this analysis does not commit PacifiCorp to act as the sole entity responsible for satisfying them. Rather, the needs identified in this analysis represent potential recreation capital development and operations and management options that were considered in the development of the draft RRMP (Appendix E7-A).

Existing Recreation Needs in the Proposed Project Area. Overall public recreation needs were assessed by comparing and contrasting a number of supply, demand, and capacity factors to arrive at conclusions. This study component focused on the “big picture” need for various types of facilities or opportunities, without specifying where or how such needs might be met. Potential actions to meet general needs are summarized by activity below.

- Existing Overall Camping Needs in the Proposed Project Area—Overall camping needs and potential actions to satisfy them include considering:
 - Additional maintenance and site redesign and improvements to existing camping facilities for resource protection, health and safety, ADA compliance, relief of crowding, and visitor experience enhancement.
 - Increasing the supply of camping facilities to help meet current and future demand where suitable, principally in the Iron Gate reservoir area, through infill at existing sites and at least one new facility.
 - Providing a range of camping experiences, from developed to semi-primitive.
 - Potentially charging overnight camping fees at some locations after these sites are improved in the future.
 - Addressing ADA compliance at all existing and new camping facilities per the Americans with Disabilities Act Accessibility Guidelines (ADAAG), as amended.
 - Hardening some undeveloped sites and monitoring visitor use at sensitive shoreline dispersed sites and use areas commonly used for camping.

- Existing Overall Day Use/Picnicking Needs in the Proposed Project Area—Overall day use/picnicking needs and potential actions to satisfy them include considering:
 - Additional maintenance and site redesign and improvements to existing day use/picnicking facilities for resource protection, health and safety, ADA compliance, relief of crowding, and visitor experience enhancement.
 - Increasing the supply of day use/picnicking facilities to help meet future demand where suitable, principally in the Iron Gate reservoir area, through infill at existing sites and possibly a new facility.
 - Monitoring visitor use of dispersed undeveloped recreation sites.
 - Addressing ADA compliance at all existing and new day use/picnicking facilities per ADAAG, as amended.
- Existing Overall Boating Needs in the Proposed Project Area—Overall boating needs and potential actions to satisfy them include considering:
 - Additional maintenance and site redesign and improvements to existing boating-related facilities for resource protection, health and safety, ADA compliance, relief of crowding, and visitor experience enhancement.
 - Addressing ADA compliance at some existing and new boating-related facilities per ADAAG, as amended.
- Existing Overall Swimming/Sunbathing Needs in the Proposed Project Area –Overall swimming/sunbathing needs and potential actions to satisfy them include considering:
 - Enhancing shoreline access sites to help meet current and future demand.

While swimming/sunbathing needs have been identified in the Recreation Needs Analysis, potential actions to meet these needs should consider regional water quality concerns (e.g., periodic summer algae blooms).

- Existing Overall Interpretation and Education Needs in the Proposed Project Area—Overall interpretation and education needs and potential actions to satisfy them include considering:
 - Developing an interpretation and education (I&E) program as part of the draft RRMP.
 - Providing new I&E facilities in the Project area, such as signs, kiosks, etc.
 - Addressing ADA compliance at all existing and new I&E facilities per ADAAG, as amended.
- Existing Overall Trail Needs in the Proposed Project Area—Overall trail needs and potential actions to satisfy them include considering:
 - Providing new and/or enhanced trail opportunities in the proposed Project area.
 - Constructing some ADA-accessible trail segments in the proposed Project area.
 - Implementing a trail sign program.

- Existing Overall Fishing Needs in the Proposed Project Area—Overall fishing needs and potential actions to satisfy them include considering:
 - Providing additional ADA-accessible fishing piers or platforms in the proposed Project area.
 - Addressing needs identified under boating (discussed previously).
- Existing Overall Open Space Needs in the Proposed Project Area—Overall open space needs and potential actions to satisfy them include considering:
 - Retaining existing undeveloped open space lands on PacifiCorp-owned property (if not needed for Project operations) for activities such as wildlife viewing, sightseeing, nature appreciation, photography, and other recreational activities that rely on adequate natural open space.
 - Providing designated wildlife viewing areas and/or Watchable Wildlife stations.

Existing Recreation Needs on a Site-by-Site Basis. The second Recreation Needs Analysis component focused on site-specific needs for various types of recreation facilities and opportunities. Potential actions to meet these site-specific needs in the proposed Project are summarized below.

- J.C. Boyle Reservoir Resource Area—Existing recreation facility needs in this resource area include considering the following:
 - *Pioneer Park (East and West Units)*—Providing improved maintenance (gravel parking areas, interior roads, boat ramp, car-top boat launching area), replacing specific site facilities (portable toilets and informational signs), and hardening the informal dirt boat launch at Pioneer Park (West). Improvements at Pioneer Park (West) will be coordinated with the realignment of the SR 66 bridge by the Oregon Department of Transportation (ODOT).
 - *Dispersed Undeveloped Sites and Use Areas*—Trash removal, closing and/or rehabilitating certain sites, and increased management presence at dispersed sites. Additionally, consider formalizing and hardening the Boyle Bluff site, including barricading of vehicles to designated routes, rehabilitating disturbed areas, providing informational and warning signs, and considering development of this site as a campground, group site, and/or day use area.
- Upper Klamath River/Hell's Corner Reach Resource Area—Existing recreation facility needs in this resource area include considering the following:
 - *Stateline Take-out*—Improving site maintenance (interior roads, gravel parking areas), providing I&E facilities, fixing the irrigation canal leakage, replacing toilets, and resolving resource protection impacts in the lower use area (including possibly closing a portion of the area to vehicular access per adopted actions identified in the Draft Upper Klamath River Management Plan [BLM, 2003]).
 - *Fishing Access Sites 1–6*—Improved signage (all sites), replacing toilets (at some sites, with ADA-accessible vault toilets), and consider additional maintenance to access road

and parking area (regraveling). Additionally, consider redevelopment of Fishing Access Site 6 as an enhanced, but not enlarged boater take-out (if the Stateline Take-out lower use area is potentially closed to vehicular access per adopted actions identified in the Draft Upper Klamath River Management Plan [BLM, 2003]).

- *Dispersed Undeveloped Sites and Use Areas*—Seasonal management presence and increased law enforcement within the proposed Project area.
- Copco Reservoir Resource Area—Existing recreation facility needs in this resource area include considering the following:
 - *Mallard Cove*—Improved maintenance and repair to site facilities (access road, parking area, cooking grills), providing improved signs, improving ADA access, and formalizing and separating day use and overnight facilities or prohibiting overnight camping at this site.
 - *Copco Cove*—Improved maintenance and repair to site facilities (access road, parking area), regrading and expanding access to the boat ramp, providing improved signs, providing a vault toilet, improving ADA access, and formalizing and separating day use and overnight facilities or prohibiting overnight camping at this small site.
 - *Dispersed Undeveloped Sites and Use Areas*—Rehabilitating sites with ecological resource impacts (some impacts are from cattle grazing) and limiting cattle grazing along the Copco reservoir shoreline.
- Iron Gate Reservoir Resource Area—Existing recreation facility needs in this resource area include considering the following:
 - *Fall Creek Trail*—Repairing the upper portion of the trail, providing signs and I&E facilities, improving ADA accessibility, and providing increased security and separation with the adjacent hatchery operations, if continued (in consultation with CDFG).
 - *Fall Creek*—Providing improved maintenance (gravel road and parking area), providing signs and I&E facilities including wildlife observation, increased management presence, improving ADA accessibility, and formalizing use as a day use area.
 - *Jenny Creek*—Closing and restoring this site because of its location adjacent to a sensitive riparian zone. If this site is retained, consider improved maintenance (gravel road and parking area), increased management presence, improved signs, improved ADA accessibility, and renovating site including separating day use and/or overnight facilities, possibly developing the site into a group reservation site, and protecting adjacent riparian areas.
 - *Wanaka Springs*—Providing a potential group site at this location or additional day use or camping sites (subject to further design and site analysis), providing maintenance and repair to site facilities (wooden dock, toilets, gravel road, parking area), providing improved signs, improved ADA accessibility, increased management presence, and separating and formalizing a group site or day use and/or overnight facilities.
 - *Camp Creek*—Providing additional day use sites and campsites (subject to further design and site analysis), redesigning the site including formalizing and separating day use and/or overnight facilities, improving maintenance and repair (campsites, toilets, gravel

road), replacing specific site facilities (RV dump station, wooden docks), improving ADA accessibility, providing mooring balls, and providing increased management presence.

- *Juniper Point*—Redesigning this site including formalizing and separating day use and/or overnight facilities, improving maintenance and repair (fire rings, gravel road), replacing the wooden dock, improving signs, improving ADA accessibility, and increased management presence.
- *Mirror Cove*—Redesigning this site including formalizing and separating day use and/or overnight facilities, improving maintenance and repair (fire rings, gravel road), replacing specific site facilities (boat launch, picnic tables, toilets), providing mooring balls, improving ADA accessibility, improving signs, and increasing management presence.
- *Overlook Point*—Closing this site on steep topography due to on-site erosion impacts. If this site is retained, consider implementing a series of actions to improve this site (limit use to day use only [possibly boat-in use], implement erosion control measures, repair existing facilities, and increase management presence, among others).
- *Long Gulch*—Redesigning this site for day use only, defining traffic patterns, improving maintenance and repair (picnic tables, gravel road, boat ramp), replacing specific site facilities (toilets), improving ADA accessibility, improving signs, and increasing management presence.
- *Iron Gate Fish Hatchery Public Use Areas*—Providing improved visitor contact orientation facilities (signs and maps) and hardening and improving access to the primitive river boat launch.
- *Dispersed Undeveloped Sites and Use Areas*—Closing and/or rehabilitating dispersed sites with ecological impacts. Additionally, consider reviewing cattle grazing activities along the reservoir shoreline (many observed ecological impacts are caused by cattle grazing).

Future Recreation Needs in the Proposed Project Area. The Recreation Needs Analysis also examined future recreation resources and use in the proposed Project area by analyzing recreation supply, demand, capacity, and needs through the anticipated term of the new license (assumed to be approximately 2040 for planning purposes). This section provides a summary of future recreation needs in the proposed Project area. Future conditions that will likely have an effect on proposed Project area recreation resources are summarized below:

- Oregon is projected to experience a population increase of about 52 percent by 2040, and California is expected to experience a population increase of approximately 51 percent by 2040. Additionally, rapid growth occurring in many of the counties of visitor origin is projected to continue through 2040. The five counties with the highest existing use in the proposed Project area (Klamath, Jackson, Siskiyou, Josephine, and Shasta counties) are all projected to grow by more than 40 percent by the year 2040.
- Using regional, statewide, and study area data, the following recreation activities are projected to increase in the proposed Project area at an annual rate of greater than 1.2 percent: (1) powerboating/PWC use, (2) sightseeing, (3) wildlife viewing, (4) RV camping, (5) resting/relaxing, (6) hiking, and (7) waterskiing.

- Future recreation use in the proposed Project area was estimated for the anticipated term of the new license (assumed to be through 2040 for planning purposes). Current use of the proposed Project area is projected to reach approximately 138,000 RD by 2040 (currently 96,000 RDs). This represents approximately a 44 percent increase from existing use levels in the proposed Project area.
- Facility capacity at several developed recreation sites in the proposed Project area is projected to exceed two identified capacity thresholds during the term of the new license or by 2040: (1) 60 percent peak season facility capacity, and (2) 80 percent peak season weekend facility capacity.
- The following developed sites in the proposed Project area will likely exceed one or both of these facility capacity thresholds before 2040:
 - Stateline Take-out (PacifiCorp and BLM)
 - Fall Creek
 - Jenny Creek
 - Wanaka Springs
 - Camp Creek
 - Juniper Point
 - Mirror Cove
- In general, the lower proposed Project area within the Iron Gate reservoir resource area has the greatest need for new developed recreation facilities in the proposed Project area during the term of the new license (approximately 80 campsites and up to 25 day use sites needed by 2040). Many of the recreation facilities needed at Iron Gate reservoir are current needs (i.e., needed in the next 5 to 10 years), while some of the new day use and campsites are needed in the future as use at recreation facilities reaches and exceeds capacity.
- The J.C. Boyle reservoir resource area is the only other resource area with facility needs in the proposed Project area. Approximately 10 new campsites are anticipated to be needed in this resource area in the future.

Given the anticipated increase in demand for proposed Project area activities and facilities, future site-specific recreation site needs are summarized below:

- J.C. Boyle Reservoir Resource Area—At all developed and dispersed sites in this resource area, consideration should be given to periodically monitoring use levels to determine whether site capacity thresholds have been reached. Approximately 10 new RV/tent campsites will likely be needed as the BLM's Topsy Campground reaches capacity. Infill or expansion is not feasible at this location. A new day use and campground facility at Boyle Bluffs may be considered. A new boater access site should be considered at the upper end of J.C. Boyle reservoir to facilitate boater access in this area.
- Upper Klamath River/Hell's Corner Reach Resource Area—At all developed and dispersed sites in this resource area, consideration should be given to periodically monitoring use levels to determine whether site and resource capacity thresholds have been reached. Other future recreation facility needs in this resource area include:

- No new sites are currently anticipated in this resource area. Potential improved recreation sites in this resource area should be consistent with adopted actions defined in the Draft Upper Klamath River Management Plan (BLM, 2003).
- Consider replacing the vault toilet and regravelling the parking area at Fishing Access Sites 2, 4, and 6.
- Consider regravelling the parking area at Fishing Access Sites 3 and 5.
- Consider replacing the toilets and adding an ADA-accessible fishing platform and trail access at Fishing Access Site 1.
- Consider site improvements and enhancements at Stateline Take-out (PacifiCorp and BLM) consistent with adopted actions defined in the Draft Upper Klamath River Management Plan (BLM, 2003).
- Copco Reservoir Resource Area—At all developed and dispersed sites in this resource area, consideration should be given to periodically monitoring use levels to determine whether site capacity thresholds have been reached. Limited development may be considered at the two existing developed recreation sites with use focused at Mallard Cove.
- Iron Gate Reservoir Resource Area—At all developed and dispersed sites in this resource area, consideration should be given to periodically monitoring use levels to determine whether site capacity thresholds have been reached. Other future recreation facility needs in this resource area include:
 - To help meet facility needs in the downstream proposed Project area, a potential new campground/day use area may be considered at this reservoir, subject to further detailed design in the draft RRMP. The Long Gulch Point dispersed site, located adjacent to Long Gulch, should be explored for potential new recreational development. This new site would be considered only after redesign/infill at existing recreation sites, such as Camp Creek, have been implemented.

E7.4.2.5 Recreation Resource Management Plan (draft RRMP)

A draft RRMP was developed between the draft and final license applications and is presented in Appendix E7-A. This Plan includes proposed programs for recreation facility development, facility operations and maintenance (O&M), monitoring, resource integration, RRMP review and updates, whitewater boating and fishing, enhancement of aesthetics/visual resources, and I&E.

E7.4.3 Proposed Studies

All identified recreation-related relicensing studies have been completed. No additional recreation studies are anticipated at this time.

E7.4.4 Outstanding Study Issues

No outstanding study issues have been identified at this time that are not addressed by the recreation-related relicensing studies. Any additional recreation resource-related study issues that may later emerge should be resolved as part of finalizing the draft RRMP in the future.

E7.5 EXISTING AND PROPOSED ENHANCEMENT MEASURES FOR RECREATION RESOURCES

This section discusses existing and proposed enhancement measures for recreation resources associated with the proposed Project.

E7.5.1 Existing Measures

In 1975 and 1976, FERC issued orders approving Exhibit R, as amended, which described existing and proposed recreation facilities at the Project. A total of 13 recreation sites are included as part of Exhibit R and the license orders, including:

- In the Klamath Falls area, constructed and maintained the popular Link River Trail and its two trailheads (no longer in the proposed Project).
- At Keno reservoir, constructed and maintained the Keno Recreation Area (no longer in the proposed Project).
- At J.C. Boyle reservoir, constructed and maintained Pioneer Park (East and West Units); while not constructed or maintained by PacifiCorp, BLM's Topsy Campground was also described in the Exhibit R (not in the proposed Project).
- At Copco reservoir, constructed and maintained Copco Cove and Mallard Cove (in cooperation with BLM).
- At Iron Gate reservoir, constructed and maintained six recreation facilities at the reservoir, except for Fall Creek Trail (CDFG), Jenny Creek, and Long Gulch.
- In cooperation with CDFG, fund 80 percent of the CDFG-operated Iron Gate Hatchery, helping provide fish for its recreational fish stocking programs.

In addition, PacifiCorp has voluntarily implemented the following measures within the study area both inside and outside the existing FERC Project boundary:

- Constructed and maintained all six Fishing Access Sites between Stateline Take-out (PacifiCorp and BLM) and Copco reservoir, and a river access site at the Iron Gate Hatchery. These sites are not part of the Project and are outside the current Project boundary.
- At Iron Gate reservoir, voluntarily constructed and maintained the Jenny Creek and Long Gulch recreation sites.
- At Stateline Take-out (PacifiCorp and BLM), voluntarily cooperates with BLM in site maintenance and management. This site is located outside the current Project boundary; however, the portion of the site within PacifiCorp ownership is in the proposed Project.
- At Frain Ranch, constructed a composting toilet (currently closed because of severe vandalism). This site is located outside the current and proposed Project boundary.

- At J.C. Boyle reservoir, leased the Sportsman's Park property to Klamath County for various outdoor sporting uses. This site is located outside the current and proposed Project.
- For many years, has voluntarily cooperated with BLM and commercial and private whitewater boating interests to provide flows below the J.C. Boyle powerhouse, at times sufficient to provide whitewater boating opportunities in the Hell's Corner reach downstream to Fishing Access Site 1.

E7.5.2 Proposed Measures

Proposed recreation resource measures were developed during the planning process for the draft RRMP between the draft and final license applications. The draft RRMP (Appendix E7-A) contains several key programs, including:

- Recreation facility development/capital improvement program
- Recreation facility O&M program
- Recreation monitoring program
- Resource integration program
- Plan review and update program
- Whitewater boating and fishing program
- Aesthetic/visual resources program
- I&E program

Several existing and future recreation needs in the study area have been identified for consideration in Section E7.4.2.4, Recreation Needs Analysis. While not all of these needs may be considered Project-related, many of these needs have been integrated into the draft RRMP. Proposed recreation resource measures are summarized in Table E7.5-1. Additional details are provided in the draft RRMP (Appendix E7-A). Operation of Project facilities and effects on flow-related recreation opportunities are discussed in Section E7.6.1.

Table E7.5-1 Proposed recreation resource measures.

Resource Areas/Sites and Topics	Capital Improvements and Programmatic and O&M Proposals
J.C. BOYLE RESERVOIR AREA	
Pioneer Park	<p>Capital Improvements:</p> <ul style="list-style-type: none"> • PacifiCorp to coordinate and conduct site redesign with ODOT (vacate Pioneer Park East) • PacifiCorp to provide improved and expanded day use facilities including picnic, and sunbathing areas • PacifiCorp to provide new ADA-accessible double vault toilet building • PacifiCorp to renovate the parking area, regravell, and provide vehicle barriers <p>Programmatic and O&M:</p> <ul style="list-style-type: none"> • PacifiCorp to explore potential management agreement with BLM to operate Pioneer Park in the future if both parties agree • PacifiCorp to provide annual O&M

Table E7.5-1 Proposed recreation resource measures.

Resource Areas/Sites and Topics	Capital Improvements and Programmatic and O&M Proposals
Dispersed Sites and Use Areas	<p>Capital Improvements:</p> <ul style="list-style-type: none"> • PacifiCorp to erect natural vehicular barriers to limit some dispersed use in sensitive areas • PacifiCorp to close and rehabilitate or harden some dispersed sites in sensitive areas • PacifiCorp to remove and/or renovate sites in the Spencer Creek area <p>Programmatic and O&M:</p> <ul style="list-style-type: none"> • PacifiCorp to coordinate dispersed use policies and actions with other area land managers • PacifiCorp to provide periodic site cleanup and enforce use policies on company-owned Project lands
New Trail — J.C. Boyle Reservoir Loop Trail	<p>Capital Improvements:</p> <ul style="list-style-type: none"> • PacifiCorp to provide new trailheads and a non-motorized loop trail connecting Pioneer Park, Topsy Campground, and Boyle Bluffs (approx. 5 mile loop); trail contingent upon further assessment of cultural resources and future easements with other land owners <p>Programmatic and O&M:</p> <ul style="list-style-type: none"> • PacifiCorp to provide annual O&M
New Day Use Area — Upper J. C. Boyle Reservoir Boater Access	<p>Capital Improvements:</p> <ul style="list-style-type: none"> • PacifiCorp to provide gravel road access and parking for 10-12 vehicles • PacifiCorp to provide a single ADA-accessible vault toilet building • PacifiCorp to modify the shoreline to accommodate a boater take-out <p>Programmatic and O&M:</p> <ul style="list-style-type: none"> • PacifiCorp to provide annual O&M
New Day Use Area and Campground — Boyle Bluffs Area	<p>Capital Improvements: If land can be acquired:</p> <ul style="list-style-type: none"> • PacifiCorp to rehabilitate disturbed areas in and around this site • PacifiCorp to provide a new gravel access road and gravel parking area • PacifiCorp to provide new vehicular barriers to limit access to roads only • PacifiCorp to provide new day use site at the bluffs area with 10 picnic sites • PacifiCorp to provide 10 new RV and tent campsites (when needed); may also function as a group camp if needed • PacifiCorp to provide an ADA-accessible double vault toilet building • PacifiCorp to provide a new hand-pump water well with spigots <p>Programmatic and O&M:</p> <ul style="list-style-type: none"> • PacifiCorp to provide annual O&M
UPPER KLAMATH RIVER/HELL'S CORNER REACH AREA	
Stateline Take-out (PacifiCorp and BLM)	<p>Capital Improvements:</p> <ul style="list-style-type: none"> • PacifiCorp and/or BLM to retain the boater take-out at the lower use area, but harden it to protect area resources (do not enlarge the area of impact); provide natural vehicular barriers to protect sensitive natural and/or cultural resources • PacifiCorp and/or BLM to provide a new ADA-accessible double vault toilet building at the lower bench area (to replace portables) • PacifiCorp to correct the irrigation ditch seepage problem <p>Programmatic and O&M:</p> <ul style="list-style-type: none"> • PacifiCorp and BLM to cost share on annual O&M of this site

Table E7.5-1 Proposed recreation resource measures.

Resource Areas/Sites and Topics	Capital Improvements and Programmatic and O&M Proposals
Fishing Access Site (FAS) 1 – 6	<p>Capital Improvements:</p> <ul style="list-style-type: none"> • PacifiCorp to enhance the boater take-out at FAS 1 with a regraveled road and parking area, interpretive sign, and new ADA-accessible double-vault toilet building • PacifiCorp to construct an ADA-accessible fishing platform and trail at FAS 1 • PacifiCorp to provide vehicular barriers to protect sensitive natural resources at all sites, particularly FAS 1 and 6 • PacifiCorp to provide formalized and hardened fishing access trails at FAS 2, 3, 4, and 5 • PacifiCorp to repair and replace site facilities over time including single vault toilets (3) • PacifiCorp to retain a permit-only boater take-out at FAS 6, but harden to protect resources and provide an ADA-accessible single-vault toilet building (do not enlarge area of impact) <p>Programmatic and O&M:</p> <ul style="list-style-type: none"> • PacifiCorp to limit number of whitewater boating take-out permits to 5 outfitters at FAS 6, when needed • PacifiCorp to continue O&M
Dispersed Sites and Use Areas	<p>Capital Improvements:</p> <ul style="list-style-type: none"> • None <p>Programmatic and O&M:</p> <ul style="list-style-type: none"> • PacifiCorp to provide periodic maintenance and patrols of dispersed sites; Implement resource protection actions as needed in cooperation with the BLM; Future actions to be consistent with the BLM-Upper Klamath River Management Plan, when adopted
Enhanced Trail and Boater Access — J. C. Boyle Dam Area, Boyle Bypass Reach, and J. C. Boyle Powerhouse Area	<p>Capital Improvements:</p> <ul style="list-style-type: none"> • PacifiCorp and/or BLM to develop 2 formal hardened fishing access trails, trailheads, signs, and pullouts below the J. C. Boyle dam and near the J. C. Boyle powerhouse • PacifiCorp to develop a new boater put-in site below J.C. Boyle dam; provide sign and graded gravel access road and parking area • PacifiCorp to develop an ADA-accessible fishing access platform or pier near the J. C. Boyle powerhouse area at an existing fishing access trail <p>Programmatic and O&M:</p> <ul style="list-style-type: none"> • PacifiCorp to fund annual O&M
New Day Use Area and Trail — J. C. Boyle Powerhouse “Foundations Area” with a New Trail to Spring Island	<p>Capital Improvements:</p> <ul style="list-style-type: none"> • PacifiCorp and/or BLM to provide a pedestrian trailhead and trail to Spring Island from the foundations area • PacifiCorp and/or BLM to provide gravel parking and bus turnaround area • PacifiCorp and/or BLM to provide a new ADA-accessible double-vault toilet building • PacifiCorp to remove existing building foundations <p>Programmatic and O&M:</p> <ul style="list-style-type: none"> • BLM to provide O&M

Table E7.5-1 Proposed recreation resource measures.

Resource Areas/Sites and Topics	Capital Improvements and Programmatic and O&M Proposals
COPCO RESERVOIR AREA	
Mallard Cove Recreation Area	<p>Capital Improvements:</p> <ul style="list-style-type: none"> • PacifiCorp to improve 10 RV/tent campsites; replace older site amenities • PacifiCorp to provide 2 new ADA-accessible double-vault toilet buildings; remove the existing toilet building • PacifiCorp to provide new separate day use area at the point (north of existing parking area) with 5 picnic sites, shade trees and/or shelters • PacifiCorp to construct an ADA-accessible fishing access pier adjacent to the boat launch <p>Programmatic and O&M:</p> <ul style="list-style-type: none"> • PacifiCorp to provide annual O&M
Copco Cove Recreation Area	<p>Capital Improvements:</p> <ul style="list-style-type: none"> • PacifiCorp to redesign boat ramp access and parking area, regravell the parking area • PacifiCorp to repair and replace 3 picnic sites, regrade the sites • PacifiCorp to provide an ADA-accessible single vault toilet building <p>Programmatic and O&M:</p> <ul style="list-style-type: none"> • PacifiCorp to close this site to overnight use and provide enforcement • PacifiCorp to provide annual O&M
Dispersed Sites and Use Areas	<p>Capital Improvements:</p> <ul style="list-style-type: none"> • None <p>Programmatic and O&M:</p> <ul style="list-style-type: none"> • PacifiCorp to close sites to overnight use and provide enforcement • PacifiCorp to provide annual O&M
IRON GATE RESERVOIR AREA	
Fall Creek Trail	<p>Capital Improvements:</p> <ul style="list-style-type: none"> • PacifiCorp and/or CDFG to harden the trail to the falls and its extension (loop trail) • PacifiCorp and/or CDFG to provide a new graveled trailhead and sign along Copco Road outside gate and hatchery area or near the existing parking lot (including 4 parking spaces) • PacifiCorp and/or CDFG to provide increased, secure separation between the two uses, such as fencing <p>Programmatic and O&M:</p> <ul style="list-style-type: none"> • PacifiCorp to take over the site if CDFG vacates the property • PacifiCorp and/or CDFG to re-open the trail to the falls to public use • CDFG and/or PacifiCorp to provide annual trail O&M

Table E7.5-1 Proposed recreation resource measures.

Resource Areas/Sites and Topics	Capital Improvements and Programmatic and O&M Proposals
Fall Creek Recreation Area	<p>Capital Improvements:</p> <ul style="list-style-type: none"> • PacifiCorp to provide a new ADA-accessible single-vault toilet building and remove the old toilets • PacifiCorp to further enhance the existing hand-launch boat ramp • PacifiCorp to provide additional shade trees (including irrigation) and/or covered picnic tables at picnic sites • PacifiCorp to provide a Watchable Wildlife Station • PacifiCorp to repair and replace existing picnic sites; Redesign and regrade the picnic sites and the entry road <p>Programmatic and O&M:</p> <ul style="list-style-type: none"> • PacifiCorp to close this site to overnight use sooner (to become day use only); Redirect overnight visitors to Camp Creek; Provide enforcement • PacifiCorp to provide annual O&M
Jenny Creek Recreation Area	<p>Capital Improvements:</p> <ul style="list-style-type: none"> • PacifiCorp to close and decommission the existing site; Revegetate the site with native plants • PacifiCorp to provide a roadside gravel parking pull-out area across Copco Road from the existing site (an existing popular shoreline fishing site) • PacifiCorp to provide a pedestrian trail from the roadside parking pull-out area to the existing toilet building and Jenny Creek • PacifiCorp to barricade (limit access to) and rehabilitate other nearby creek-side areas to protect sensitive resources • PacifiCorp to remove the old toilet building and provide a new ADA-accessible single-vault toilet building <p>Programmatic and O&M:</p> <ul style="list-style-type: none"> • PacifiCorp to provide annual O&M
Wanaka Spring Recreation Area	<p>Capital Improvements:</p> <ul style="list-style-type: none"> • PacifiCorp to repair and replace existing site facilities and redesign the site to be a group reservation camp (with 10 to 12 RV/tent campsites) with shade trees and/or shelters • PacifiCorp to replace the existing toilets with ADA-accessible double-vault toilet buildings • PacifiCorp to regrade and regravel the access road and parking areas; Provide vehicle barriers • PacifiCorp to provide a central group shelter • PacifiCorp to provide a hand-pump water well with spigots <p>Programmatic and O&M:</p> <ul style="list-style-type: none"> • PacifiCorp to implement fee-only reservation camping system when improvements completed • PacifiCorp to provide annual O&M

Table E7.5-1 Proposed recreation resource measures.

Resource Areas/Sites and Topics	Capital Improvements and Programmatic and O&M Proposals
Camp Creek Recreation Area	<p>Capital Improvements:</p> <ul style="list-style-type: none"> • PacifiCorp to create a new RV/tent camping area (approximately 40 campsites) on the upper bench area behind the existing toilet building • PacifiCorp to provide 3 new ADA-accessible double-vault toilet buildings • PacifiCorp to remove the existing campsites along reservoir shoreline and convert the area to 12 day use picnic sites • PacifiCorp to provide additional shade trees (including irrigation) and/or covered picnic tables in day use picnic area • PacifiCorp to formalize the overflow parking area and circulation and provide vehicle barriers • PacifiCorp to develop formal gravel access roads to both the adjacent private properties and the new campground on the bench • PacifiCorp to improve and enhance the existing partially ADA-accessible hand boat launch area; Convert this area to a day use site and provide enforcement • PacifiCorp to provide 5-10 mooring balls for temporary boat moorage near the boat launch • PacifiCorp to repair and replace existing site facilities at the boat launch including docks and ramp • PacifiCorp to develop water infrastructure extension to the bench • PacifiCorp to provide 5-10 overnight boat moorage slips near the boat launch <p>Programmatic and O&M:</p> <ul style="list-style-type: none"> • PacifiCorp to implement fee-only camping system when improvements completed • PacifiCorp to provide annual O&M
Juniper Point Recreation Area	<p>Capital Improvements:</p> <ul style="list-style-type: none"> • PacifiCorp to relocate the existing toilet buildings to the reservoir side of Copco Road (if possible per County permit); Replace with ADA-accessible double-vault toilet buildings • PacifiCorp to provide shade trees and/or shelters at picnic sites • PacifiCorp to redesign the site for day use picnicking only including the access road into the site • PacifiCorp to provide 9 improved picnic sites <p>Programmatic and O&M:</p> <ul style="list-style-type: none"> • PacifiCorp to gradually phase out overnight use at this site as the Camp Creek Campground expansion is completed (to become day use only); Provide enforcement; Redirect overnight visitors to Camp Creek and/or Long Gulch Bluff (when completed) • PacifiCorp to provide annual O&M

Table E7.5-1 Proposed recreation resource measures.

Resource Areas/Sites and Topics	Capital Improvements and Programmatic and O&M Proposals
Mirror Cove Recreation Area	<p>Capital Improvements:</p> <ul style="list-style-type: none"> • PacifiCorp to redesign this site and convert the non-boat launch area to a group reservation camp (10 RV/tent campsites by reservation only); The boat launch area would remain day use only (open to all) • PacifiCorp to relocate the toilet buildings to the reservoir side of Copco Road (if permitted by the County); Provide 2 new ADA-accessible double-vault toilet buildings • PacifiCorp to provide 5-10 mooring balls for temporary boat moorage • PacifiCorp to renovate the boat launch to make it ADA-accessible; Provide new boarding floats/docks • PacifiCorp to relocate the boat ramp to a deeper water area adjacent to the existing ramp, or dredge the existing ramp area and extend the ramp lane • PacifiCorp to provide 5 new day use picnic sites next to the boat launch • PacifiCorp to provide shade trees and/or shelters at all camping and day use picnic sites • PacifiCorp to provide a hand-pump water well and spigots <p>Programmatic and O&M:</p> <ul style="list-style-type: none"> • PacifiCorp to provide enforcement; Redirect non-group overnight visitors to Camp Creek or Long Gulch Bluff Campgrounds (when completed) • PacifiCorp to provide annual O&M
Overlook Point Recreation Area	<p>Capital Improvements:</p> <ul style="list-style-type: none"> • PacifiCorp to redesign this site to be a boat-in day use only site (3 boat-in sites); Provide additional shade trees (including irrigation) and/or covered picnic tables at each site • PacifiCorp to provide an ADA-accessible single-vault toilet building and remove the existing toilet buildings <p>Programmatic and O&M:</p> <ul style="list-style-type: none"> • PacifiCorp to close this site to overnight use and prohibit vehicular access; Provide enforcement • PacifiCorp to provide annual O&M
Long Gulch Boat Launch	<p>Capital Improvements:</p> <ul style="list-style-type: none"> • PacifiCorp to construct a trailhead for the Long Gulch to Iron Gate Hatchery Trail • PacifiCorp to redesign this site; Provide 5 new picnic sites with additional shade trees (including irrigation) and/or covered picnic shelters for each site • PacifiCorp to renovate the boat launch for ADA-accessibility; Provide a boarding float • PacifiCorp to enlarge the boat launch capacity to 2 ramp lanes (when needed) • PacifiCorp to provide 5-10 mooring balls for temporary boat moorage • PacifiCorp to formalize the gravel parking area, including overflow parking area; Provide vehicle barriers <p>Programmatic and O&M:</p> <ul style="list-style-type: none"> • PacifiCorp to close this site to overnight use (to become day use only); Provide enforcement; Redirect overnight visitors to the new Long Gulch Bluff and renovated Camp Creek Campgrounds (when completed) • PacifiCorp to provide annual O&M

Table E7.5-1 Proposed recreation resource measures.

Resource Areas/Sites and Topics	Capital Improvements and Programmatic and O&M Proposals
Iron Gate Hatchery Recreation Area	<p>Capital Improvements:</p> <ul style="list-style-type: none"> • PacifiCorp to redesign this day use area as the southern visitor interpretive gateway to the Klamath Project (see I&E Program) • PacifiCorp to provide additional shade trees (including irrigation) and/or covered picnic tables at picnic sites • PacifiCorp to construct a trailhead for the Bogus Creek Trail and the Long Gulch to Iron Gate Hatchery Trail; Provide signs • PacifiCorp to improve the adjacent river boat launch by hardening the access road <p>Programmatic and O&M:</p> <ul style="list-style-type: none"> • CDFG to provide annual O&M
Dispersed Sites and Use Areas	<p>Capital Improvements:</p> <ul style="list-style-type: none"> • None <p>Programmatic and O&M:</p> <ul style="list-style-type: none"> • PacifiCorp to prohibit overnight camping at dispersed sites/areas; Provide enforcement • PacifiCorp to provide annual O&M
New Campground and Day Use Area — Long Gulch Bluff Recreation Area	<p>Capital Improvements:</p> <ul style="list-style-type: none"> • PacifiCorp to develop a new campground (approx. 40 RV/tent sites) on the bluff adjacent to the existing boat launch — to be phased after documented use levels at Camp Creek Campground reaches capacity per the Monitoring Program; Provide gravel roads and water infrastructure • PacifiCorp to provide 3 new ADA-accessible double vault toilet buildings • PacifiCorp to develop a non-motorized trail between the campground, and boat launch with overlook areas • PacifiCorp to develop a shoreline day use picnic area at the nearby cove <p>Programmatic and O&M:</p> <ul style="list-style-type: none"> • PacifiCorp to implement a fee-only camping system when improvements are completed • PacifiCorp to provide adequate road and bridge maintenance for public access to the site (See Roads Program) • PacifiCorp to provide annual O&M
New Trail — Long Gulch to Iron Gate Hatchery Trail	<p>Capital Improvements:</p> <ul style="list-style-type: none"> • PacifiCorp to provide a multi-use dirt trail from Long Gulch to the Iron Gate Hatchery along an old roadbed (approx. 1 mile) <p>Programmatic and O&M:</p> <ul style="list-style-type: none"> • PacifiCorp to provide annual O&M
New Trail — Bogus Creek Trail	<p>Capital Improvements:</p> <ul style="list-style-type: none"> • PacifiCorp to improve an existing short spur trail along Bogus Creek and provide signage (approx. 0.5 miles) <p>Programmatic and O&M:</p> <ul style="list-style-type: none"> • PacifiCorp to provide annual O&M

Table E7.5-1 Proposed recreation resource measures.

Resource Areas/Sites and Topics	Capital Improvements and Programmatic and O&M Proposals
AESTHETIC/VISUAL RESOURCE ENHANCEMENT ACTIONS	
Repainting of Project Facilities Near Sensitive Viewpoints	PacifiCorp to help minimize the adverse effect of certain Project facilities by repainting them to help blend in with the surrounding natural landscape. PacifiCorp will repaint or reapply colored industrial coatings using naturally appearing colors to the company's existing Project industrial facilities during the term of the new license including: Red Barn operations headquarters at the J. C. Boyle dam area, J.C. Boyle powerhouse, penstock and surge tank in the bypass reach, and Iron Gate dam penstock; photo-simulations will be completed by the first anniversary of the new license; repainting or recoating of these Project facilities will occur at the next painting interval for that facility, as determined by PacifiCorp operations, but no later than year 15 of the new license term.
Screen Project Facilities with Vegetation Near Sensitive Viewpoints	PacifiCorp to help minimize the adverse effect of certain Project facilities by providing vegetative screening surrounding these facilities. PacifiCorp will develop and implement landscape plans that incorporate the use of native vegetation to help buffer, screen, and reduce the visual contrast of selected Project facilities from nearby sensitive public viewpoints; Project facilities include: J.C. Boyle powerhouse, penstock, surge tank, and substation, and the Red Barn at J.C. Boyle dam; if it is determined that painting alone is a more effective treatment compared to vegetative screening, then that remedy will be applied instead of vegetative screening; landscape plans will be prepared by PacifiCorp in consultation with the BLM where appropriate; plant selections will include native species; the new landscaping will be maintained by PacifiCorp to ensure continued health and vigorous growth of the new plantings.
Implement Proposed Recreation Measures that Will Enhance Aesthetics/Visual Quality in the Project Area	PacifiCorp to implement all of the proposed recreation facility capital improvement and O&M measures that collectively will significantly enhance the visual appearance of the Project area. PacifiCorp will implement the proposed measures in this RRMP that will include renovation of almost all Project recreation facilities. This will include new landscaping and structures, implementation of an I&E Program, improved recreation facility maintenance and grounds-keeping, and increased management of undeveloped dispersed sites, among others.
RRMP PROGRAMMATIC ACTIONS	
Implement the programs and actions contained in the RRMP over the term of the new license	<p>PacifiCorp to develop and implement agreements with other entities as required including joint management agreements and easements with the BLM, CDFG and/or private landowners (as needed).</p> <p>PacifiCorp to provide adequate company staff or contractor time and resources for recreation resource management-related activities and implementation of proposed RRMP measures, monitoring requirements, and periodic reporting (30 years minimum, up to 50 years).</p> <p>PacifiCorp to provide periodic recreation visitor surveys and visitor counts every 12 years and reporting every 6 years (schedule concurrent with FERC Form 80 requirements).</p>
Provide increased resource protection and visitor management control on Project lands	PacifiCorp to provide additional seasonal resource protection and visitor management control by providing a PacifiCorp Park Ranger to help patrol Project recreation sites and reservoir shorelines during the busiest 6 months of the year (1/2 FTE, May through October) (30 years minimum).
Increase seasonal land-based law enforcement presence on Project lands and waters	<p>PacifiCorp to seek a contract with the Siskiyou County Sheriff's Office (or other appropriate entity) for land-based patrols of Project lands from the Iron Gate Hatchery upstream to the Stateline take-out (PacifiCorp and BLM) from May through October (1/2 FTE, May through October) (30 years minimum); The Siskiyou County Sheriff's Office will continue to provide Marine Patrols funded by the California Dept. of Boating and Waterways.</p> <p>PacifiCorp to coordinate company-provided resource protection/visitor management patrols with other BLM and Klamath County Sheriff's Office law enforcement patrols of the J. C. Boyle reservoir and Boyle bypass reach.</p>

Table E7.5-1 Proposed recreation resource measures.

Resource Areas/Sites and Topics	Capital Improvements and Programmatic and O&M Proposals
Develop and implement an Interpretation and Education (I&E) Program on Project lands and waters	<p>PacifiCorp to develop a detailed plan for the I&E Program within 1 year of license acceptance.</p> <p>PacifiCorp to implement the I&E Program — estimated to include designing and placing approximately 25 signs/small kiosks (entire Project area), developing visitor brochures, providing campfire talks, etc.</p> <p>PacifiCorp to provide annual maintenance, repair and replacement of I&E Program signs once installed, updating of brochures over time.</p>
Hold continued discussions with agencies regarding non-Project company-owned lands outside the Project proceedings	<p>PacifiCorp will address future management actions on adjacent company-owned, non-Project lands separately from the Project proceedings, including Sportsman’s Park and Frain Ranch company properties that are not within the FERC Project boundary; Potential management agreements with Klamath County and/or the BLM, respectively, may be pursued by PacifiCorp outside of Project proceedings.</p> <p>PacifiCorp to define future ownership, management responsibilities, and transfer of rights of the Link River Trail and corridor lands within a future Decommissioning Plan for the Eastside and Westside Developments to be developed by PacifiCorp</p>

E7.6 CONTINUING PROJECT EFFECTS ON RECREATION RESOURCES

This section discusses continuing effects of proposed Project operations on recreation resources. These effects include: (1) flow-related effects, and (2) other non-flow-related effects that are discussed below.

E7.6.1 Flow-Related Project Effects on Recreation Resources

This section describes potential effects of continued Project operations on flow-related recreation in the proposed Project area. In general, normal Project operations appear to have only minor effects on reservoir-based recreation opportunities in the proposed Project area (e.g., reservoir levels occasionally affect boating and boating-related facilities along the shoreline). Results from the Recreation Visitor Surveys indicate that reservoir pool level does not negatively affect enjoyment or safety for a majority of visitors (90 percent of survey respondents) to the proposed Project area.

However, river flow-related recreation activities (e.g., river-based boating and fishing) are affected by Project operations. The Recreation Flow Analysis (Section 2.0 of the Recreation Resources FTR) identifies potential effects from continued Project operations. Summarized results for the J.C. Boyle bypass reach, Hell’s Corner reach, Copco No. 2 bypass reach, and the reach below Iron Gate dam are provided below (all study area results are provided in the Recreation Resources FTR).

On the basis of study results, there are several general recreation-related considerations when assessing potential alternative flow regimes in the proposed Project area, particularly the J.C. Boyle bypass reach and Hell’s Corner reach:

- Boating and fishing occupy different niches in the hydrograph, and there is no “compromise” flow that would provide quality versions of both at the same time. While some types of spin

and bait fishing could occur within the lower boating flow ranges, these are distinct from the wading- and shore-based fly fishing that has developed in response to low base flows from current operational regimes.

- If power peaking and/or higher flow whitewater opportunities were to be provided, the timing of those releases is likely to have varying effects on fishing and the level of whitewater boater use. Boaters would prefer midday boating releases in summer and early fall when fewer other whitewater boating rivers in the region are available. Additionally, boaters would probably prefer weekends versus weekdays (if a choice were required). Anglers also prize weekend days, particularly in the early summer and fall. This is a classic resource allocation dilemma.
- Many anglers tend to fish in early morning and late evening, so midday whitewater flows (e.g., from 10 a.m. until 4 p.m.) would have less impact than if whitewater releases were provided for an entire day (e.g., from 8 a.m. to 8 p.m.). While ramping up and down from target flows would extend these periods, short daily releases could minimize the loss of fishing opportunities and power generation, while providing whitewater boating during the warmest time of day.
- Whitewater flows in summer and fall may have a variety of biophysical impacts (many of which are addressed by other studies for this relicensing). From a fishing perspective, key issues focus on timing releases to minimize long-term effects on habitat and insect productivity. Anglers are also concerned about the duration of impacts on fish feeding activity (e.g., will whitewater releases diminish fishing success for several hours or days after releases and thus exacerbate the loss of fishing-days?). Monitoring may be used to help examine these potential effects.
- When integrating recreation information with ecological flow needs, resource managers may focus attention on designing whitewater releases that mimic natural (unimpaired) high-flow events and, thus, serve various ecological purposes (e.g., channel maintenance, gravel cleaning). Historically, these high-flow events occurred between January and June. Under current Project operations (two turbines plus spill), high flows may still occur during this period in wetter years (although with smaller peaks than if flows were unimpaired). However, if high flow or supplemental whitewater releases were scheduled during these times, relatively fewer whitewater boaters would probably use them because other rivers in the region are also likely to be available. If ecological concerns require boatable high flows to be released between January and June, the later months are better from a boater perspective (because the weather is warmer).
- Whitewater releases that might be provided in the J.C. Boyle bypass reach would likely remove water for power operations. Alternatively, whitewater releases in the Hell's Corner reach would provide hydropower generation. Generation capacity from potential releases can be calculated in megawatts and the impact to generation depends on several variables, including the size, duration, and timing of the release (both seasonally and by time of day), ramping rate requirements, and the base flow from which releases would be "built." Market conditions for power, which can fluctuate due to a variety of factors, may also influence the value of foregone power.
- Whitewater and power releases may potentially affect the pool level at J.C. Boyle reservoir. The size of the potential reservoir drawdown may be calculated depending on the size,

duration, and timing of the release (both seasonally and by time of day), ramping rate requirements, and the base flow from which releases would be built. Other studies in the Recreation Resources FTR have identified potential impacts from reservoir pool level changes, including navigability of shallow areas, facility usability, and overall aesthetics.

- Higher base flows, to enhance biological resources for example, may result in lower quality or lost fishing opportunities if new base flows are too high. It is not totally clear how anglers or fishing organizations may respond to proposals that might improve the fishery but diminish fishability. However, study results suggest that most current anglers prefer current base flows. In general, some anglers appear to fish the J.C. Boyle bypass reach because it stays low when the downstream Hell's Corner reach is too high due to hydropower peaking.
- Experience with other rivers also suggests that anglers would adapt their tackle and techniques to successfully fish higher base flows (particularly after the riparian vegetation adjusts to those new levels and provides a more open shoreline). However, it is also clear that those new opportunities might be dramatically different from current ones. On the basis of this analysis, significantly higher base flows are likely to substantially alter the nature of fishing opportunities.
- If hydrographs were specified for any of the reaches studied, it would be possible to calculate the number of days that acceptable and optimum flows would be provided for flow-based recreation opportunities.
- In summary, balancing potential boating and fishing flows in the proposed Project area is challenging. Providing acceptable flows for one user group would likely cause the loss of days or quality for other groups. Ecological resources may also be affected by any change in the flow regime, although some fish and riparian resources may be improved by well-timed "pulse" releases or higher base flows. Hydropower generation in the proposed Project would likely be affected by any potential flow changes intended to provide greater recreation diversity.

E7.6.1.1 J.C. Boyle Bypass Reach

Project-related effects have generally enhanced fishing in the reach by providing stable base flows for most of the year (about 100 cfs at the start and 320 cfs at the end of the reach). Fish habitat might be improved with higher base flows (to be determined by fisheries studies), and anglers could probably adapt their tackle and techniques to somewhat higher levels (flows up to 1,000 cfs). But it is clear that anglers prefer lower levels, and most spill or whitewater boating flows are considered too high by anglers.

Project-provided base flows in combination with spring flows are within the optimal range for general recreation. Without Project flow diversions, higher flows would probably lower water quality in the segment as higher proportions of the water would be from Upper Klamath Lake than from the springs. However, pre-Project flows were probably also within the optimal range for general recreation through most of the year.

In contrast, Project-related effects on whitewater boating have been substantial. Base flows are clearly too low for quality boating opportunities, and taking advantage of spill events is difficult because spill flows are (1) unpredictable, (2) usually too high, and (3) often occur during the colder winter or early spring months. In some years, no spills occur. Additional analysis of spill

flows could be conducted to quantify the frequency of spill amounts in different ranges. That analysis could also be compared with pre-Project estimates of flows in the J.C. Boyle bypass reach, which are likely to provide flows between 1,000 cfs and 3,000 cfs for several months each year (probably from late spring to midsummer, and then again from late fall to early winter).

Under current flow regimes, whitewater boating opportunities occur only during short-duration spills or unpredictable maintenance events, while flows more conducive to wading-based fishing and general recreation are available for the rest of the year. With a regulated river, it may be possible to alter the frequency of these various opportunities to provide greater diversity or enhance particular opportunities and resource values. Future management is tied to understanding the impacts and trade-offs of these choices.

Proposed Instream Flows for J.C. Boyle Bypass Reach

In the new license, PacifiCorp proposes to provide a minimum release of 100 cfs from the J. C. Boyle dam at all times. This release would result in a minimum instream flow of approximately 320 cfs at the lower end of the bypass reach due to spring inflows. This proposed flow rate would enhance usable fish habitat while maintaining high water quality in this reach. For fishing, this proposal would result in flows that fall within the acceptable range (200 to 1,000 cfs) over most of the bypass reach, and at the lower end of the reach, would edge into the optimal flow range (300 to 400 cfs) based on study results. Enhancing usable fish habitat, providing an acceptable ramping rate, and maintaining good water quality should also help angler success over time. The proposed flow also falls into the acceptable flow range (200 to 3,000 cfs) for general recreation activities, such as swimming. However, the proposed flow in the bypass reach would not provide adequate releases to support various potential whitewater boating opportunities on an ongoing basis (acceptable flow ranges are listed): technical kayaking (800 to 1,300 cfs), technical rafting (1,000 to 1,500 cfs), standard whitewater boating (1,300 to 1,800 cfs), big-water rafting (1,600 to 2,300 cfs), and big-water kayaking (1,700 to 3,000 cfs). These types of whitewater boating opportunities would continue to be provided downstream of the J. C. Boyle powerhouse in the Hell's Corner reach. Whitewater boating opportunities would occasionally occur in the bypass reach during high-runoff spill events.

E7.6.1.2 Upper Klamath River/Hell's Corner Reach

Flows in the Hell's Corner reach are strongly influenced by Project-related effects. Because of Upper Klamath Lake storage, the Hell's Corner reach has periods of higher flows in summer and fall (and lower dry-year winter and spring) than would be provided without the PacifiCorp and USBR Projects. Because of PacifiCorp peaking operations, these high flows are balanced by periods of base flows that are substantially lower than would occur without the two Projects.

These daily peaking events have small effects on general recreation, but they largely determine the frequency and quality of whitewater boating and fishing. In general, peaking flows of 1,500 to 1,700 cfs ("one turbine") provide high-quality whitewater boating, but also preclude high-quality fishing. Off-peak base flows (approximately 320 cfs under the current license), in contrast, are not good for whitewater boating, but provide quality fishing opportunities.

Predictable daily whitewater boating flows have fostered substantial commercial boating recreation on the river. There are usually fewer than 20 days from May through September when

one-turbine flows are not available, and many days with flows higher than one turbine (usually in May and early June). If the Project did not exist, the Upper Klamath River would probably provide only technical or low-flow boating opportunities after midsummer (similar to other unregulated whitewater boating rivers in the region).

Changes in the timing of peaking flows (as occurred in 2000 and 2001) can also have substantial impacts on the whitewater boating industry. Total use levels during those years were down almost a third from peak levels in the late 1990s, and the number of overnight trips dropped substantially. While changes in the timing of peaking releases are certainly a factor in decreasing use levels, other factors may have included public perceptions of the basin-wide drought and a generally declining regional economy. As peaking flows shifted to later in the day, outfitters had to take shorter trips or return clients to their starting points much later.

Timing effects on fishing were the converse. As peaking flows shifted later in the day, anglers received better conditions during the morning base flows, but less time during the evening.

Fish habitat may improve with higher base flows or decreased variation from peaking, and anglers would probably adapt tackle and techniques to somewhat higher flow levels. However, most anglers prefer to fish the lower flows that exist during off-peak times. If “run-of-the-river” flow regimes were instituted on the reach (no daily peaking; flows would follow the seasonal hydrograph determined by outflows from Upper Klamath Lake), spring and early summer flows would probably produce unacceptable fishing conditions for current fly and spin/bait anglers. Even late summer and fall flows would probably remain above 700 cfs, with none of the optimal wading-based fly fishing now provided for parts of each day.

Under the current Project operation, whitewater boating and fishing are provided at near-optimal levels on most days in the summer and fall—but at different times of the day. Altered flow regimes with different timing or reduced variation due to peaking would alter the frequency and quality of these existing opportunities.

Proposed Operation of J.C. Boyle Powerhouse

In the new license, PacifiCorp proposes to provide for continued hydropower peaking operations (Table E4.6-3), but with several new restrictions that are intended to enhance various resources and to balance power and nonpower values, such as whitewater boating and fishing in the popular Hell’s Corner reach. PacifiCorp’s flow proposal in this river reach includes many components that affect recreation resources. PacifiCorp would provide a minimum release of 200 cfs, plus accretion flows from the upstream bypass reach, at the gage station downstream from the J. C. Boyle powerhouse. This minimum flow release would total approximately 420 cfs into the J. C. Boyle peaking reach used by whitewater boaters and anglers. Project-controlled up-ramp rates would be no more than 9 inches per hour. Project-controlled down-ramp rates would be no more than 9 inches per hour at flows greater than 1,000 cfs and 4 inches per hour for flows less than 1,000 cfs. Daily Project-controlled flow variation would not exceed 1,400 cfs under PacifiCorp’s proposal. This 1,400 cfs limitation would cease two-unit operations where the powerhouse goes from off-line (0 cfs:420 cfs at the USGS gage downstream) to two-unit, full-load operations (2,850 cfs:3,270 cfs at the USGS gage) in 24 hours. The timing of proposed peaking operations would be similar to current Project operations, which provide boatable flows throughout the high-demand summer whitewater rafting season (June through August). Except

for energy alert periods (see footnote in Table E4.6-3), the powerhouse would generally ramp up to a minimum acceptable whitewater boating flow level (1,500 cfs at the downstream gage station) by 12:00 p.m. (noon) on Sunday, Monday, Tuesday, Thursday, and Friday of each week. On Saturdays, the ramp-up time would be 2 hours earlier (1,500 cfs at the downstream gage station by 10:00 a.m.). On Wednesdays, no set schedule would be guaranteed. The J. C. Boyle flow phone and website would continue as status quo. Actual powerhouse operations (flows and timeframes) would continue to be affected by USBR flow requirements below Iron Gate dam, Upper Klamath Lake levels, and by climatic conditions at the time (available water in the river). In dry periods, flows may not be high enough or of sufficient duration to provide whitewater boating opportunities.

Fishing would be generally enhanced by PacifiCorp's flow proposal in Hell's Corner reach. This proposal would increase the minimum flow level, make adjustments in power peaking operations that would enhance usable fish habitat, decrease the unproductive varial zone, and help preserve flows for water quality purposes. Anglers would have larger "windows" of time for fishing, compared with current Project operations during low- to medium-flow periods. The proposed minimum flow of 420 cfs total in channel would be within the optimal flow range for fishing (300 to 500 cfs). This proposed flow would provide greater flow stability for aquatic resources that may result in more fish with potentially improved angler success, as well as periods of optimal wading-based fishing. During periods of medium-high to high inflows to J.C. Boyle reservoir, base flows (flows when peaking is not occurring) may be high enough to cause a decrease in quality or elimination of wading-based fishing opportunities.

Whitewater boating opportunities would also be enhanced by PacifiCorp's flow proposal for the popular Hell's Corner reach. At the same time, the proposal would make adjustments in power peaking operations that would enhance other resources. This proposed flow would provide greater flow stability for aquatic resources, but continue to provide for standard whitewater boating opportunities (periods of standard whitewater boating). Low-flow periods (700 cfs or lower below Iron Gate dam) would have limited one-unit peaking "windows" for standard whitewater boating (1,500 to 1,800 cfs), although the slower down-ramp rate may partially ameliorate this effect.

Peaking (1,400 cfs powerhouse discharge plus base flow) may occur during periods of high inflows to J.C. Boyle reservoir. At these times, non-peaking base flow in the Hell's Corner reach may be higher than 420 cfs and the peaking flow, therefore, could be considerably higher than 1,800 cfs at the USGS gage. Flows greater than 1,800 cfs would provide higher quality standard or begin to provide "big water" boating opportunities.

Through a typical year, the proposed operation of J.C. Boyle powerhouse would provide adequate releases to support several different kinds of whitewater boating opportunities (acceptable flow ranges are listed): technical kayaking (400 to 1,500 cfs), technical rafting (700 to 14,000 cfs), low-flow commercial rafting (1,000 to 13,000 cfs), standard whitewater boating (1,400 to 3,000 cfs), standard commercial rafting (1,300 to 2,000 cfs), and big-water boating (1,700 to 3,700 cfs). The proposed flows would also fall into the acceptable flow range (200 to 3,500 cfs) for general recreation activities, such as swimming.

E7.6.1.3 Copco No. 2 Bypass Reach

Recreation in this reach is substantially affected by existing Project operations, which generally provide 5 to 10 cfs throughout the year (spill events are rare). The frequency, duration, and magnitude of spill events are currently being summarized as part of the relicensing hydrology study. In general, a 10 cfs base flow provides acceptable general recreation opportunities only; whitewater boating and fishing cannot occur at these levels.

If higher base flows are contemplated to achieve biological objectives, they are also likely to improve recreation opportunities. Base flows of up to 300 cfs would improve hiking, swimming, general recreation, and wading-based fishing (if a fishery existed). Even higher base flows (up to about 600 cfs) would offer some bank fishing, but lower quality wading-based fishing or swimming. Hiking along the reach would be acceptable at any base flow from 10 to 1,500 cfs, but flows above 300 cfs would limit crossings and access. Higher base flows are not likely to provide standard boating opportunities unless they exceed 600 cfs, but quality technical kayaking would be available about 300 cfs.

If occasional whitewater boating releases are contemplated, demand for this short but challenging run is unlikely to be high. Although local whitewater boaters appear likely to show considerable initial curiosity about the reach's scenery and rapids, the run is generally too remote and short to attract much repeat use. A few hours of releases a day or two per year would probably be sufficient to help meet local demand. If new releases are considered, access to the boater put-in will need management attention. The road to the put-in is gated, there is limited parking near the dam, and only informal trails provide access to the water. One possibility would be to manage these releases as a whitewater "event," with coordinated shuttles to limit private vehicles (shuttles like this have been successful on a reach on the North Fork Feather River in California with similar access issues).

Regardless of flow regime changes, the Copco No. 2 bypass reach also has potential from an aesthetic/visual resource perspective. It has several interesting geologic formations and outstanding scenic vistas that would likely be appreciated by hikers, picnickers, anglers, and boaters if access were improved and encouraged.

Copco No. 2 Bypass Reach Flows

In the new license, PacifiCorp proposes to provide a minimum release of 10 cfs from the Copco No. 2 dam at all times. This minimum flow is similar to the status quo for several reasons, including: (1) there are very few trout in this reach, (2) few visitors use this reach and cannot easily or safely access it, (3) there are potential emergency spills in this reach that could create a hazard, (4) there is very little fish habitat, (5) the value of water to generation, and (6) the reach is comparatively short (only 1 mile). However, under this proposal, ramping would mostly occur at night and the proposed ramping rate would reduce potential fish stranding associated with river spill events. The proposed flow rate would fall at the low end of the acceptable flow range (10 to 1,500 cfs) for general recreation activities, such as wading in the occasional pools in the bypass reach, and for general aesthetics. However, the proposed minimum flow level is below the acceptable flow range for other types of recreation activities that might be possible if greater flows were provided, similar to other Project reaches. Recreation activities that would not be

supported by the proposed flows include bank or boat fishing, technical kayaking, standard whitewater boating, and big-water whitewater boating.

E7.6.1.4 Middle Klamath Reach (Below Iron Gate Dam)

Project effects on the Middle Klamath reach (below Iron Gate dam) are fundamentally difficult to quantify because they are confounded by base flow requirements currently required by USBR to meet ESA objectives (NMFS, 2002). The combination of irrigation withdrawals, loss of marshland in the Upper Klamath Basin, and increased evaporation from Project reservoirs has reduced the total amount of water released downstream of Iron Gate dam. Similarly, irrigation storage, withdrawals, and return flows have modified the timing of flows through the season. Without assigning responsibility for base flow releases to the irrigation system or hydroelectric Project, it is possible to broadly describe their effects on recreation in the Middle Klamath River reach.

Current flow regimes have generally not affected (and may enhance) fishing opportunities during wet years or in most high-flow periods during average years. During these times, flows are rarely lower than optimal levels for fishing, and Upper Klamath Lake storage may help reduce flows that would otherwise be too high. When the river is spilling through the Project, flows are higher than optimal levels for fishing, although those higher flows would have been present with or without the irrigation or hydroelectric projects.

In contrast, minimum flows at Iron Gate can have substantial effects on recreational fishing in dry years or in the drier periods during average years. These are the periods when minimum base flows determine the quality of fishing. If minimum flows are set below about 800 cfs, some boating-based fishing opportunities become unacceptable (particularly on the upper reaches of the segment from Iron Gate dam through Seiad Valley). If they are set below about 1,000 cfs, these same opportunities are suboptimal (although still acceptable). Many anglers are also concerned about the potential deleterious effects on the fishery from low flows during these periods, but those biological issues are the purview of fisheries relicensing studies.

As with fishing, current flow regimes have generally not affected whitewater boating opportunities during wet years or in most high-flow periods during average years. During these times, flows provide optimal versions of either standard or big-water boating about as often as they would have occurred without the Project.

However, minimum flows can have substantial effects on whitewater boating in dry years or in the drier periods during average years (which includes the main summer season). These are the periods when minimum base flows determine the type and quality of whitewater boating trips. If minimum flows are set below 1,500 cfs, standard trips are suboptimal, and they offer less whitewater boating challenge. If they are set below 1,000 cfs, trips become even more technical in nature; by 800 cfs, standard trips are no longer acceptable. In years where base flows are in the 600 to 700 cfs range, even technical trips are suboptimal, and below 500 cfs there may be reaches that become unraftable without extensive stops and drags (although it is likely that kayaks or canoes could still negotiate the river).

Current flow regimes (even in very dry years) below Iron Gate dam generally provide flows within the optimal range for general recreation and swimming and provide more than adequate

aesthetics. During periods of very low base flows (below 500 cfs), suboptimal swimming or water quality issues may be noticeable in some specific areas, but there are many other miles of river where swimming is optimal and water quality issues are likely not as noticeable.

Flow Releases at Iron Gate Dam

Like current river flow conditions, PacifiCorp's flow proposal for the new license below Iron Gate dam would be the instream flow schedule and ramping rates that would be defined in USBR's Klamath Project Operations Plans, consistent with biological opinions issued by USFWS and NOAA-Fisheries. The instream flows and ramping rates have historically been developed based on extensive ongoing study and agency and tribal consultation consistent with biological opinions issued by USFWS and NOAA-Fisheries to protect ESA-listed species. As a result, the Project's effects on recreation in the Middle Klamath reach below Iron Gate dam would continue to mimic the status quo. Current USBR flow regimes have generally not affected (and may enhance) fishing opportunities during wet years or in most high-flow periods during average years. As with fishing, current flow regimes have generally not affected whitewater boating opportunities during wet years or in most high-flow periods during average years. However, in dry years or during drier periods of average years, minimum flows can have substantial effects on whitewater boating. Current flow regimes (even in dry years) probably provide flows within the optimal range for general recreation and swimming and provide more than adequate flows for aesthetics. However, as stated earlier, future flows below Iron Gate dam would continue to be greatly controlled by USBR.

E7.6.2 Non-Flow-Related Project Effects on Recreation Resources

Non-flow-related effects of Project operations on recreation resources are discussed below.

E7.6.2.1 Reservoir Operation and Maintenance

The J.C. Boyle and Copco developments operate for power generation, and, in the case of Copco, control of surface water elevations of Copco and Iron Gate reservoirs. The J.C. Boyle and Copco Nos. 1 and 2 powerhouses typically operate on a load-factoring basis to generate at times when energy demands are highest. Water is stored during nonpeak times, which are typically weeknights and weekends. One potential Project effect that could contribute to existing lake boating recreation resource conditions is the fluctuation of the reservoir and the potential to limit use of the reservoir boat ramps when reservoir pool levels are low. Normal operations do not limit such use; however, periodic reservoir drawdowns for maintenance and/or low water year conditions will occasionally leave boat ramps and docks out of the water. This condition occurred in the summer of 2003, when the Mirror Cove Boat Launch was closed due to the reservoir's lower pool level in late summer. The proposed redesign and replacement of the Mirror Cove boat launch should eliminate this problem.

E7.6.2.2 Project Maintenance Activities

The only known Project-related maintenance effect on recreation resources occurs during the J.C. Boyle annual canal maintenance, which historically occurs no more than one time per year for a period of 1 to 2 days or up to 2 weeks, depending on maintenance activities. Maintenance involves dewatering the canal to make repairs and at that time, no water is available for whitewater boating flows. During the last few years, PacifiCorp has for most years scheduled

routine annual canal maintenance in the fall after the whitewater boating season is over and has shortened the outage to as little as 1 to 2 days. In the new license, PacifiCorp proposes to consult with appropriate agencies on the annual scheduled outages for Project maintenance events where flows in Project reaches are required to be outside the normal operations.

E7.6.2.3 Project Lands Management

Several land management issues currently exist on Project lands. Vandalism at Project recreation facilities does occur and is a known problem in the region. Grazing (open range) is also a known problem. During the summertime, cattle have been observed wandering through the campgrounds or picnic areas, disrupting the recreation experience and causing erosion at watering holes also used for dispersed shoreline recreation. Some dispersed shoreline recreation sites have ecological problems such as erosion, litter accumulation, road cutting, vegetation removal, and sanitary problems. Nonrecreational squatters also cause problems at some remote dispersed sites, particularly in the Spencer Creek inlet area north of the J.C. Boyle reservoir. The draft Recreation Resource Management Plan (RRMP) identifies management measures to reduce and minimize these effects.

E7.6.2.4 Human Access and Use Factors

Providing public access to certain areas of the Project has in the past (and could continue in the future) resulted in disturbances to sensitive cultural and historic sites. Cultural resource studies describe these effects in detail, and the cultural (draft HPMP) and recreation (draft RRMP) management plans discuss actions for coordinating activities and/or minimizing disturbance to cultural resources.

E7.6.2.5 Water Quality

One potential Project effect that contributes to existing recreation resource conditions is water quality. The Project reservoirs receive a large loading of organic matter and nutrients delivered via the river from Upper Klamath Lake and other sources (e.g., Klamath Straits Drain). Retention of organic matter and nutrients in the reservoirs results in periodic blooms of planktonic algae, and associated odor in summer during what is considered the peak recreation season. Visitor survey results indicate that this effect makes recreation opportunities somewhat less attractive during periods of occasional severe algae blooms.

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