

**SECTION 7(a) WILD AND SCENIC RIVERS ACT
PRELIMINARY DETERMINATION
and REPORT**

**Klamath River Hydroelectric Project,
Klamath Wild and Scenic River (California)**

November 2006

INTRODUCTION

PacifiCorp's 161-megawatt (MW) Klamath River Hydroelectric Project (FERC No. 2082) (Klamath Project) is located primarily on the Klamath River in Klamath County, Oregon and Siskiyou County, California. The existing project consists of eight developments, seven of which are located on the Klamath River.

On January 19, 1981, at the request of the Governor of California, the Secretary of the Interior added the Klamath River to the National Wild and Scenic Rivers System (National System) through section 2(a)(ii) of the Wild and Scenic Rivers Act (WSR Act). The designated portion of the Klamath River in California begins 3600 feet below Iron Gate Dam and flows 189 miles to the Pacific Ocean. This designation also includes three principal tributaries, for a total of 286 miles. All facilities of the Klamath Project are located above the designated Klamath WSR in California. The Klamath Project is located principally on the Klamath River, between Klamath Falls, Oregon and Yreka, California, and consists of eight developments, one of which, Keno has no power generating capacity. Major Project dams with generating facilities are Iron Gate, Copco 1, Copco 2, and J.C. Boyle Dams. PacifiCorp proposes to decommission two powerhouses (East Side and West Side) and to remove Keno Dam from the project.

A segment of the Klamath River in Oregon was also added to the National System through section 2(a)(ii) on September 26, 1994. The 11-mile designated portion of the Klamath River in Oregon begins immediately downstream of the J.C. Boyle Powerhouse (river mile 220.3) and flows to the Oregon-California border (river mile 209.3). It is located downstream of the J.C. Boyle Development and upstream of the Copco I & II Developments.

This document identifies WSR Act requirements, evaluates the effects of alternatives included in the Federal Energy Regulatory Commission's (FERC) *Draft Environmental Impact Statement for Relicensing of the Klamath Project, No. 2082-027* DEIS (September 25, 2006) on identified WSR values, and includes a determination under the appropriate standard of Section 7(a) of the WSR Act for the California (CA) Klamath WSR only. The determination for the Oregon Klamath WSR will follow, likely as a part of the Department of the Interior's filing of its modified conditions and prescriptions.

CALIFORNIA KLAMATH WSR BACKGROUND

The USDA Forest Service (USFS) has section 7(a) responsibilities for the segment of the mainstem CA Klamath WSR from its upper terminus, 3600 feet below Iron Gate dam, to the western boundary of the Six Rivers National Forest. The National Park Service (NPS) has section 7(a) responsibilities for the segment from the Six Rivers National Forest Boundary to the mouth. A portion of the lower forty-five miles of the Klamath flows through the Yurok Tribal Reservation and this determination has been developed in coordination with the Tribe. Since the relicensing of the Klamath Project has the potential to affect the entire CA Klamath WSR, the USFS and NPS agreed to jointly develop one determination that integrates the effects on both segments of the river.

The anadromous fishery is the outstandingly remarkable value (ORV) for which the California segment of the Klamath was designated a WSR. The Klamath River supports several anadromous species during most of their in-river life stages. The various species include Chinook salmon (spring- and fall-runs), coho salmon, steelhead trout (summer- and winter-runs), coastal cutthroat trout, green and white sturgeon, and Pacific lamprey. The evolutionarily significant unit of coho salmon, the Southern Oregon/Northern California Coast coho, is federally listed as a threatened species under the federal Endangered Species Act. The Klamath River is designated as critical habitat for this species. The combined anadromous fishery supports the river sportfishing guide and resort industry, Native American subsistence and ceremonial culture and the ocean commercial and sport fishing industry. Recreationists that are attracted to the CA Klamath WSR also enjoy viewing salmonids, especially during migration seasons. The river is also an important recreational and wildlife habitat corridor. The flow levels and water clarity of the CA Klamath WSR may affect the fishery, wildlife, scenery and recreational experience and setting. River communities below the Project depend on resources that the river has historically provided, most notably fisheries resources and boatable flows.

Existing Project Description

Klamath River Hydroelectric Projects (FERC No. 2082)

Built between 1908 and 1962, PacifiCorp's Klamath Project consists of seven hydroelectric developments and one nongenerating dam. The U.S. Department of the Interior Bureau of Reclamation (Reclamation) owns Link River Dam, which PacifiCorp operates in coordination with the company's projects. The Link River Dam, located upstream of PacifiCorp's projects, forms Upper Klamath Lake, the largest freshwater lake in Oregon. In addition to diverting water for PacifiCorp hydroelectric generation, water releases through Link River dam from Upper Klamath Lake fulfill other objectives including irrigation, flood control and instream flows for anadromous fish.

All of PacifiCorp's developments use water from Upper Klamath Lake or from the mainstem Klamath River to generate electricity – except one plant that is located on Fall Creek, a tributary to the Klamath River. PacifiCorp's seven hydroelectric developments are: (1) Eastside & Westside powerhouses; (2) J.C. Boyle Dam, canal and powerhouse; (3) Copco Nos. I & II dams and powerhouses; (4) Fall Creek dam and powerhouse; and (5) Iron Gate dam, powerhouse and

hatchery. Keno Dam, located 25 miles downstream of the Westside plant, is also part of the project but has no generating capability. PacifiCorp currently operates Keno to maintain a stable water level in the reservoir to facilitate water delivery to irrigation users in accordance with an agreement with Reclamation. Together the PacifiCorp's 161 MW Klamath Project has a total of twelve (12) turbine generators, five (5) limited storage reservoirs, and five (5) concrete, earth, or rockfill dams. The five reservoirs range in size from forty (40) to approximately 1,000 surface acres. Iron Gate serves as a reregulation facility for river flows downstream of the Klamath Project.

In 2000, the PacifiCorp initiated the FERC relicensing process for the Klamath Project. PacifiCorp's license expired in April 2006 and the Klamath Project is currently operating on an annual license.

FERC DEIS ACTION ALTERNATIVES

The following describes the major components of the four action alternatives contained in the DEIS that are likely to affect the CA Klamath WSR segment.

PacifiCorp Proposal

PacifiCorp proposes to decommission the Eastside and Westside hydroelectric facilities and remove the Keno dam from the project boundary. PacifiCorp also proposes forty-one (41) environmental measures. Only those measures that could affect the CA WSR segment are described below.

Water, Aquatic, and Geological Resources

1. Stream Flow and Ramp Rate Recommendations
 - a. Iron Gate Dam Continue instream flows and ramp rates for the hydroelectric project per the National Marine Fisheries Service (NMFS) Biological Opinion (BiOp) on Reclamation's Klamath Irrigation Project. Per the 2006 Court order, the BiOp Phase III flows be in effect.
 - b. Coordination - Consult and coordinate with agencies on annually scheduled outages for project maintenance purposes where flows are anticipated to be outside the normal operations.
2. Gravel Management - Install 800 to 3,500 cubic yards below Iron Gate from the dam to the Shasta River confluence.
3. Water Quality and Temperature - Implement a low-level release of cooler hypolimnetic water from Iron Gate reservoir during summer to provide some cooling of the Klamath River downstream of the project. In addition, install a reservoir oxygenation diffuser system at Iron Gate development as needed to prevent adverse downstream effects caused by seasonally low levels of dissolved oxygen (DO) in hypolimnetic generation flows. Also, implement reservoir management plans for improving water quality in J.C. Boyle, Copco, and Iron Gate reservoirs.
4. Iron Gate Hatchery - Continue current funding obligation for operation and maintenance. Construct and operate a mass-marking facility that marks twenty-five percent (25%) of all Chinook salmon released.

Recreational Resources

1. Finalize a recreational resource management plan (RRMP) which would include improving river access site just below Iron Gate dam.

Staff Alternative

This alternative is the preferred alternative developed by FERC staff. It includes the measures outlined in PacifiCorp's Proposal, but also includes several modifications and additions. Below is a summary of the major changes that may affect the CA WSR segment.

Water, Aquatic, and Geology Resources

1. Water Temperature and Quality - At Iron Gate reservoir, rather than PacifiCorp's proposal to implement a low-level cool water release during the summer at Iron Gate, develop a temperature management plan. Also, delay implementation of the reservoir oxygenation diffuser system at Iron Gate until potential adverse affects are evaluated and implement a turbine venting at Iron Gate. In addition, rather than PacifiCorp's proposal to implement three (3) separate water quality management plans (one for each reservoir), develop one comprehensive management plan for all project-affected waters and expand to include: (1) consideration of spillage of warm water at Iron Gate dam during late spring; (2) consideration of spillage at Copco No. 1, Copco No. 2, and Iron Gate dams during the summer to enhance DO released at Iron Gate development; (3) consideration of turbine venting at Copco No. 1 and No.2 powerhouses to increase DO in the epilimnion of Iron Gate reservoir and, potentially, downstream of Iron Gate development; (4) specification of water quality monitoring that would be used to evaluate the effectiveness of any implemented water quality management measures; (5) specification of long-term water quality monitoring programs (e.g., temperature and DO) that would enable adaptive management decisions to occur; and (6) provisions for periodically updating the water quality management plan. Also, develop and implement a monitoring plan for *Microcystis aeruginosa* and its toxin in project reservoirs and immediately downstream of Iron Gate dam.
2. Adaptive Fish Passage/Restoration Plan. Instead of PacifiCorp's proposal to install a gulper for the J.C. Boyle reservoir and make minor improvements to the fish ladder, develop a three (3)-year assessment of anadromous fish restoration potential. Evaluate potential fish passage options at each reach, where the initial assessment indicates anadromous fish restoration may be feasible, and select the most promising and cost-effective reach to start restoration efforts. Next, develop and implement an anadromous fish restoration plan for the selected reach including fish passage facilities. Develop a fish passage resource management plan that includes design and operations of any fishways needed in consultation with the agencies. Sponsor a fishery technical advisory committee to oversee this plan and hatchery operations.
3. Fishery Disease. Develop a fish disease risk management plan to control disease risk in the Klamath River, including the reach from Iron Gate to the Shasta River confluence.
4. Spawning Gravel. Instead of PacifiCorp's proposal to install a set amount of spawning gravel at specific locations, develop and implement a comprehensive sediment and gravel resource management plan that includes mapping and evaluating gravel distribution in project reaches and the Klamath River from Iron Gate dam to the Shasta River confluence.

5. Hatcheries. PacifiCorp would have 100% (instead of 80%) responsibility for the operation and maintenance of the Iron Gate hatchery. Construct and operate a mass-marking facility that would mark 100% of Chinook and Coho Salmon (instead of PacifiCorp's proposal to mark 25% of Chinook only). Rehabilitate and provide 100% (instead of 0%) funding to operate Fall Creek rearing facility.
6. Implement an Aquatic Resource Management Plan.
7. Develop and implement a project operation management plan that includes installing gauges to monitor the flow regime, coordinating operation of the Klamath Irrigation Project, reporting flows, and minimizing water level fluctuations at Iron Gate, from March through July, to protect wildlife breeding.

Terrestrial Resources

1. Expand the vegetation management plan to include consultation with Tribes on re-establishing plants with tribal significance in the project-affected areas. Also include upland vegetation to reduce fire fuels.
2. Develop a bald eagle management plan that includes evaluating changes in preybase relationships.

Staff Alternative with Mandatory Conditions.

This alternative includes the FERC staff options as modified by the preliminary mandatory conditions that are filed by other agencies (Federal Power Act (FPA) Section 18 fishway prescriptions are provided by NMFS and the U.S. Fish and Wildlife Service; FPA Section 4(e) mandatory conditions are provided by the Bureau of Land Management). The major changes from PacifiCorp's and the Staff Alternative proposals that may affect the CA WSR segment are described below.

Water, Aquatic, and Geologic Resources

This alternative would also include those remaining elements of the FERC Staff Alternative that are not modified or replaced by the measures described below.

1. Fish Passage/Improvements. PacifiCorp's and the FERC Staff Alternative proposals would be replaced by NMFS and FWS fishway prescriptions. They include requiring consultation with the fish technical committee to develop and implement a plan to construct fish ladders, fish screens, bypass facilities, tailrace barrier and guidance systems, and modification of the spillways to improve passage at J.C. Boyle dam, Copco I and II dams, and Iron Gate dam. In addition, fish ladders, fish screens, bypass facilities, and tailrace barrier and guidance systems would be constructed at Spring and Fall Creek diversions.

Retirement of Copco and Iron Gate Developments

This alternative involves removing Copco I and Iron Gate developments. The three remaining facilities would be the J.C. Boyle Development, Copco II, and the Fall Creek Development. Elements of the Staff Alternative that would be modified, removed, or replaced that could affect the CA WSR segment include:

Water, Aquatic, and Geological Resources

1. Water Temperature and Quality. Eliminate measures to implement a low-level release of cooler hypolimnetic water from Iron Gate and installation of a reservoir oxygenation diffuser. Modify the reservoir water quality management plans measures to monitor quality conditions before and after dam removal. In addition, eliminate the monitoring plan for *Microcystis aeruginosa* (a blue-green algae) and its toxin in project reservoirs and immediately downstream of Iron Gate dam.
2. In-stream Flows and Ramping Rates
 - a. Ramping rates for the project would not exceed two (2) inches per hour or twelve (12) inches per day during salmon spawning and incubation period, as measured at the gauge below Iron Gate.
 - b. Copco II. Flows would be the 2002 NMFS BiOp Phase III flows.
3. Fish Passage/Improvements. NMFS and FWS fish prescriptions for Copco II would apply. This includes consulting with the fish technical committee to develop and implement a plan to construct fish ladders, fish screens, bypass facilities, and tailrace barrier and guidance systems, and modifying the spillways to improve passage. In addition, the natural bedrock sill would be removed at the Copco No. 2 bypassed reach. PacifiCorp's proposal to modify the J.C. Boyle ladder would also be included in this alternative. In addition, fish ladders, fish screens, bypass facilities, and tailrace barrier and guidance systems would be constructed at Spring and Fall Creek diversions.
4. Iron Gate Hatchery. Eliminate PacifiCorp's funding obligation to the hatchery and proposal to fund a marking system for Chinook. Remove the hatchery facility from the project area (the fish technical committee would address the disposition of this facility).
5. Eliminate the measure to rehabilitate the Fall Creek rearing ponds as well as funding 100 percent of the operation and maintenance costs to facilitate a shift to production of yearling fall Chinook salmon.
6. Eliminate the measure to implement a cooperative fish disease risk monitoring and management plan to control disease risk in the Klamath River.
7. Gravel and Sediment Management. This measure would no longer include the reach below Iron Gate.

SECTION 7(a) REQUIREMENTS

Section 7(a) of the Wild and Scenic Rivers Act provides a specific standard for review of developments below or above a designated river.

Developments below or above a designated river may occur as long as the project "will not invade the area or unreasonably diminish the scenic, recreational, and fish and wildlife values present in the area on the date of designation" (Klamath WSR, (CA), January 1981). This standard applies to projects outside the river corridor but on the same river or tributary, as is the case with the CA Klamath WSR segment.

The conditions and operating mode at the date the river was added to the National System (January 1981) are the basis for evaluating the DEIS Alternatives for the CA Klamath WSR segment.

The initial question to be addressed in a WSR Section 7(a) determination is whether any of the DEIS alternatives invade the designated river. The term invade is defined as encroachment or intrusion upon.

The next question to be answered, relative to the standard in Section 7(a), is whether any of the DEIS alternatives will "unreasonably diminish" the scenic, recreational, fish or wildlife values of the designated river. Given that the standard implies some diminution of values may be acceptable, there are two questions to consider:

1. Do the proposed alternatives evaluated in the DEIS cause diminution of the scenic, recreational, fish or wildlife values of the designated river as present at the date of designation?
2. If there is diminution, is it unreasonable? This would suggest an evaluation of the magnitude of the loss. Factors to be considered include: (1) whether the value contributed to the designation of the river (i.e., outstandingly remarkable); and, (2) the current condition and trends of the resource. (If diminution is determined unreasonable, measures may be recommended to reduce adverse effects to within acceptable levels.)

BASIS FOR DETERMINATION

The basis for this preliminary Section 7(a) determination are the action alternatives presented in the FERC's *Draft Environmental Impact Statement for Relicensing of the Klamath Hydroelectric Project No. 2082-027* (September 25, 2006).

The USFS and the NPS, as the principal federal land management agencies on which the California segment of the Klamath WSR flows, are responsible for this evaluation and have utilized staff knowledge and considerable additional available data. The accompanying WSR Section 7(a) Report summarizes the results of this review and evaluation.

DETERMINATION

This preliminary determination is based on the Klamath Project as it is proposed to operate under each action alternative presented in the FERC DEIS. The USFS and NPS will make a final determination under Section 7(a) responsive to the FERC's Final Environmental Impact Statement and informed by evaluation of the project under the National Environmental Policy Act.

Invade the Area:

None of the action alternatives propose any construction within the designated river reach, with possible exception of gravel augmentation in the PacifiCorp Proposal and the two Staff Alternatives. The gravel augmentation project will be reviewed when timely and under the "direct and adverse" effects standard of Section 7(a). None of the action alternatives will result

in invasion of the area with the exception of the possible short-term effects from sediment release from the Dam Retirement Alternative. Based on available information, and assuming the any short-term adverse effects from sediment release may be successfully mitigated, we find none of the action alternatives will invade the designated river area.

Fish, Wildlife, Scenery, Recreation:

This section describes the potential effects of each action alternative on the fish, wildlife, scenery and recreation values of the CA Klamath WSR (as required by the WSR Act), with significantly greater detail provided in the accompanying report. In the conclusion of this section, the responsible officials consider these effects and make a determination.

For the Fish Resource, several habitat criteria as well as anadromous fish populations for four species were analyzed to compare the effect of alternatives with 1981 conditions. None of the alternatives are expected to have an effect on coastal cutthroat trout populations. For **all alternatives**, the streamflow regime would be an increase over conditions at the date of designation, improving migration and holding for Chinook salmon and steelhead trout, as well as migration for juvenile coho salmon. The project has only a minor control over flows released to the WSR, and these are subject to change with future Endangered Species Act requirements for the Reclamation Project (upstream from the hydroelectric project), but the alternatives do incorporate instream flows and ramping rates that are more protective of fish than the current license requirements in place at time of WSR designation. The Dam Retirement Alternative would differ slightly from the other three alternatives in that summer flows would be more variable than they were in 1981, which would have further benefits to anadromous fish habitat and populations.

For the **PacifiCorp Proposal**, and the two **Staff Alternatives**, hatchery operations would continue the reliance on hatchery propagation for population maintenance. The pressure of hatchery on natural stocks (competition and genetic dilution) and adverse impacts to natural populations would continue to contribute to declines of natural populations. Each species has had a slightly different result in population trend since hatchery operations began, as discussed in the attached WSR Section 7 Report. It was not clear from the DEIS whether the hatchery would continue to be operated in the **Dam Retirement Alternative**, although such operation would not be required by a license under this alternative. Hatchery operations may keep fish populations up overall, but may contribute to the decline of natural fish populations.

For other habitat elements (water quality and sediment/substrate), the effect of the alternatives varies. Water temperature would remain unchanged in **PacifiCorp's Proposal**, and DO releases from the current project would remain at levels harmful to fish downstream of Iron Gate Dam unless the adverse water quality effects from hypolimnetic injection are mitigated. Because of the absence of 1981 data, it is uncertain whether DO is on a declining trend since 1981 due to increasing sediment and biological demands on oxygen from accumulated sediments and organic material at the bottom of the reservoir over time. Therefore, it is uncertain whether future DO would decline from 1981 conditions or remain stable. The alternative would maintain the high nutrient and algae contributions from project reservoirs that affect fish downriver, unless reservoir management plans are successful at improving conditions. Similar to DO, the

sediments in reservoir bottom waters may be sequestering nutrients over time. However, since sufficient information on 1981 conditions is nonexistent, the contributions of this alternative to high attached algae and fish disease conditions in the river downstream from Iron Gate would, at best, remain unchanged. There would be no change in bed mobility, except for localized one-time augmentation of spawning gravels downstream from Iron Gate. Spawning conditions are thought to have been poor at the time of designation for the reach immediately downstream from Iron Gate. The Proposal would maintain degraded though stable conditions that are conducive to growth of algae mats that harbor an important fish pathogen host. There isn't clear evidence whether these algae mats are undergoing an increase over time and, although there is a clear Project connection through reservoir nutrient releases, this may be unchanged from the time of WSR designation.

The **Staff Alternative** would improve the survival of emergent and migrating juvenile Chinook salmon and steelhead and migrating juvenile coho because it would decrease the impacts from disease on all three species. It appears that an increased trend of fish infection associated with at least one pathogen was detected since the 1990s. Like the PacifiCorp Proposal, the Staff Alternative provides for a plan to manage water quality, with several improvements: 1) the water quality management plan is more integrated and has a broader geographic scope (includes affected river reaches), 2) a disease management plan, if implemented, would assess and collaboratively manage disease conditions, 3) short-term water releases would improve migration and holding habitat during critical periods for fish, based on agency-developed triggers, 4) hypolimnetic releases would occur only once the adverse water quality effects were more closely studied and, if necessary, mitigated to realize positive benefits, 5) immediate installation and operation of turbine injection would provide some DO improvement for fish downstream of Copco and Iron Gate, although results are predicted to fall short of Basin Plan DO objectives.

The Staff Alternative with Mandatory Conditions would have similar measures as the staff alternative, with the additional provision of upstream and downstream anadromous fish passage. This should result in an additional 58 miles of habitat in the Project area and potentially 350 miles upstream from the Project, increasing productivity for Chinook and coho salmon and steelhead trout. It would also increase the run periods, thereby reducing crowding, which is a fish disease factor.

The **Dam Retirement Alternative** could improve migration, holding and spawning habitat in the long term by eliminating the source of some of the water quality issues on the WSR that are Project influenced. The water quality effects from other mainstem project reservoirs, especially Keno, would continue to contribute to water quality problems associated with thermal and nutrient loading, as described under the PacifiCorp Proposal. The Dam Retirement Alternative could mitigate late summer and fall heating, summertime DO depletion, in-reservoir nutrient cycling with resultant summer releases of nitrogen downstream. Consequently, disease outbreaks that appear to be population-limiting may also be diminished. Removal of the dams would also result in habitat conditions that more closely resemble natural conditions than the warmer impounded water and regulated flows that were present in 1981. Chinook salmon, coho salmon and steelhead trout would have access to a portion of the spawning and rearing habitat

that they used prior to dam construction. If the hatchery continues to operate (it is unclear in the DEIS whether this would be the case), this could reduce the beneficial effects by continuing the competition and genetic pressures on natural stocks.

The Dam Retirement Alternative also has the potential to create significant short-term impacts from reservoir sediment release, including smothering of spawning gravels, pool infilling, gill abrasion in fish exposed to increased turbidities, and changes to holding and migration patterns. Populations currently at low levels (e.g. coho) could take a long time to recover. The DEIS is unclear as to how this sediment will be released into the river. If feasible, these impacts may be mitigated by staggering of the sediment release timed to minimize effects to the fisheries or by removing and disposing of sediments on uphill sites. More detailed studies to determine the short-term effects –magnitude, timing, duration, and geographical extent – of the Dam Retirement alternative on water quality and aquatic habitat are anticipated in FERC’s FEIS and available to inform the final WSR Act Section 7(a) Determination.

For Wildlife Resources, **PacifiCorp’s Proposal** would not propose any measures to improve riparian habitat conditions from Iron Gate Dam downstream to the confluence of the Shasta River. Project dams have been collecting and storing sediments for decades, while reaches downstream from the dams have been deprived of most of the pre-dam sediment delivery. Below this confluence, there is a noticeable increase in both woody and nonwoody vegetation. Riparian vegetation provides habitat for feeding, breeding, and sheltering for willow flycatchers, yellow-breasted chat, northwestern pond turtles, and other riparian obligate species. As discussed above, this alternative does little to recover or stabilize populations of anadromous fish beyond adopting the improved flow schedule. As also discussed above, the Project contributes to the cumulative effect on habitat conditions that limit these populations. There is a secondary effect on wildlife from reduced abundance of the two declining stocks of anadromous fish because they provide an abundant source of protein for wildlife. Bald eagles regularly feed on dead and dying salmon along the Klamath River from spring until fall, and other riparian dependent species feed largely fish. There is little data on population abundance or trends from 1981 or since, so the impact of the effects of declining fish stocks on wildlife numbers since WSR designation is uncertain.

The **Staff Alternative** would also have no measures to reverse the riparian vegetation impacts from Iron Gate Dam to the confluence with the Shasta River. However, this alternative differs on effects to wildlife because it proposes several measures to recover anadromous fish in the river. However, the improvement in habitat (see fish discussion) is not expected to reverse the decreasing trend in Chinook or steelhead abundance since 1981, therefore, there would be somewhat less forage for wildlife that feed on fish.

The **Staff Alternative with Mandatory Conditions** would be the same as the Staff Alternative except for fishways at each dam. Over the long term, this provision could increase the abundance of Chinook, coho, and steelhead by making additional anadromous fish habitat available, and thereby improve forage for several wildlife species.

The **Dam Retirement** Alternative would reverse the sediment trapping action of Iron Gate and Copco Dams. It could provide a short term discharge of abundant amounts of fine sediment that would stimulate riparian recolonization and growth between the site of Iron Gate Dam and the confluence of the Shasta River, and even farther downstream, depending on how the sediment is released. In the long term it would return the WSR to more natural processes in the riparian community. The increase in quality and quantity of riparian habitat is expected to increase the numbers and productivity of wildlife dependent species. Although there may be short-term effects to fish and other aquatic organisms from sediment release, and related reductions in several wildlife species dependent on this important food source, in the long term, however, healthier anadromous fish runs would increase available forage, relative to 1981. This would increase the probability that more bald eagles would survive the winter and enter into the next breeding season in good condition. Increased numbers of fish would also create greater forage opportunities for other riparian species like river otter, osprey and black bear.

For the Scenic Resource, the flows recently required to be released into the California segment of the WSR are proposed in **all alternatives**, thereby improving the river's summertime flow appearance above conditions characteristic at its date of designation. This would moderately reduce the frequency of exposed riverbeds, murky, stagnant water, and algae-coated shorelines in summer months. This flow level increases the river's scenic views to water-filled riverbeds, deep pools and braided channels, along with improved water clarity due to reduced concentrations of floating organic material.

The **PacifiCorp Proposal** and the **Staff Alternative** offer additional minor improvements to the WSR's scenic attractions of water, fish, wildlife and riparian vegetation. The Staff Alternative includes more water quality measures including a comprehensive plan for the project reservoirs and downstream river reaches, but their benefits are uncertain. This would provide some additional scenery benefits above the PacifiCorp Proposal

The **Staff Alternative with Mandatory Conditions** would offer similar minor improvements to the WSR's scenic water appearance and riparian vegetations. However it would also offer a substantial increase in fish habitat through its fish passage measures. This should result in moderate improvements to scenic fish viewing.

In contrast, the **Dam Retirement Alternative** would offer major scenery benefits over the long term of the new license. In the short term, and of an unknown duration, there would be both positive and negative scenery effects. These include water that may be cloudy for up to several years, and concentrations of silt deposits along the shoreline and in pools. Ultimately, this alternative could eliminate the river's major Project-caused water appearance problems. It could expand anadromous fish habitat and populations, which would have a secondary effect of increased fish viewing opportunities within the WSR. It would also restore a slightly more natural variation in river flows in response to summer and early fall storms, providing a more characteristic scenic variety to the channel and shoreline, and associated increases in scenic riparian, fish and wildlife attractions in the upper reaches.

For the Recreational Resource, the **PacifiCorp Proposal** would have many of the same effects to whitewater boating and fishing activities, and the river's overall recreation setting as was described for Scenery. River flows are improved, yet the adverse water-quality and fishery trends remain largely unchanged. The whitewater boating opportunities would be improved over the conditions existing at the date of designation in 1981. This proposal would decrease the WSR's recreational fishing opportunities from the 1981 conditions, primarily due a decrease in the fishery. The recreation setting would be slightly improved through the increased flows and minor water quality improvements, which may still not meet state water quality standards. PacifiCorp proposes to study algaecide treatment options for toxic algae, however, it isn't clear whether this would be effective at reducing any public health risk, and worth the treatments risks to fish.

Similar to the PacifiCorp Proposal, the **Staff Alternative** offers improved river flows, but also may provide additional water quality improvements through its comprehensive reservoir and affected river reaches water quality plan. The resulting whitewater boating opportunity would be improved over the conditions existing at the date of designation in 1981. There would be a decrease in the fishing opportunity since 1981, primarily due to a decrease in the fishery. The recreation setting would be slightly improved through the increased flows and minor water quality improvements which may still not meet state water quality standards. This alternative would monitor the toxic algae problem, but does not propose mitigation measures, so the potential threat to public health would remain.

The **Staff Alternative with Mandatory Conditions** would have the same effect on whitewater boating as the other alternatives. The recreational fishing opportunity would likely be improved over the long term due to the proposed fishways and resulting increased fish habitat. The recreation setting would also be moderately improved due to improved flows, minor water quality improvements, and improved fishery.

The Dam Retirement Alternative would likely have temporary adverse impacts on whitewater boating and recreational fishing. More information is needed to further evaluate these temporary impacts and potential ways to avoid or mitigate them. In the long term, after the river stabilizes, both river flow and water quality conditions would be significantly improved over 1981 conditions. The quantity and quality of whitewater boating and recreational fishing opportunities would increase to a moderated degree. There would also be a moderate to major improvement in the recreational setting for all river activities, primarily due to water quality improvements. Public health concerns from toxic algae, which may have steadily increased the past five years, would be reduced and possibly eliminated.

Conclusion

The standard under Section 7(a) of the WSR Act accepts that a water resources project above a designated river may have adverse effects on the river's fish, wildlife, scenery or recreation values so long as such effects do not rise to the level of "unreasonable diminution." The extensive information provided in the accompanying report and our filings under the Federal Power Act, document that the negative effects to fish, wildlife, scenery and recreation, although

chronic, likely existed at the date of the river's designation. The alternative of greatest concern to CA Klamath WSR values is PacifiCorp's Proposal, due to its continued effects to water quality and fish. At least two fish populations, fall Chinook (for one age class) and summer steelhead, are in marked decline since the time of river designation. There are also the secondary impacts of declines on the wildlife and human communities that depend on a healthy anadromous fishery. However, based on information available at this time, it is our preliminary determination that none of the action alternatives described in the DEIS will unreasonably diminish the scenic, recreational, fish or wildlife values present in the area on the date of the river's designation as a component of the National Wild and Scenic Rivers System. Several of the alternatives, particularly the Staff Alternative with Mandatory Conditions and the Dam Removal Alternative, offer significant long-term improvements for the anadromous fishery. Improving this outstandingly remarkable value will provide for the benefit and enjoyment of present and future generations, and support the purposes of the National Wild and Scenic Rivers System.

Relative to the concerns about the short-term effects of the Dam Retirement Alternative, we anticipate additional evaluation in FERC's FEIS to inform the final WSR Act Section 7 determination. Specifically, we recommend the following:

1. More detailed studies on the short-term effects – magnitude, timing, duration, and geographical extent – of the Dam Retirement alternative on water quality and aquatic habitat.
2. Measures that include analysis of the costs and benefits (including environmental) of mitigating the short-term effects from sediment impacts of dam removal. This mitigation should include timing of the sediment release to minimize the effects to the aquatic ecosystem, or removing and disposing of sediments to uphill sites.

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Deputy Regional Forester, Region 5
USDA Forest Service

11/30/06
Date

/s/ Jonathan B. Jarvis
JONATHAN B. JARVIS
Regional Director, Pacific West Region
National Park Service

11/30/06
Date