



United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, D.C. 20240

ER 03/748

DEC 1 2003

Honorable Magalie R. Salas
Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

**RE: COMMENTS ON THE NOTICE OF APPLICATION
READY FOR ENVIRONMENTAL ANALYSIS AND SOLICITING
COMMENTS, RECOMMENDATIONS, TERMS AND
CONDITIONS, AND PRESCRIPTIONS FOR THE UPPER NORTH
FORK FEATHER RIVER PROJECT, CALIFORNIA (FERC No.
2105-089)**

Dear Ms. Salas:

The Department of the Interior (Department) has reviewed the subject Notice of Application for the Upper North Fork Feather River (UNFFR) Project located on the North Fork Feather River in Plumas County, California. Our comments are provided in accordance with the Fish and Wildlife Coordination Act (FWCA), as amended; the Endangered Species Act (ESA), as amended; the Outdoor Recreation Act; and the Federal Power Act (FPA), as amended.

We developed preliminary comments, recommendations, terms and conditions, and prescriptions that address the effects of continued project operation on fish and wildlife and recreation resources. We do not object to issuance of a new license for the Project, provided our recommendations to protect, mitigate, and enhance fish and wildlife and recreation resources, and Section 18 prescription for fishways, are incorporated into the license. The opportunity to amend, modify, or add to these comments, recommendations and prescriptions is reserved if resource conditions change, project plans are altered, or new information is developed during the Commission's environmental analysis. In addition to general observations, we have enclosed general and specific comments.

The UNFFR Project, licensed to the Pacific Gas and Electric Company (PG&E), is located in Plumas County, California, and consists of three dams and reservoirs, five powerhouses, and associated tunnels and penstocks, with an operating capacity of about 361 megawatts. The project has had significant impacts on fish and wildlife resources. Dam construction inundated substantial quantities of riverine and wetland meadow area, directly resulting in losses of habitat and blocking of fish passage. Diversion of water

from the stream into powerhouses has greatly reduced instream flows and disrupted the pattern of flow, having a wide range of effects on fisheries and ecological processes in approximately 20 miles of river bypassed by project development. These effects include a) reduced quantity and quality of habitat, b) reduced transport of coarse sediment, c) increased stream temperature, d) increased vegetation encroachment onto formerly active gravel bar or floodplain bank surfaces, e) reduced flushing of fine sediment from existing coarse gravel deposits, f) reduced productivity and diversity of fish and wildlife that rely on a natural hydrograph for habitat maintenance and environmental cues, g) blockage of passage of fish, sediment, and woody debris between reaches, and h) increased human disturbance.

Accordingly, we recommend measures to address fish and wildlife and recreation resource needs for improved instream flows, including pulse flows and year-type variation, temperature control measures, lake level criteria, riparian vegetation management, monitoring, and periodic review for the purpose of adaptive management.

We have not identified fish passage needs for resident fish. Anadromous fish are presently blocked from entering the project area by the presence of multiple downstream dams. The likelihood that fish passage will be provided at these downstream dams is unknown. Given this uncertainty and the absence of adequate information to support the filing of a prescription for fishways at this time, we have, pursuant to Section 18 of the FPA, elected to reserve the Department's authority to prescribe fishways in the future during the term of the license.

We recommend that the license term for the UNFFR Project be limited to 30 years. The license term should coincide with the license terms of the Rock Creek/Cresta (FERC #1962), and Poe (FERC #2107) projects. PG&E has requested a 50-year license in its Final Application. We recommend that the license term for this project be coordinated with projects 1962 and 2107 in order to promote a watershed approach to resource planning and management.

The UNFFR Project is the most upstream project, and virtually dictates the operations of all downstream projects. Modifications to the Prattville Intake structure in Lake Almanor and other resource measures which are included the UNFFR Project license will have a direct effect on all downstream projects on the North Fork Feather River.

The Department of the Interior appreciates the opportunity to provide comments on the Application Ready for Environmental Analysis for the UNFFR Project.

Sincerely,

A handwritten signature in black ink, appearing to read "Willie R. Taylor". The signature is fluid and cursive, with a large initial "W" and a long horizontal stroke at the end.

Willie R. Taylor, Director
Office of Environmental Policy
and Compliance

Enclosure

cc: Service List

Enclosure

UNITED STATES DEPARTMENT OF THE INTERIOR
COMMENTS, PRELIMINARY RECOMMENDATIONS, TERMS AND CONDITIONS,
AND PRESCRIPTIONS
FILED PURSUANT TO SECTIONS
10(a), 10(j), AND 18 OF THE FEDERAL POWER ACT
WITH THE FEDERAL ENERGY REGULATORY COMMISSION
FOR THE NORTH FORK FEATHER RIVER HYDROELECTRIC PROJECT
PROJECT NO. 2105-089
NORTH FORK FEATHER RIVER, PLUMAS COUNTY, CALIFORNIA

INTRODUCTION

On August 25, 2003, the Federal Energy Regulatory Commission (Commission) issued a Notice of Application Ready for Environmental Analysis and Soliciting Comments, Recommendations, Terms and Conditions, and Prescriptions for the UNFFR Hydroelectric Project, Project No. 2105-089 (REA Notice).

As outlined in detail below, the Department of the Interior has numerous concerns associated with the project's continuing direct and indirect effects on fish and wildlife and recreation resources in and around the project area. Pursuant to its authorities and responsibilities under the Fish and Wildlife Coordination Act (FWCA), Sections 10(a), 10(j), and 18 of the Federal Power Act (FPA), the Endangered Species Act (ESA), the Outdoor Recreation Act of 1963, and the National Environmental Policy Act, we have developed comments and preliminary recommendations, terms and conditions, and prescriptions for fishways to address these concerns (hereinafter referred to as "comments"). In this document, we identify and explain these comments, as well as their legal and evidentiary basis.

We have reviewed the PG&E's (Applicant) proposed Protection, Mitigation and Enhancement Measures (PM&E) described in the October 2002 Final Application for New License (Application) for the UNFFR Project. We have identified significant opportunity to further conserve and protect ecosystem functions and values in the project area, and recommend additional and/or modified PM&E measures to address these opportunities. We would not object to the issuance of a new license for the project provided our 10(j) recommendations to protect, mitigate, and enhance fish and wildlife and recreation resources, and preliminary prescriptions for fishways are incorporated as conditions of the new license. Because a Draft Environmental Impact Statement or Draft Environmental Assessment has not yet been issued by the Commission, this response contains preliminary comments, recommendations, and prescriptions only. Accordingly, we reserve the authority to amend, modify or add to these comments, recommendations, and prescriptions, if resource conditions change, project plans are altered, or new information is developed, including but not limited to conclusions developed during the Commission's environmental analysis.

GENERAL COMMENTS

Project Description

The project consists of three dams and reservoirs, five powerhouses, and associated tunnels and penstocks, with a combined normal generating capacity of about 361 megawatts. These facilities were constructed between 1914 and 1985, and commercial operation began in 1921. The uppermost reservoir is Lake Almanor, formed by the construction of Canyon Dam on the North Fork Feather River. Most of the water in Lake Almanor is diverted to the Butt Creek watershed from the Prattville Intake, which delivers water via a tunnel to the Butt Valley Powerhouse, located at the upper end of an impoundment (Butt Valley Reservoir) created by a dam on Butt Creek. No water is released into Butt Creek, but it obtains flow from seepage and springs near the dam. Water in Butt Valley Reservoir is delivered by tunnels to two more powerhouses, Caribou #1 and #2, located on the North Fork Feather River at the head of Belden Forebay, formed by Belden Dam. Instream flows are passed through the Oak Flat Powerhouse, while the bulk of the water is diverted through the Belden Tunnel into the Belden Powerhouse. The 10.9 mile bypassed portion of the North Fork Feather River between Canyon Dam and Belden Forebay is known as the Seneca Reach, the 8.8 mile bypassed section between Oak Flat and Belden Powerhouses is referred to as the Belden Reach, and the 1.9 mile bypassed portion below Butt Valley Dam is referred to as Lower Butt Creek.

No new construction is proposed. However, new construction may be necessary to allow for the implementation of PM&E measures proposed for the term of the new license. As a result of a settlement agreement for the downstream Rock Creek-Cresta Hydroelectric Project, Project No. 1962, the Applicant is expected to modify the project's Prattville Intake to selectively withdraw cool water from Lake Almanor.

The following PM&E measures are proposed in the Application for new license:

- Switch from the low-level to upper level gate at Canyon Dam from September 15-October 30 to reduce odor concerns;
- Increase instream flows from the current 35 cubic feet per second (cfs) to 75 cfs year round in the Seneca Reach;
- Increase instream flows from the current 60 cfs September-April and 140 cfs May-August to 140 cfs year round in the Belden Reach;
- Remove the Gansner Bar fish barrier on the Belden Reach, and a concrete weir on Butt Creek;
- Complete recreational improvements for camping, day use, boating, parking, and access.

Resource Goals and Objectives

We employ an ecosystem approach to the conservation of fish and wildlife resources in our participation in the Commission's relicensing process. We encourage the development of comprehensive watershed management plans that consider dominant geomorphological processes, land use practices, and other activities that may be impacting a drainage. The Department's Fish and Wildlife Service (FWS) also encourages adaptive management as a

strategy to allow for continued evaluation and adjustment of measures and to provide added assurance that the desired protection of fish and wildlife resources will be achieved.

Our primary goal is to conserve and restore the essential attributes of the watershed ecosystem affected by the project, ensuring that: (1) seasonal flow management is patterned after the timing, frequency, magnitude, duration, and rate-of-change of the natural unimpaired hydrograph; (2) riparian, river channel, and floodplain features and processes are maintained by sufficient flow releases; (3) sediment and large woody debris quantities are maintained within desired ranges by a balance between transport losses and input sources; (4) water quality standards are met; (5) indigenous aquatic, semi-aquatic, and riparian biota, and their habitats are conserved and enhanced. To accomplish this goal, flow schedules must be formulated which consider the relationships between flow and physical habitat, flow thresholds for key fluvial processes of sediment transport and inundation of streambanks and floodplains, flow and water temperature and coldwater reserve conservation, and flow patterns and flow volume to vegetation and wildlife habitat in the riparian zone. The PM&E measures recommended below include improved instream and pulse flows, adjusted by water year (wet, normal, dry), designed to protect and improve existing fish and wildlife resources and riparian vegetation, and partially restore river fluvial dynamics and functions. We also recommend riparian vegetation management, monitoring of key elements of the riverine, lake, and riparian systems, and periodic review for the purpose of adaptive management.

Participation History

Since March 2003, FWS staff has participated in an Applicant/stakeholder collaborative (2105LG). A draft settlement document based on discussion of the 2105LG was submitted by the Applicant to the Commission on October 1, 2003. By letter dated October 16, 2003, the FWS indicated that it had not reached a decision on settlement because draft agreement is not considered complete or final at this time. Official correspondence transmitted during pre-filing and post-filing stages between the FWS and Applicant or Commission include the following:

February 14, 2002. FWS letter to Applicant with comments on habitat suitability criteria for instream flow study.

February 21, 2003. Department of the Interior motion to intervene.

May 29, 2003. FWS party joint request from 2105LG to Commission requesting delay in Ready for Environmental Analysis notice.

June 19, 2003. FWS letter with comments to the Commission on Scoping Document 1.

October 16, 2003. FWS letter to the Commission regarding the draft settlement proposal.

SPECIFIC COMMENTS

Affected Resources

Project dams and appurtenant facilities affect about 25 miles of bypassed or impounded riverine habitat in the upper portion of the North Fork Feather River watershed. Canyon and Butt Valley Dams blocked anadromous Chinook salmon and steelhead trout from some spawning grounds. While these fish could still access project bypass reaches, diversions reduced instream flows. A series of additional dams downstream of the project in the 1950s-1960s completely blocked all access of anadromous fish, and instream flows were further reduced. Facilities for fish passage over the dams was not provided. Mitigation for reservoir inundation of riverine and wetland meadow habitat was not provided.

The project-affected reaches continue to support a variety of fish and wildlife species and their habitats, including federally-listed threatened and endangered species. The project affects the mainstem reaches of the UNFFR and the interactions of tributary streams with the UNFFR. Despite project operations, the area still supports a variety of warmwater and coldwater game and non-game fish, invertebrates such as crayfish, benthic macroinvertebrates, and freshwater mussels, and native amphibians, reptiles, raptors, waterbirds, songbirds, and small and large mammals. The Seneca Reach has sufficient cool temperatures to support a sustainable rainbow trout population, although habitat availability is limited by the low flows. The Belden Reach is impacted by elevated temperatures as well as reduced flows. Although releases are not provided to Lower Butt Creek from the dam, accretions provide sufficient perennial flow to support a significant trout population. Unusually large trout are present in Butt Valley Reservoir, and likely benefit by foraging on pond smelt entrained into the Butt Valley Powerhouse via the Prattville Intake.

The condition of the fishery and river differ significantly between bypassed reaches, and in comparison with downstream hydroelectric projects. Despite its low minimum flow, the Seneca Reach supports a good rainbow trout population sustained entirely by natural reproduction. Much of the Seneca Reach is pocket water with plentiful boulders derived from hillslope inputs, with limited woody debris. Several sections of lower gradient channel with largely inactive overbanking areas, are present near Seneca and the Butt Creek confluence. Based on modeling results provided by the Applicant, the reach would remain cool under most conditions of Lake Almanor storage with the current instream flow, but physical habitat would be well below optimum for rainbow trout. Lake Almanor is of sufficient size relative to inflows so that it almost never spills, even during spring snowmelt. Accordingly, there are insufficient flows to allow for channel maintenance (e.g., spawning gravel cleansing, restriction of riparian encroachment, entrainment of new gravels from bar or bank deposits, or movement of gravels from tributary mouths). Current and proposed flows are well below the lowest pre-dam

unimpaired flows of at least 500 cfs. There is a fair amount of suction-dredge gold mining along the river. Fishing pressure is relatively low due to limited access and difficult terrain, and the reach is not stocked.

The Belden Reach is of somewhat lower gradient, slightly broader, with more riffle-run habitat, and more length showing moderate width/depth ratios and sinuosities, than the Seneca Reach. There are a number of vegetated mid-channel bars, and the margin and overbanking areas along the reach are well-vegetated, probably the result of the currently regulated low flow conditions. The upstream end of the reach may have experienced some bed coarsening as a result of

sediment trapping in the Belden Forebay. Large woody debris is sparse throughout the reach. The exotic Himalayan blackberry has established in portions of the riparian zone, either as a dominant or understory species. There is good access provided by Caribou Road and a number of campgrounds, resulting in significant fishing pressure.

Water temperatures are generally warmer in the Belden Reach than in the Seneca Reach. The availability of cold water depends on storage in Lake Almanor, which varies with meteorology and regulation of discharge. An absolute maximum mean daily temperature of 20°C is generally considered the upper limit for survival of rainbow trout under constant conditions, with lower mean temperatures necessary for trout growth under diel fluctuating conditions. Modeling conducted by the Applicant suggests that, with a modified Prattville Intake, 20°C is achievable under most conditions and may improve the sustainability of the trout fishery in this reach. As a consequence of increased fishing pressure, temperature stress, and other factors, rainbow trout are less sustainable in the Belden Reach through natural reproduction, and the reach is regularly stocked (in the lower portion) with hatchery fish.

The Lower Butt Creek Reach is of higher gradient than the Belden or Seneca Reaches, it is considered a major tributary spawning area for trout in the Seneca Reach, and contributes about a third of the Seneca Reach flow. The creek exhibits elevated mollusc diversity compared to other stream reaches. The creek has abundant boulders and vegetation, much more woody debris than other reaches, and gravels in the range needed for trout spawning. Although no minimum flows are released, the creek obtains a stable and cold 14 cfs from springs and dam seepage, and water quality is considered very good. The creek supports a higher proportion of larger trout, and trout spawning activity, and fishing quality is considered high. Although good trout habitat, the stream may have experienced fining of sediments due to a lack of higher flows necessary to flush fines out of the streambed and maintain channel capacity.

Lake Almanor is a relatively large and predominantly shallow reservoir, and is considered a major recreational resource in the region for boating, fishing, and nearby golfing and camping. It is operated for power, water supply, and flood control with minimum levels in late fall, storing water in the spring, and maximum levels in early summer. The major warmwater species are smallmouth bass and pond smelt, and the lake is regularly stocked with trout and sometimes Chinook salmon. The northwest portion of the lake is shallow and becomes progressively exposed at lower storages. However, some suitable spawning areas for warmwater fish remain at low storages. Significant residential development includes communities on several peninsulas along the lake, and the town of Chester.

Butt Valley Reservoir is a more steep-sided water body than Lake Almanor, is an important recreational resource for boating, fishing and camping, and is operated primarily for power purposes. The reservoir experiences moderate fluctuations (3-5 feet weekly, 10 feet seasonally) depending on power needs. It has a residence time of 2-4 weeks, and is weakly stratified. Water temperature can vary depending on the relative use of the two Caribou intakes. The reservoir and associated powerhouse tailwater support a trophy trout fishery due, in part, to the entrainment of pond smelt from the Prattville Intake. A variety of other fish occur in the reservoir including Sacramento pikeminnow, sucker, and smallmouth bass. A similar fish assemblage exists in Belden Forebay, which also fluctuates considerably, receives entrained

pond smelt from Butt Valley Reservoir, and supports both trout (which move between the forebay and Seneca Reach) and smallmouth bass. The area surrounding both this reservoir and Lake Almanor support populations of bald eagle and osprey which forage in open waters.

Under the current license, the Belden and Seneca bypass reaches have been adversely affected by the project operations. The project's constant release of low instream flows is fundamentally different in pattern and magnitude from the natural hydrograph. Overall, there has been a reduction in ecosystem functions that rely on dynamic river processes. Some of the effects on the bypassed reaches and associated riparian zone include:

- reduced quantity and quality of habitat;
- reduced entrainment and transport of coarse sediment and large woody debris;
- increased stream temperature;
- increased vegetation encroachment onto formerly active gravel bar, floodplain, and bank surfaces, reducing channel capacity and channel adjustment;
- reduced flushing of fine sediment from existing coarse gravel deposits;
- reduced production of aquatic forage organisms;
- reduced productivity and diversity of fish and wildlife that rely on a natural hydrograph for habitat maintenance and environmental cues;
- blockage of passage of fish, sediment, and woody debris between reaches;
- increased retention of fine sediments; and
- increased human use and disturbance.

Improved flows, reservoir operations, and management of water quality (particularly temperature) and vegetation (both excessive encroachment and non-native species in particular) could act together to greatly enhance the fisheries, riparian zone, and associated wildlife. Monitoring of key ecosystem variables would help determine the effects of a new flow regime on fish and wildlife resources and associated habitat, detect trends over the license term, and serve as a basis for adaptive management for the maximum protection and enhancement of fish and wildlife resources.

Instream Flow

Lake Almanor is of sufficient capacity, so that spills over Canyon Dam are very rare even during spring snowmelt. Because of the project's controlled flows, existing instream and riparian habitats are dramatically different from what would be expected under a natural pattern of a prolonged spring runoff with pulse flows which formed the original river channel and to which native flora and fauna are adapted. The Applicant's proposed increase in constant flows would modestly improve conditions, but would still result in suboptimal habitat availability and function. In addition, the proposed constant flows would not mimic the seasonal fluctuations to which native flora and fauna are adapted, nor provide for or mimic the larger storm-related flows that provide for channel or riparian maintenance (Hill et al. 1991). A revised flow schedule that considers seasonal and year-to-year variations in water supply should be instituted to partially restore riverine function and habitat quality. Such a revised flow schedule would also be more consistent with the FWS's identified resource goals and objectives.

Temperature Management

Coldwater reserves are affected by the shallow morphometry of Lake Almanor and its water level, outlet elevations, and year-type variations in inflow. The influence of Lake Almanor discharge on downstream projects is affected by uncontrolled and warmer inflows from the unregulated East Branch Feather River, as well as other project operations. The Applicant has studied options to modify the Prattville Intake to improve water temperature in downstream reaches. However, additional actions may further enhance temperature control. The modified Prattville Intake was recently addressed, in part, in the Rock Creek-Cresta Relicensing Settlement Agreement (Project No. 1962), for the purpose of maintaining daily temperatures of 20°C or less in those reaches.

Vegetation Management

As a result of reduced flows during project operation, the Belden, Seneca and lower Butt Creek bypass reaches show evidence of riparian encroachment onto bar and floodplain surfaces. This encroachment limits lateral channel migration, reduces channel capacity, and reduces the recruitment and movement of coarse sediment from near-stream sources. Gaps and barren surfaces that form an element of the stream channel habitat mosaic have been eliminated, along with associated complexity and vegetative age diversity, and access to secondary channels. Significant portions of the riparian area are infested with blackberry. The Applicant's conclusion that pulse flows would not alter existing bars or vegetation (PG&E 2002, p. PRS-27) is based on observations after one event, and does not exclude the potential that such surfaces would be more active if vegetation and surfaces were treated by physical means prior to pulse flows. We conclude that a comprehensive vegetation management plan is needed to evaluate and implement actions to improve channel function and to reduce exotic vegetation.

Monitoring

Based on our evaluation of existing models and our knowledge of existing conditions, a revised instream flow schedule that incorporates pulse flows and seasonal variability, such as that recommended below, will result in comprehensive, measurable benefits to the UNFFR ecosystem. To confirm this prediction and provide a basis for adaptive management, we recommend monitoring of key ecosystem components expected to be sensitive to the proposed changes in project operations. Fish, amphibians, macroinvertebrates, wildlife, vegetation, temperature, and channel morphometry are expected to respond favorably (or be neutral) to the PM&E actions recommended by the FWS. Other actions, such as proposed recreational improvements, boating, parking, public access, and related maintenance, may result in some level of adverse impact. Monitoring and periodic review of monitoring data is needed to provide a mechanism for deciding whether some actions merit continuation, expansion in scope, or adjustment.

Summer Boating

The license application addresses the merits of including whitewater boating flows in the new license and concludes that the potential adverse effects of providing summer boating flows

outweigh the likely recreational benefits (PG&E 2002, Volume 3). We would note that the issues of whether and where to provide additional boating opportunity depend not only on availability and demand, but also on the level of biological effects and conflicts with other environmental values and uses as compared across candidate boating locations in the region. Some potential biological effects of summer boating flows include changes in distribution of fish or fish life stages, scouring of attached invertebrates and periphyton, increased mortality of early life history stages of fish or amphibians, introduction of non-native fishes or molluscs from impoundments, physiological effects on longer-lived aquatic invertebrates, depletion of coldwater reserves, and the displacement of water dependent wildlife.

A more comprehensive study of these factors is needed, encompassing all license actions pending before the Commission in the Feather River Basin, before an informed decision can be made regarding the merits of implementing summer boating flows. Any future recreational boating investigation should incorporate limited test releases, with site-specific biological monitoring of potential sensitive species or life stages. The results of such test releases and monitoring should permit a decision on the future of permanent boating flows, and allow scheduling in a manner which has the least conflict with other uses, and a minimum effect on biological resources and coldwater reserves. This may require setting limitations on boating flows involving appropriate water storage, lake temperature, lake stratification conditions, seasonal or year-type restrictions, and/or requirements for midweek or consecutive day releases that would achieve this protection.

License Term

We would recommend that the Commission modify the term of new license from the 50-year term requested in the license application to a 30-year term. A 30-year term for the new license would synchronize the expiration of the new license with the expiration of other Commission licensed projects in the Feather River Basin, e.g., Project Nos. 1962 and 2107. This would permit, in the future, a more comprehensive assessment of the effects of hydroelectric project operations on the environmental values of the Feather River Basin, including fish and wildlife conservation.

Threatened and Endangered Species

Attachment A provides a species list pursuant to 50 CFR § 12.50. The following descriptions pertain to candidate species and federally-listed threatened and endangered species listed under the Endangered Species Act of 1973, as amended, which may be found in the project area, or may be expected to occur in the project area over the new license term.

Bald eagle (*Haliaeetus leucocephalus*): The federally-threatened bald eagle presently has fourteen nesting territories in the Upper North Fork Feather River Project area and vicinity (PG&E 2002): nine at Lake Almanor, three at Butte Valley Reservoir, and two at Mountain Meadows Reservoir. The bald eagle recovery plan (USFWS 1986) specifies a goal of sixteen occupied territories for these areas. Bald eagles use these areas on a year-round basis. Species management is described in:

- *Recovery Plan for the Pacific Bald Eagle*. 1986. U.S. Fish and Wildlife Service, Portland, Oregon.
- *Bald Eagle Management Plan, Lake Almanor and the Upper Feather River, Recovery Zone 26 - Lake Almanor Basin Area*. September 2003. U.S. Forest Service, Lassen National Forest, Almanor Ranger District.
- *Migratory Bird Treaty Act of 1918*, as amended (16 U.S.C. §§ 703-712)
- *Bald and Golden Eagle Protection Act of 1940*, as amended (16 U.S.C. §§ 668-668d)

Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*): The federally-threatened valley elderberry longhorn beetle potentially occurs in much of the California Central Valley below 3,000 feet above mean sea level (feet msl). The Applicant identified one elderberry (*Sambucus* sp.), host plants to the beetle, in the project area (PG&E 2002). Additional surveys may be needed in areas where recreational development or maintenance and operation of facilities were not planned or reasonably foreseeable to the Applicant. Species management is described in:

- *Valley Elderberry Longhorn Beetle Recovery Plan*. 1984. U.S. Fish and Wildlife Service. Portland, Oregon
- *Conservation Guidelines for the Valley Elderberry Longhorn Beetle*. U.S. Fish and Wildlife Service, Sacramento, California

California red-legged frog (*Rana aurora draytonii*): The California red-legged frog is a federally- threatened species. The project is within the Sierra Nevada foothills Recovery Unit designated in the May 2002, *Recovery Plan for the California Red-Legged Frog* (recovery plan). The recovery plan identifies reasons for the decline of this species as water diversions, degraded water quality, and introduced predators. The recovery plan states that fragmentation, degradation, and habitat loss have occurred in a manner which reduces dispersal opportunities and imperils metapopulation viability. Suitable habitat exists in the project area but no California red-legged frogs were found during Applicant surveys (PG&E 2002). Species management is described in:

- *Recovery Plan for the California Red-legged Frog (Rana aurora draytonii)*. U.S. Fish and Wildlife Service. 2002. Portland, Oregon.

Slender Orcutt grass (*Orcuttia tenuis*): On March 25, 1997, slender Orcutt grass was listed as threatened. Critical habitat was designated for this species on August 6, 2003 (68 FR 46684). The species grows in vernal pools on remnant alluvial fans and high stream terraces and recent basalt flows. It can colonize artificial habitat such as the margin of stock ponds. Critical habitat and known populations exist near the project area. PG&E (2002) found no populations or suitable habitat within the project boundary, but further surveys may be required in areas where recreational development or maintenance and operation of facilities were not planned or reasonably foreseeable. Species management is described in:

- Critical Habitat designated in the *Federal Register*, 68:46683; August 6, 2003.

Mountain yellow-legged frog (*Rana muscosa*): On January 16, 2002, the FWS determined that the mountain yellow-legged frog warranted protection under the Act, but that listing the species under the Act was precluded by higher priority listing actions. The FWS determined that there was sufficient scientific and commercial data to propose listing of the species as endangered throughout its range. The Sierra Nevada population of the species is considered a separate, distinct population from the southern California population. The Sierra Nevada population ranges from southern Plumas County to southern Tulare County. Typically, the species is found at elevations above 6,000 feet, but ranges from 3,425 feet to 11,967 feet msl (68 FR 2283). Sierra Nevada frogs are usually found in high elevation lakes and slow-moving portions of streams. PG&E (2002) states that no populations were found within the project boundary, and habitat potential ranged from moderate to low.

American peregrine falcon (*Falco peregrinus anatum*): The peregrine falcon was federally-listed until 1999, when it was delisted because of its successful recovery. Once a species is delisted, the Act requires that it be monitored for at least five years to determine if the status of the species is continuing to improve. Notice of availability for the FWS's proposed peregrine falcon monitoring plan was published in the Federal Register on July 31, 2001. A final monitoring plan has not been published. A cliff or a series of cliffs that tend to dominate the landscape constitutes typical nesting habitat. One peregrine falcon eyrie is located on a cliff in the project area. Peregrine falcons are protected under the *Migratory Bird Treaty Act of 1918*.

Section 7 of the Act and its implementing regulations (50 CFR § 402), require Federal agencies to review their actions at the earliest possible time to determine whether their actions may affect listed species or designated critical habitat. If such a determination is made, consultation with the FWS is required. In April 2001, the *Interagency Task Force Report on Improving Coordination of Endangered Species Act Section 7 Consultation with the FERC Licensing Process* was released. This interagency document outlined a means to integrate and coordinate the ESA Section 7 process and the Commission's hydroelectric project relicensing process.

The FWS requests that the Commission prepare a Biological Assessment (BA) in compliance with 50 CFR § 402.12 to assess the effects of the proposed action including ongoing operation and maintenance of the project on listed species and their habitat. We urge the Commission to contact the FWS to schedule an early coordination meeting to identify information that will be needed for Section 7 consultation. A draft BA should be submitted to the FWS for our review and comment.

SECTION 10(a)

The following comments and recommendations highlight and discuss issues developed by our National Park Service (NPS) pursuant to Section 10(a) of the Federal Power Act and Section 4601-1 of the Outdoor Recreation Act of 1963.

1. Instream Recreational Flow

Condition: We recommend that the following flow schedule be considered under Section 10(a) to ensure that whitewater boating may be accommodated on the Belden Reach of the UNFFR project:

Belden Reach Recreation River Flow Schedule ***

<u>Month</u>	Release amount in Cubic Feet per Second (cfs)		Release Days per Month				User Day Triggers	
	Dry *	Normal **	Cr Dry Start	Cr Dry Cap	Dry/Normal/Wet Start	Dry/Normal/Wet	Belden Reach	
							Wet/Normal/Dry Up	Down
July	650	750	1 day	1 day	1 day	2 days	130/180	90
Aug	650	750	1 day	1 day	1 day	2 days	160/200	100
Sep	650	750	1 day	1 day	1 day	2 days	160/200	100
Oct	650	750	1 day	1 day	1 day	2 days	160/200	100

* Dry and Critically Dry years

** Normal and Wet years

*** Flow releases will occur between the hours of 10 AM and 4 PM during wet and normal water years, and between the hours of 10 AM and 1 PM during dry years.

Justification: Given that a draft settlement agreement exists (latest version dated November 18, 2003) and recreational boating flows are being considered in that draft agreement for the Belden Reach, we believe that it is prudent to recommend these flows for consideration. In accordance with our serious concerns enumerated above under “Summer Boating”, we recommend that FERC’s NEPA analysis and development of terms and conditions for the license take these flows into account. The draft settlement agreement clearly outlines a systematic approach to the future addition of any recreational flow condition(s) to the license. Included in the steps are: the establishment of a technical review group to consult with the Licensee, evaluation of existing recreational river flow information, consideration to implement test flows, performance of test flows for a three year period, evaluation of test flow results, and approval of continued flows, if warranted. Agencies invited to be members of the technical review group are: Forest Service, California Department of Fish and Game, California State Water Resources Control Board, Fish and Wildlife Service, National Park Service, Plumas County, and American Whitewater. The process provides for various check points where the Forest Service and the State Water Resources Control Board must consult with appropriate State and Federal agencies, the Licensee, tribal governments, and other interested parties. Finally, the draft agreement provides for any continuation of recreational boating flows to be limited by the flows prescribed in the above table.

The Licensee did not provide for recreational boating flows within the project in its final license application. However, the progress of the draft settlement agreement supports the consideration of these flows in FERC's balancing deliberations. Whitewater boating is a recognized beneficial use according to the State Water Resources Control Board Basin Plan and has been shown to be in demand for the region. This schedule may balance the demand for boating with that of current uses, primarily angling. The schedule adjusts for water year type and provides for an escalation of user days should certain demand triggers be met.

2. Non-flow Related Recreation

Condition: We recommend that a final Recreation Resources Plan (RRP) be developed which provides for a diverse range of recreational opportunities on Lake Almanor and the river reaches. The RRP should include a comprehensive listing of capital investments, facility enhancements, and programmatic elements. The RRP should delineate which entity is responsible for paying for such investments and improvements and have a schedule indicating when it will take place.

Justification: Since the Draft Recreation Resources Plan (RRP) was included in the final license application, there have been a number of changes made by the Project 2105 Collaborative, USDA Forest Service, and Plumas County. There is a need to finalize these changes and reflect them in a final RRP. A recreation plan is required by FERC for the new license (18 CFR 4.41(f)(7)). The conditions for non-flow related recreation should be codified as Section 4(e) conditions (USFS) or as agreed-upon PM&E's from the Collaborative reflected in a Settlement Agreement. This needs to be done before a final environmental analysis is conducted.

3. Consideration of FERC # 1962's Cold Water Fishery License Condition

Condition: The environmental analysis of the UNFFR project should include the assessment of potential effects that may result from the construction and operation of the selective withdrawal modifications at the Prattville Intake structure in Lake Almanor, as required under current condition No. 4 of FERC License # 1962, Rock/Creek Cresta Project.

Justification: Any modifications made to the Prattville Intake structure on Lake Almanor will have an effect on the cold water pool of Lake Almanor and on the instream flow and water temperature of downstream reaches. These effects are currently unknown, but should be analyzed when ongoing studies are completed by early 2004. There are several proposed approaches to modifying the Prattville Intake which are currently being studied. When the final method is selected, the effects of implementing that method should be analyzed to determine what the effects are to Lake Almanor's lake level, cold water pool volume, and the effects on instream flow and water temperature in the Seneca and Belden reaches of UNFFR. Understanding these effects is consistent with our recommendation that the Licensee take a watershed-approach to operating its projects on the NFFR.

SECTION 10(j)

The following recommendations were developed by the FWS to support the previously described resource agency management goals and objectives. The FWS's priorities for the next license

period are to protect and restore the essential attributes of the watershed ecosystem affected by the project, ensuring that indigenous aquatic, semi-aquatic, and riparian biota and their habitats are conserved and enhanced. To accomplish this goal, we recommend measures to improve instream and pulse flows, adjusted by water year (wet, normal, dry), designed to protect and improve existing fish and wildlife resources and riparian vegetation, and partially restore river fluvial dynamics and functions. Our recommended flow schedules consider the relationships between flow and physical habitat, flow thresholds for key fluvial processes such as sediment transport and inundation of streambanks and floodplains, flow and water temperature and coldwater reserve conservation, and flow patterns and flow volume to vegetation and wildlife habitat in the riparian zone. We also recommend riparian vegetation management, monitoring of key elements of the riverine, lake, and riparian systems, and periodic review for the purpose of adaptive management. Accordingly, pursuant to Section 10(j) of the FPA (16 U.S.C. 791 *et seq.*) and to carry out the purposes of the Fish and Wildlife Coordination Act (16 U.S.C. 661 *et seq.*), the FWS recommends that the following terms and conditions to protect, mitigate damages to, and enhance fish and wildlife resources be included in the new project license.

The FWS has prepared these preliminary terms and conditions based on current information regarding the proposed relicensing of the project. As more detailed plans are developed, new information becomes available, and project operations begin under a new license, deficiencies may be observed and modifications to fish and wildlife protection, mitigation, and enhancement measures may be necessary. The FWS, therefore, reserves the right to amend these Section 10(j) recommendations as needed to be consistent with finalized design plans, new information developed as a result of the Commission's environmental review process, or to correct deficiencies or problems found during post-licensing monitoring or evaluations.

1. Instream Flow Schedules for the Belden and Seneca Bypass Reaches and Lower Butt Creek

Condition: Upon license issuance, the Licensee shall, for the conservation and development of fish and wildlife resources, release the following instream flows, in cubic feet per second, from its facilities into the Belden and Seneca bypass reaches:

Belden Reach

Month/ Year-type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Critical-dry	130	130	150	150	150	130	100	100	100	100	100	100
Dry	135	140	175	185	195	160	130	110	110	110	110	120
Normal	140	140	175	225	225	225	170	140	120	120	120	120
Wet	140	140	225	250	250	250	175	140	140	130	130	130

Seneca Reach

Month/ Year-type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Critical-dry	90	90	90	90	90	90	60	60	60	60	60	60
Dry	90	100	110	110	110	110	80	70	60	60	60	75
Normal	90	100	150	150	150	125	90	75	75	75	75	75
Wet	105	130	170	170	170	150	95	85	85	85	85	90

No minimum base flow release from Butt Valley Reservoir into Lower Butt Creek is required; however, Licensee shall take no action to reduce dam and/or tunnel leakage, spring or other natural flows into Lower Butt Creek. See Condition 3 for the pulse flow test plan requirement in Lower Butt Creek.

The Licensee shall construct, operate, and maintain all necessary facility modifications to provide and monitor these flow releases. This condition shall be subject to periodic review per Condition 13 below and any additional steps necessary to implement ramping rates per Condition 20.

For the purpose of implementing these instream flow schedules, water year types shall be based on the California Department of Water Resources (DWR) records of annual inflow to Lake Oroville (Oroville) from 1930-1999: Wet, Normal, Dry, and Critically Dry. The water year types are defined as follows:

Wet:	Greater than or equal to 5,679 thousand acre feet (TAF) inflow to Oroville;
Normal:	Less than 5,679 TAF but greater than or equal to 3,228 TAF inflow to Oroville;
Dry:	Less than 3,228 TAF but greater than or equal to 2,505 TAF inflow to Oroville;
Critically Dry:	Less than 2,505 TAF inflow to Oroville.

The Licensee shall determine water year type based on the predicted, unimpaired inflow to Oroville and spring snowmelt runoff forecast provided by the Licensee and the DWR each month from March through May. The Licensee shall make a forecast of the water year type on or about March 10 and operate for the remainder of that month and until the next forecast based on that March forecast. New forecasts shall be made on or about the tenth of April and May after the snow surveys are completed, and operations shall be changed as may be appropriate. The May forecast shall be used to establish the water year type for the remaining months of the year until the next March, when forecasting shall begin again. The Licensee shall provide notice to the U.S. Fish and Wildlife Service, U.S. Forest Service, California Department of Fish and Game, the State Water Resources Control Board, and the Commission of the final water year type determination within 30 days of making the determination.

Justification: The recommended flows are necessary and reasonable to provide riverine and riparian habitat and function for the benefit of the entire biotic community, including the rainbow trout fishery. The pattern of the proposed schedule is intended to mimic the shape, but not the magnitude, of the natural hydrograph, with a prolonged spring peak and summer minimum as identified by the IHA analysis (PG&E 2002, Volume 5, Appendix E2-D). These flows are justified by the IFIM analysis (PG&E 2002, Volume 7, Appendix E3.1-10), which show an inflection in the rise in adult rainbow trout physical habitat at about 75% of optimum at a discharge of 250 cfs in the Belden Reach above the East Branch Feather River, and at 86% of optimum at a discharge of 170 cfs in the Seneca Reach. The lower recommended flows in critical-dry years would yield 54-62% of optimum adult trout physical habitat in the Seneca Reach, and 49-68% of that optimum in the Belden Reach. Average annual flow for these recommended flow schedules, weighted by year-type frequency of occurrence, would be about 154 cfs and 101 cfs in the Belden and Seneca Reaches, respectively, compared to a long term average of 967 cfs for the unimpaired condition calculated for the Belden Reach in the IHA analysis. The flow volume in the bypassed reaches (using the reach length as weights, excluding Butt Creek or pulse flows), would be about 13% of the average unimpaired flow into the Belden Reach. These flows are within the range acceptable to anglers (PG&E 2002, Volume 3).

The design of the flow schedules has several important habitat improvement features. Trout habitat for adults and spawning would be elevated in months bracketing the spawning period, providing for healthier adult condition and early life history of juveniles. Invertebrate forage production would also be increased during this period. Both fish and invertebrates would likely benefit from an increased entrainment of leaf litter and small woody debris, submergence of large boulder structure, and associated oxygenated pocket-water. The higher flows in the spring would have some limited function in reducing encroachment of streamside vegetation, although

they would be insufficient to overbank onto remnant bars or floodplain areas for the purpose of vegetation maintenance, or entrainment of new coarse sediment. For these functions, separate pulse flows are recommended, below. The combination of seasonal schedules, pulse flows, and/or vegetation management actions may also result in the formation of sparsely vegetated bar habitat adjacent to rocky substrate, a condition favored by native amphibians (Lind et al. 1996).

Notably, the highest flows in the recommended schedule are at the lower limit of the threshold for coarse gravel movement (PG&E 2002, Volume 5, Attachment E2-A, Table E2). Thus, we anticipate that the wet-year flows would limit deposition of fine and very fine gravels, and cause transport of coarse sediment as may accumulate at tributary mouths during storm events. Our review of the temperature modeling data provided by the Applicant indicates that, when reservoir levels are at least normal, the discharge from Canyon Dam would have a relatively small effect on coldwater reserves, as long as flows are less than 300 cfs.

The lower instream flows recommended for dry and critical dry years consider the needs to maintain water levels and coldwater reserves in Lake Almanor during the summer; to increase carryover to the following water year to minimize the potential effects of consecutive dry or worse years; and to preserve the biological resources of the Lake. Coldwater conservation in Lake Almanor is also an important factor for the conservation of biological resources occupying the bypassed reaches of the downstream Rock Creek-Cresta Project (Project No. 1962). Those bypass reaches have less vegetative shade cover, receive warmer inflows from the East Branch Feather River, and more frequently experience water temperatures that approach lethal limits. Model simulations provided by the Applicant suggest that low summer flows in the Belden Reach on the order of 75 cfs would result in only about 1°C of additional warming under median lake levels compared to 130 cfs. We therefore selected 100 cfs for the summer, to provide an acceptable provision of adult trout habitat (52% of optimum) and moderate instream warming.

The procedures and reporting requirements for determining water year type follow those recently adopted by the Commission in its order issuing new license for the Applicant's Rock Creek-Cresta Project, Project No. 1962, which is located downstream of Project No. 2105 and upstream of Lake Oroville.

2. Pulse Flow Releases Below Canyon Dam and Belden Forebay Dam

Condition: Upon license issuance, Licensee shall, for the conservation and development of fish and wildlife resources, make pulse flow releases below Canyon Dam and Belden Forebay Dam as follows:

Water Year

<u>Type</u>	<u>Pulse Flow Release Requirement</u>
Wet:	One release per month in January, February, and March, of 1,500 cfs (2,200 acre-feet volume*)
Normal:	One release per month in January, February, and March, of 1,200 cfs (1,800 acre-feet volume*)
Dry:	One release in March of 700 cfs, only if no other pulse was released in January or February (1,000 acre-feet volume*)
Critically Dry:	No pulse flows.

*Estimated volume only; each release will be 12 hours, plus a period of ramping at a standard rate to be determined per Condition 20.

The Licensee shall construct, operate, and maintain all necessary facility modifications to provide and monitor these pulse flow releases. This condition shall be subject to periodic review per Condition 13 below.

Justification: Pulse flows are necessary to perform some of the channel and vegetation maintenance functions not provided by current project operations. These functions include the entrainment, transport, and redeposition of detritus, large woody debris, seeds, and sediment

along the stream channel, floodplain, and within tributary confluence areas, and, at higher levels, limiting the encroachment of understory vegetation into the stream channel or mid-channel bars. Pulse flows are important in maintaining the quality and diversity of stream mesohabitats (riffle/run/pool distribution) through occasional channel adjustment, small scale erosion of banks, movement of local coarse sediment and woody debris, and the accumulation of larger coarse materials on bar surfaces. Pulse flows are also important in seed germination and enhancing the production of plants and invertebrates that rely on moist soils. The effectiveness of pulse flows may be enhanced by other vegetative maintenance actions, such as planned mechanical disturbance (*see* Condition 6).

In recommending the size of these flows, we examined the Applicant's geomorphic analysis of the stream channels (PG&E 2002, Volume 7, Appendix E3.1-12). The 700 cfs corresponds to the onset of floodplain inundation in the Seneca Reach, 1,200 cfs is the onset of inundation in the Belden Reach, and 1,500 cfs would cause movement of some bar material in both reaches. Generally, much higher flows would be required to completely inundate former floodplains. However, releases are limited by the 2,100 cfs outlet capacity of Canyon Dam, and the need to avoid flooding of Caribou Road which occurs at releases of 2,500 cfs or more.

3. Lower Butt Creek Pulse Flow Plan

Condition: Within 6 months of license issuance, the Licensee shall, for the conservation and development of fish and wildlife resources, develop in consultation with the Fish and Wildlife

Service, U.S. Forest Service (FS), California Department of Fish and Game, and the State Water Resources Control Board, a Lower Butt Creek Pulse Flow Plan. The Plan shall include additional analysis to determine the magnitude, duration, and frequency of pulse flows in Lower Butt Creek, and provide for a one-season test pulse flow program to be implemented within 5 years of license issuance. The test plan shall include any additional actions (e.g., loosening of excess debris jams, excavation of excess vegetation) deemed necessary for effectiveness. Parameters to be measured before and after the test release should be sufficient to monitor the effect of the test release and to determine the need for further pulse flow releases in this reach. Parameters may include: a) mesohabitat mapping, b) densities of wood and vegetation, c) substrate characterization, d) longitudinal and cross-sectional profiling, and e) tracer gravel addition. Within 1 year following the test program, the Licensee shall, in consultation with the aforementioned resource agencies, submit a report to the Commission with a recommendation as to the continued need for pulse flows in Lower Butt Creek, and criteria for future implementation.

Justification: In its current regulated condition, Lower Butt Creek shows a larger than historical width/depth ratio, a higher proportion of fine-to-very fine sediments in surface samples, a very high density of large wood, and encroachment of riparian vegetation onto bars, further stabilizing

sediments (PG&E 2002, Volume 5, Appendix E3.1-12). Portions of this reach have also been affected by suction dredge mining. Nevertheless, the reach in its present condition supports a high density of rainbow trout spawning, an abundance of spawning gravels, and a higher diversity of molluscs than other project reaches. However, the accumulation of excess wood, vegetation, and fines indicate that these resources may not be sustainable over the license term under current conditions, and may be significantly improved with the provision of flushing

flows. It is anticipated that the study plan can be designed and the test flow timed to minimize or avoid adverse effects on existing resources and still gather the information necessary to evaluate the continued need for pulse flows in Lower Butt Creek.

4. Lake Alamor Minimum Water Surface Elevations

Condition: Upon license issuance, Licensee shall, for the conservation and development of fish and wildlife resources, regulate project operations so that the following minimum water surface elevations (in feet above mean sea level) in Lake Almanor are maintained:

Water Year Type	Target Date/Elevation (msl)	
	May 31	August 31
Wet/Normal	4,485 feet	4,485 feet
Dry	4,483 feet	4,480 feet
Critically Dry	4,482 feet	4,480 feet

At time of license issuance, Licensee shall provide the Fish and Wildlife Service, FS, California Department of Fish and Game, and the State Water Resources Control Board with an analysis of the potential for unmanaged spills during the trout spawning season, and develop, in consultation with the aforementioned resource agencies, a plan for modified operations to reduce or eliminate adverse effects. This plan and any modified operation shall be submitted to the Commission for approval within 6 months of license issuance. This condition shall be subject to periodic review per Condition 13 below.

Justification: The purpose of these recommended Lake Almanor minimum water surface elevations is to reduce the risk of depletion of the coldwater pool in Lake Almanor, maintain fishery habitat in the lake, and, to the extent practicable, remain consistent with lake recreational needs. The most recent physical model information of a modified Prattville Intake is not yet available, and the Application lacks a description of the device or assumptions used in the numerical modeling reported (PG&E 2002, Volume 1; Volume 5 Appendices E2-M, N). Nevertheless, the general concept is that the device would allow water to be drafted from between 4,430 and 4,445 feet msl, and warm water would be drafted at several feet above 4,445 feet msl. Assuming an epilimnetic thickness of 30 feet of warm water above this level, an approximate water surface elevation of 4,480 feet msl would be needed to access the coldwater reserve. The results of the modeling suggest that, even with limited flows from Canyon Dam and normal meteorology (e.g., scenario DNMB, PG&E 2002, Volume 5 Appendix E2-F), the release from Butt Valley Powerhouse would still exceed 20°C in summer with a modified intake, although it would be much improved versus without a modification. In the model outputs, exceedence of 20°C occurs as water level drops below 4,480 feet msl. Several additional actions (*see* Condition 4 below), may further enhance management of coldwater reserves that may allow more flexibility in lake level management. However, the modeling information thus far emphasizes a need to be conservative. Thus we have recommended the minimum water level of 4,480 feet msl by August 31 in dry and critical dry years.

Although the lake surface area changes considerably in the range of 4,480-4,485 feet msl, shallow portions capable for supporting warmwater fish reproduction would remain at water surface elevations down to at least 4,474 feet msl. The change in surface area or depth is not of an extent that slightly higher or lower lake levels would result in a significant effect on lake fisheries, or fish foraging by important raptor species. In dry and critical dry years, however, the proposed criteria of 4,483 and 4,482 feet msl correspond to the average levels of actual operation since 1970 (September 17, 2003, summary table provided by Plumas County to the 2105LG). These historical operations show that August levels in such years are closely related to May levels. Higher levels in the spring provide added assurance that the 4,480 feet msl criterion, needed to conserve coldwater reserves for instream release, will be met when inflows are low.

From a fish and wildlife standpoint, an assured end-of-season storage in wet years might provide some additional management of risk of coldwater reserve depletion should the subsequent water year be dry. There is anecdotal evidence that *Hexagenia*, a large summer mayfly and lake forage organism, is adversely affected by low lake levels in both Lake Almanor and Butt Valley Reservoir, although this is more an issue in below normal years than wet years. There are some other beneficial effects such as increased submerged fish cover for warmwater fishes, and

increased coldwater volume for the support of planted reservoir salmonids. On the other hand, there may be an added spill risk (by requiring high lake levels during wet years), which has occurred in the spring of 3 years since 1970. Such spills could occur in late spring, and thus may have some adverse effect on trout that have spawned in the bypass reach.

However, we note that a 4,485 feet msl wet/normal year criterion corresponds to the midpoint of the “normal range” by which the Applicant currently operates the lake (letter dated June 25, 1986, from Applicant to the Commission), and would have been met or exceeded by operations in wet and normal years since 1970. Thus, the risk of spill under a stated criterion appears similar to recent historical operation. There are uncertainties in this condition that relate to both the efficiency of the modified Prattville Intake or other actions to affect temperature control, as well as the risk of adverse effects of spills on trout spawning. Thus this condition may require modification to allow additional flexibility in spring operation in wet years to avoid the risk of spill, and to release instream and pulse flows as recommended in Conditions 1 and 2. Hence the recommendation that this condition be subject to periodic review per Condition 13.

5. Water Temperature Management Plan

Condition: Within 6 months of license issuance, Licensee shall, for the conservation and development of fish and wildlife resources, develop in consultation with the Fish and Wildlife Service, FS, California Department of Fish and Game, and the State Water Resources Control Board, a Water Temperature Management Plan for monitoring the project’s bypass reaches and reservoirs. The Licensee shall maintain a mean daily temperature of not more than 20°C throughout all project reaches. The Plan shall include the following completed analyses: a) modeling and assessment of a modified Prattville Intake, including effectiveness monitoring under flow schedules under the new license, and optimization of operations through seasonal use; b) feasibility of modifying Butt Valley structures, so as to minimize mixing at the reservoir entrance or modifying the Caribou 2 intake; c) feasibility and effectiveness of seasonal use of upper and lower outlet gates to Canyon Dam; and d) feasibility and effectiveness of a fence device, that would draw surface water into the Prattville Intake during non-critical periods. The Licensee shall also develop and include in the Plan appropriate additional temperature criteria, by season, reach, and outlet location, to avoid unintended, adverse impacts of sublethal temperature stress as a result of structures or operations that involve planned surface water release discharge.

Licensee shall construct a modified Prattville Intake, and shall also fund any cost of this or other structure (s) beyond that provided by the Coldwater Habitat and Fishery Mitigation and Enhancement Fund under the relicensing settlement agreement for Project No. 1962. The Plan shall include a schedule for construction of structure(s) demonstrated to reasonably meet temperature targets, and the Licensee shall be required to complete construction within 5 years of license issuance.

Justification: Complete analyses for the modified Prattville Intake, and other options, are not yet available. However, information currently available indicates that the structure would be effective in enhancing access and management of coldwater reserves under most conditions, and that such a device would benefit the trout fishery in the Belden Reach. Pursuant to the Rock

Creek-Cresta relicensing settlement agreement currently in force, the Applicant is already required to maintain 20°C temperatures in the bypassed reaches of the Rock Creek-Cresta Project. The agreement also requires the Applicant to construct the modified Prattville Intake pursuant to provisions of that settlement; monitor water temperatures in those reaches, Lake Almanor, Butt Valley Reservoir, and in the Belden and Seneca reaches; identify and, if necessary, recommend additional reasonable control measures; report monitoring results; and establish funding up to \$7,000,000 for the modified intake and additional measures. That agreement provides for the use of funds from other sources, including the Upper North Fork River Project, to manage coldwater reserves and address the effects of other facility modifications on water temperature.

Several of the facility modifications proposed for consideration would operate under the premise that release of surface water (alone or mixed with colder, deeper waters) would be beneficial. We caution that the 20°C target within the Rock Creek-Cresta reaches must not be construed as sufficient for sustaining trout in the Seneca or Belden Reaches, whose potential for support of a trout fishery is substantially greater due to a variety of factors (e.g. sediment, vegetative shade, temperature, gradient, elevation). Additional criteria may be warranted to avoid thermal impacts related to the release of surface water, or the change in temperature between release levels.

Although trout can survive at 20°C, much cooler temperatures are needed for health, reproduction, and normal growth. The lower endpoint for optimum trout growth is generally considered to be around 12°C, although temperatures below the optimum range are much less stressful than temperatures above the optimum range. Under ideal conditions (food in excess, saturated oxygen), the thermal optimum for trout with a diel fluctuation of $\pm 3.8^\circ\text{C}$ is $\sim 15.5^\circ\text{C}$ (Hokanson et al. 1977). Net growth declines above that, and at about 21°C, the fish's metabolism is such that it loses weight no matter how much food is supplied resulting in chronic mortality (Ojolick et al. 1995). Other effects of higher temperatures on trout include a higher incidence of disease infection, competitive pressures from warm-water species, and sublethal effects on brood stock. Options that would conserve cold water for the purpose of limiting exposure in the late summer to $>20^\circ\text{C}$ by withdrawing surface water earlier in the season should consider the need for more restrictive temperature criteria at these times, including both temperature maxima, as well as the difference in temperature during change in release level. Other factors, such as availability of tributary refugia, and differences in entrainment of pond smelt, may also be considered in the development of such criteria.

6. Geomorphological Monitoring Plan

Condition: Within 6 months of license issuance, the Licensee shall, for the conservation of fish and wildlife resources, develop in consultation with the Fish and Wildlife Service, FS, California Department of Fish and Game, and the State Water Resources Control Board, a Geomorphological Monitoring Plan for the monitoring of the project's bypass reaches. The Plan shall include protocols for monitoring streambed cross-section, longitudinal profile, and overall channel dynamics, including mesohabitat dimensions, distribution, and net channel changes. Example components may include benchmarking for permanent cross-section measurement, aerial photography, ground truthing of bank edge locations, topographic surveys, erosion pins or

chains, and/or other survey methods to determine vertical or lateral channel movement in appropriate locations. Surveys shall be conducted in years 1, 5, 10, and 20.

Justification: The recommended flow schedule (Condition 1) and pulse flows (Condition 2) are larger than recent operations, and are expected to have beneficial effects on fish and wildlife populations and their habitats by sustaining channel capacity, and an intermediate level of channel reworking. Some enlargement or adjustment of the channel may occur due to higher spring flows, particularly in those areas where vegetation management action has occurred. Regular monitoring is recommended to evaluate changes over the term of the license, confirm expected benefits (or lack of adverse impact), and provide a basis for adaptive management in case river channel changes are excessive.

7. Vegetation Management Plan

Condition: Within 6 months of license issuance, the Licensee shall, for the conservation and development of fish and wildlife resources, develop in consultation with the Fish and Wildlife Service, FS, California Department of Fish and Game, and the State Water Resources Control Board, a Vegetation Management Plan. The plan shall have three objectives. The first is to monitor changes over the license term. The Licensee shall develop a monitoring program and assess riparian conditions (density and composition of overstory and understory species) sufficient to determine changes which may result from implementation of new flow schedules from the license. Surveys will be conducted in years 1, 5, 10, 15, and 25.

The second objective is to improve channel processes and riparian function in the bypassed reaches by controlling and preventing the establishment noxious weeds such as blackberry, and by removing excess vegetation on formerly active instream surfaces (bars, banks, flood benches). To accomplish this objective, the Licensee shall: a) conduct a comprehensive site assessment and identification of potential opportunities for such action; b) review and select test method(s) based on case studies; c) select sites and implement at least one pilot project consisting of two sites each for noxious weed and excess vegetation encroachment control; d) formulate a determination based on pilot projects as to whether the results warrant additional testing, termination, or expansion; and, if expansion is warranted, e) develop and implement a comprehensive reach-wide management program.

The third objective is to minimize the impacts of ongoing and continuing project maintenance on local vegetation resources. The Licensee shall detail the types and schedules of planned road and project-related maintenance activities which may affect vegetation resources, develop survey methods for the protection of listed species, and develop contingency measures to avoid and minimize impacts to special status species. The Plan shall provide for environmental awareness training for employees and contractors conducting work in sensitive areas. The Plan shall incorporate the FWS's July 9, 1999, *Conservation Guidelines for the Valley Elderberry*

Longhorn Beetle. The Plan shall include the monitoring, prevention of establishment and the control of noxious weeds associated with project operations and facilities outside the bypass reaches. The Plan shall specify treatment measures to control existing infestations including, but

not limited to, biological control, hand pulling, mechanical eradication, and chemical spraying and consider the potential harm to the environment associated with each measure.

The Plan and results of vegetation management activities and monitoring shall be described in an annual report to be submitted to the aforementioned resource agencies for review and comment before filing with the Commission.

Justification: The riparian zones in the project's bypassed reaches have significant areas where midchannel bars, banks, and/or low bench surfaces have been heavily encroached by vegetation, including non-native blackberry, and native willows and alders. This condition, along with modest incision of the channel, greatly limits channel adjustment, and reduces entrainment and movement of coarse gravels from local source areas. Non-native plants compete with native vegetation and inhibit recreational access. This condition is the result of project operations involving reduced base flows and the near absence of high flows. Higher pulse flows may result in some scouring of understory vegetation on formerly inactive surfaces, or the edges of mid-channel bars, but the maximum size of pulse flows is limited by Canyon Dam spillway capacity and need to prevent flooding of Caribou Road. Therefore, it is necessary and reasonable that additional management actions be investigated to reduce exotic plants, to activate portions of bar and bank surfaces, and to enhance the effectiveness of pulse flows. It is anticipated that non-flow measures that remove some vegetation or loosen the surface will enhance the quality of the habitat, and improve the functioning of pulse flows. Potential management actions include mechanical excavation, burning, cutting/culling, herbicide application, and/or hand-weeding, in conjunction with replanting with native seed or cutting stock. The extent and location of actions may be focused and limited in extent so as to facilitate the kind of natural adjustment that would occur over the long term with pulse flows, and in a way that does not result in significant warming. The result of such management would be an increase in native riparian cover at the expense of exotics, an increase in (or at least maintenance of) channel capacity, an increase in the diversity of species and age classes of vegetation, and an appropriate increase in the presence of non-vegetated, active bar surfaces capable of entraining and replacing coarse gravel (and large woody debris) into the main stream channel.

The Applicant has proposed test bramble control methods at 2 to 4 river access sites in the Belden Reach. These test control methods may be a useful component of an overall plan. However, the license application lacks sufficient information to census the full extent of opportunities or management feasibility for noxious weed control. The proposed provision of recreational access points does not address the overall reduction of active channel processes that has favored the development of both dense native and non-native vegetation. We believe a more comprehensive approach and commitment is needed that, if successful and reasonable in a test program, could apply to significant lengths of the bypass reaches for the full license term. While complete eradication (i.e., to the extent which would require no further action or monitoring) may not be possible, we believe that the reach lengths involved are not overwhelming. We believe that a significant level of habitat improvement can be achieved with a sequential approach involving monitoring, opportunity assessment, pilot project methods testing, and then larger scale reach-wide implementation.

8. Coarse Sediment Management Plan

Condition: Within 6 months of license issuance, the Licensee shall, for the conservation and development of fish and wildlife resources, develop in consultation with the Fish and Wildlife Service, FS, California Department of Fish and Game, and the State Water Resources Control Board, a Coarse Sediment Management Plan. The Plan shall include: 1) a program for monitoring spawning gravel quantity and quality for the purpose of evaluating any substantial existing deficiency or trend of loss over the term of the new license; 2) contingency actions for improving the quality and availability of such gravels over the term of the new license; 3) triggers for the implementation of needed contingency actions; and 4) a special study of the effect of pulse flows. Contingency actions may include, but should not be limited to, placement of gravels downstream of Belden Forebay Dam, improving the potential for gravel entrainment and retention through vegetation management as described in Condition 7, and/or adjusting pulse flows as provided in Condition 13.

Justification: Gravel transport has been reduced by the construction of project dams and the reduction in natural, unimpaired stream flows. These actions have resulted in localized coarsening of bed material, grade loss, and reduction of depositional bar features. However, portions of the project continue to receive some gravels from tributaries, debris flows, or entrainment of existing slide deposits and may be affected in a different manner over the future license term with higher instream or pulse flows, or vegetation management as recommended above. For example, smaller coarse gravels may or may not be retained in sufficient quantities in micro-patches near large boulders or in lower-gradient subreaches. Long term monitoring will enable a determination of the future effects of project operation and provide a basis for adaptive management actions to sustain gravel quantity and quality. Quality factors that may be affected by project operation include grain size distribution, particularly the proportion of fines, depth and velocity over gravels during spawning season, the size of gravel patches, and (at low flows), the encroachment of vegetation onto potential spawning gravels or spawning gravel sources.

9. Woody Debris Management Plan

Condition: Within 6 months of license issuance, the Licensee shall, for the conservation and development of fish and wildlife resources, develop in consultation with the Fish and Wildlife Service, FS, California Department of Fish and Game, and the State Water Resources Control Board, a Woody Debris Management Plan. The Plan shall include: 1) a program for monitoring the project's bypassed reaches for large woody debris for the term of the new license, 2) a woody debris placement test program sufficient to determine whether placement is feasible over the license term, and 3) a plan for maintaining adequate amounts of woody debris throughout the bypass reaches. The Licensee shall consider and test two woody debris placement options: 1) the recovery and transport of large woody debris around the project dams; and 2) the placement of individual pieces of large woody debris at selected locations. The tests shall determine residence time as a function of piece size, flow (particularly pulse flows of different magnitude), and method of introduction, and monitor changes in mesohabitat in the immediate vicinity of the test material.

Justification: Large woody debris entrainment and transport have been nearly completely eliminated by the construction and operation of the project's dams and related facilities.

Quantities of woody debris range from very high (Lower Butt Creek), to low (Belden and Seneca Reaches). Most of the project's bypass reaches currently lack sufficient large trees that would serve as a local source of large woody debris, and lack the flows to entrain such material. Large woody debris is an important component of fish habitat diversity, and contributes to essential ecosystem functions such as sediment (and seed) collection and associated mesohabitat and riparian plant recruitment, nitrogen fixation, the support of wood-associated invertebrates and wildlife that feed on those organisms, and the provision of cover for fish and wildlife. The addition and management of woody debris to the project's bypassed reaches will help to restore these missing ecosystem functions. Although structural cover is provided by boulders launched into the channel from hillslope sources, and by exposed live plant roots from small trees, they do not replicate the particular combination of functions provided by large woody debris.

10. Fish Monitoring Plan

Condition: Within 6 months of license issuance, the Licensee shall, for the conservation and development of fish and wildlife resources, develop in consultation with the Fish and Wildlife Service, FS, California Department of Fish and Game, and the State Water Resources Control Board, a Fishery Monitoring Plan. The Plan shall include a program to monitor the project's bypass reaches, impoundments, impoundment tributaries, and bypass reach tributaries to determine the species status and size composition of the fish community, assess trout spawning activity, and track fish planting information and recreational use (angler surveys).

Assessments shall be performed in years 1-3, 8-10, 15, 20, and 25. Reports shall be issued 6 months following completion of studies and distributed to the aforementioned resource agencies for comment prior to filing with the Commission. A special study shall be implemented within the two years immediately following the completed installation of a modified Prattville Intake to determine the extent of the change in the discharge of pond smelt from the Butt Valley and Belden Powerhouses, and subsequent effect on trout distribution and growth in Butt Valley Reservoir and Belden Forebay. Licensee shall also evaluate and determine the need for special study of any other facility modification that would substantially alter fish entrainment between project reaches.

Justification: It is anticipated that the modified flow schedules, pulse flows, and lake levels recommended in Conditions 1, 2, 3, and 4 will result in improved health, growth rate, survival, and sustainability of the trout fishery and other native fishes in the project's bypass reaches, and that fisheries within all project-affected waters will remain within acceptable levels. For example, higher spring flows should produce several beneficial effects including improved fish reproduction, juvenile survival, and growth. Fish size, abundance, presence of small trout, and spawning activity should provide indices of the effectiveness of these recommended flow schedules, and, together with other monitoring elements, will serve as a basis for adaptive management of the flow schedule. Angler surveys will allow an independent assessment of fish population and effect of recreational use. The fish monitoring results will also inform adaptive management decisions on continued need or level of fish stocking desired in the Belden Reach. Fish monitoring would also detect whether changes in entrainment of lake fish species associated with changes in flow regime or facility modification, are affecting the fishery in the bypass reaches. Pond smelt are a forage item for trout in the powerhouse tailwaters. The entrainment of

pond smelt may be affected by the level at which water is withdrawn from Lake Almanor. The requested special study will determine the consequential effect on reservoir trout.

11. Macroinvertebrate Monitoring Plan

Condition: Within 6 months of license issuance, the Licensee shall, for the conservation and development of fish and wildlife resources, develop in consultation with the Fish and Wildlife Service, U.S. Forest Service, California Department of Fish and Game, and the State Water Resources Control Board, a Macroinvertebrate Monitoring Plan. The plan shall be sufficient to evaluate major changes in the macroinvertebrate assemblage community structure and abundance in response to changes in base or pulse flows, temperature, or other actions associated with Licensee's operations or required license conditions. Surveys shall be conducted upon license issuance and at 5 year intervals thereafter.

Justification: Macroinvertebrates are a major food resource for the fishery and may be affected by changes in scheduled instream base flows, pulse flows, and withdrawal levels, and related changes in water quality such as dissolved oxygen and temperature. The results from these recommended regular surveys will inform adaptive management decisions about whether scheduled base flows, pulse flows, and water withdrawal levels merit continuation, expansion in scope, or adjustment to support a productive macroinvertebrate community. These surveys will also document any native or non-native species introduction into the project reaches.

12. Amphibian Monitoring Plan

Condition: Within 6 months of license issuance, the Licensee shall, for the conservation and development of fish and wildlife resources, develop in consultation with the Fish and Wildlife Service, U.S. Forest Service, California Department of Fish and Game, and the State Water Resources Control Board, an Amphibian Monitoring Plan for the Belden and Seneca reaches. The plan shall be sufficient to evaluate possible changes in amphibian's numbers and diversity in response to changes in instream flow, temperature, or other actions associated with project operations and required license conditions. Amphibian surveys shall be conducted upon license issuance and at 5 year intervals thereafter.

Justification: Amphibians are sensitive to changes in instream flow or temperature, and may be affected by changes in scheduled instream or pulse flows, or other required license conditions. Monitoring will provide a basis for understanding the effects of these conditions, a means for detection of new species in the project area, and serve as a basis for adaptive management.

13. Adaptive Management

Condition: The Licensee shall, for the conservation and development of fish and wildlife resources, periodically review the results of all monitoring and special studies (vegetation, water temperature, fishery, amphibian, wildlife, macroinvertebrate, sediment, geomorphology, woody debris), in consultation with the Fish and Wildlife Service, FS, California Department of Fish and Game, and the State Water Resources Control Board, for the purpose of determining the need for adjusting instream base or pulse flows, or required lake storage to achieve identified

resource goals and objectives. These reviews shall be conducted every 5 years for the term of the license. The review process shall examine monitoring and study results to identify any unacceptable adverse effect on fish or wildlife resources or clear deficiency in resource goal attainment which is a consequence of the conditioned license release schedule and would be rectified with an alternative flow schedule or lake storage level with the same annual volume of release of instream flow or pulse flow. Under these circumstances, an alternative for instream base or pulse flow, with no change in annual volume for that year type, may be implemented after review and approval by the resource agencies and the Commission.

Justification: The recommended flow schedules (Conditions 1, 2, 3, and 4) reflect the FWS's assessment of the available information and are meant to balance the need to maintain sufficient storage in Lake Almanor for the purpose of sustaining cold releases under most conditions against the need for instream flows for habitat, food production, channel maintenance, and riparian zone functions. Certain aspects of the schedule require confirmation. For example, the scheduling of reduced summer flow during critical dry years implies that the benefits of higher spring and winter flows on trout spawning and early life history offsets the effects of potential temperature stress during reduced summer flows. The recommended flow schedules are also based on the assumption that a modified Prattville Intake, yet to be constructed, would provide for cold water supplies at normal lake levels. Higher summer flows (at the expense of lower spring flows) might be recommended as an alternative as a result of severely impaired juvenile survival, or greatly reduced adult growth or health. The flow volume might be redistributed, or lake levels adjusted or made more flexible, to optimize temperature benefits based on the actual functioning of a modified Prattville Intake. Or, no action may be taken where the observed level of stress or effect is within the normal range of variation. Larger than conditioned pulse flows may be more effective for some purposes, such as movement of bar material; or smaller flows may be recommended if movement of smaller coarse gravels was deemed excessive. Regular review of monitoring data and associated ability to make volume neutral adjustments in schedules where clearly justified, are expected to maximize the benefits of managed releases on fish and wildlife resources.

14. Recreational Activities Monitoring Plan

Condition: Within 6 months of license issuance, the Licensee shall, for the conservation and development of fish and wildlife resources, develop in consultation with the Fish and Wildlife Service, NPS, FS, California Department of Fish and Game, and the State Water Resources Control Board, a Recreational Activities Monitoring Plan. The purpose of the Plan shall be to monitor the potential effects of camping, angling, access, and boating flows (if adopted) on fish and wildlife resources. Elements of the plan shall include a comparison of data on recreational activities use, distribution, and expansion to fisheries and raptor monitoring data. In addition, the Plan shall include elements to assess the effects of recreational use and facility development on local vegetation resources.

Justification: A number of recreational activities are associated with the project's reservoirs and bypassed reaches, and the recommended flow schedules may indirectly promote or affect recreational use in the bypass reaches. Additional facilities are proposed in the Final Application, particularly around the reservoirs, to meet anticipated recreational demands.

Monitoring has been proposed for use levels for the purpose of deciding future facility expansion, but not for avoiding or minimizing the biological effects of those facilities and other proposed recreational activities. Additional camping, access construction and use, angling, and boating flows are factors which may affect riverine and riparian resources, or may themselves be affected by changes in project operations.

15. Endangered Species Compliance

Condition: The Licensee shall, for the conservation and development of fish and wildlife resources, comply with the terms and conditions required in any biological opinion issued for this project pursuant to Section 7 of the Endangered Species Act.

Justification: The FWS desires compliance with the Endangered Species Act prior to and following license issuance. The Act's implementing regulations at 50 CFR § 402.15 describe the steps that Federal agencies shall take after a biological opinion is issued.

16. Interagency Bald Eagle Management Plan

Condition: Within six months of license issuance, the Licensee shall, for the conservation and development of fish and wildlife resources, develop in consultation with the Fish and Wildlife Service, FS, and the California Department of Fish and Game, an Interagency Bald Eagle Management Plan. The Plan shall address land and resource management strategies to promote the conservation and recovery of bald eagles associated with Butt Valley Reservoir, Mountain Meadows Reservoir, and other project lands and waters. The Plan shall identify steps to minimize eagle disturbance and ensure that proposed changes in project operations, management, and visitor use does not impair bald eagle productivity and survival.

Justification: The Upper North Fork Feather River Basin is an important bald eagle nesting area in California. Fourteen nesting territories presently exist in the project area. The Forest Service recently completed the September 2003, *Bald Eagle Management Plan, Lake Almanor and the Upper Feather River, Recovery Zone 26, Lake Almanor Basin Area*. This bald eagle management plan recommends land and resource management strategies for activities only on National Forest lands, and does not address management on the nest territories associated with Butt Valley Reservoir and Mountain Meadows Reservoir, both considered by the Applicant to be within the project area. An Interagency Bald Eagle Management Plan is needed to address management on project lands and waters and other private lands in the Basin. Activities occurring on such lands include recreation, timber harvesting, housing development, and fisheries management. The Interagency Bald Eagle Management Plan should be integrated with the Forest Service's 2003 bald eagle management plan.

Changes in project operations, management, and visitor use activities are proposed with the new license. Disturbance from these activities may adversely affect bald eagle productivity and survival. Although the eagles are currently doing well co-existing with the current level of human activity, the tolerance threshold of bald eagles to increased disturbance is unknown.

17. Bald Eagle Monitoring

Condition: Upon issuance of license, the Licensee shall, for the conservation and development of fish and wildlife resources, develop in consultation with the Fish and Wildlife Service, U.S. FS, and the California Department of Fish and Game, a Bald Eagle Monitoring Plan. The Plan shall include elements for the annual survey of project lands and waters and shall include, but not be limited to, the monitoring of bald eagle reproductive success, eagle distribution and abundance, and human use to evaluate eagle/human interactions. Annual surveys shall be conducted according to protocols acceptable to the aforementioned resource agencies. The results of annual bald eagle monitoring shall be submitted to the aforementioned resource agencies for review and comment prior to being filed with the Commission.

Justification: Continued bald eagle monitoring is necessary to ensure that sufficient and effective protective measures are in place. Information from such monitoring will provide the necessary assurance required by the resource agencies to make this determination.

18. Peregrine Falcon Monitoring

Condition: Upon issuance of license, the Licensee shall, for the conservation and development of fish and wildlife resources, develop in consultation with the Fish and Wildlife Service, FS, and the California Department of Fish and Game, a plan for the annual monitoring of active peregrine eyries and suitable nesting habitat in the project area. If a new peregrine eyrie is identified, the Licensee shall consult with the aforementioned resource agencies to determine whether protective measures are necessary to ensure reproductive success and, if so, identify those measures and implement them as soon as possible or within one year of nest identification. The results of the annual peregrine falcon monitoring shall be submitted to the aforementioned resource agencies for review and comment prior to filing with the Commission.

Justification: Monitoring is necessary to ensure the future success of the peregrine falcon. Future peregrine falcon nesting attempts may fail due to increased human disturbance and recreational use. Peregrine falcons mature at about 3 years of age. Therefore, annual monitoring will aid in detecting changes in population status.

19. Erosion Control Plan

Condition: Upon issuance of license, the Licensee shall, for the conservation and development of fish and wildlife resources, develop in consultation with the Fish and Wildlife Service, FS, the California Department of Fish and Game, and the State Water Resources Control Board, an Erosion Control Plan for all project facilities, roads, reservoirs, and bypass reaches.

Justification: Applicant has already included a draft shoreline management plan for Lake Almanor in its Application. However, the Applicant also operates and maintains a variety of facilities and proposes recreational improvements which involve earth surfaces and land disturbing activities. Additional soil erosion, sedimentation, and habitat loss may occur due to maintenance, new construction, natural events, emergencies, or other unforeseen circumstances. It is appropriate to have a mechanism in place to ensure that erosion and sediment issues are addressed during the term of the license.

20. Ramping Rates

Condition: Within 6 months of license issuance, the Licensee shall, for the conservation and development of fish and wildlife resources, develop in consultation with the Fish and Wildlife Service, FS, the California Department of Fish and Game, and the State Water Resources Control Board, a Ramping Rate Plan to minimize the effects of necessary changes in regulated flows. The plan shall include specified rates of release change (up and down) from project facilities, and the rationale for selection of these rates.

Justification: Specification and implementation of ramping rates avoids unnecessary adverse impacts to aquatic habitat and biota, such as fry stranding due to rapid flow fluctuations.

21. Wildlife Monitoring Plan

Condition: Within 6 months of license issuance, the Licensee shall, for the conservation and development of fish and wildlife resources, develop in consultation with the Fish and Wildlife Service, FS, the California Department of Fish and Game, and the State Water Resources Control Board, a Wildlife Monitoring Plan. The plan shall be sufficient to evaluate changes in wildlife use in response to changes in flows, lake levels, implementation of the Vegetation Management Plan, other activity associated with project operations and required license conditions.

Justification: The project area and vicinity supports a variety of important wildlife species which may be affected by project operations, such as manipulation of instream flows, pulse flows, or lake levels. The Applicant has proposed a management plan for the west side of Lake Almanor, including a variety of actions such as control of off-road vehicles and recreation, and other enhancement actions. Wildlife use of this area, including waterbird and songbird use of the causeway area of Lake Almanor may be sensitive to water level and enhancement actions. An appropriate level of wildlife monitoring would assist in maximizing the protection and enhancement of wildlife resources, and provide a means for necessary adjustment in project operations or related recreational facilities, if necessary.

RESERVATION OF AUTHORITY TO PRESCRIBE FISHWAYS PURSUANT TO SECTION 18 OF THE FEDERAL POWER ACT

Section 18 of the Federal Power Act (16 U.S.C. 811) states in part that: “the Commission shall require the construction, maintenance, and operation by a Licensee of ... such fishways as may be prescribed by the Secretary of Commerce or the Secretary of Interior.” Section 1701(b) of the National Energy Policy Act of 1992, P.L. 102-486, provides guidance as to what constitutes a fishway. Section 1701(b) states: “The items which may constitute a ‘fishway’ under Section 18 for the safe and timely upstream and downstream passage of fish shall be limited to physical structures, facilities, or devices necessary to maintain all life stages of such fish, and project operations and measures related to such structures, facilities, or devices which are necessary to ensure the effectiveness of such structures, facilities, or devices, for such fish.”

The preliminary prescriptions for fishways herein are issued under the authority delegated to the Regional Director, Region 1, U.S. Fish and Wildlife Service from the Secretary of the Interior pursuant to Section 18 of the Federal Power Act. See 64 Stat.1262; 209 Departmental Manual 6.1; and 242 Departmental Manual 1.1A. The FWS's prescriptions are also consistent with the requirements of the Interagency Guidance for the Prescription of Fishways Pursuant to Section 18 of the FPA (USFWS 2002).

At this time, the FWS intends to reserve authority to prescribe fishways for the Upper North Fork Feather River Project, Project No. 2105-089. Currently, several high project dams (Canyon, Belden Forebay, and Butt Valley) preclude passage of resident salmonids between project reaches and tributaries. Present agency priorities emphasize the protection of existing aquatic resources, which include the resident fisheries of the bypassed reaches and project reservoirs, through the management of instream flows. We have not identified passage facilities needs for these resident fisheries or other aquatic fauna. However, the Upper North Fork Feather River formerly supported anadromous fisheries of steelhead and spring run Chinook salmon. These fish are presently blocked from entering project reaches by additional downstream dams including those within the Oroville, Project No. 2100, Rock Creek-Cresta, Project No. 1962, and Poe, Project No. 2107. The potential for upstream and downstream passage of anadromous salmonids at Oroville is being reviewed pursuant to the pending relicensing process for that project. However, the outcome from that review is unknown and the likelihood of successful upstream and downstream passage at the Oroville Project is uncertain. Given this uncertainty, and the absence of adequate information to support the filing of a prescription for fishways at this time, the FWS will exercise the Department's statutory authority pursuant to Section 18 of the Federal Power Act, as amended, by reserving the authority to prescribe the construction, operation, and maintenance of fishways in the future during the term of the license. Therefore, the Department prescribes the following condition to be included in any license the Commission may issue for the Upper North Fork Feather River Project, Project No. 2105-089:

Authority is reserved for the Department of the Interior, as delegated to the U.S. Fish and Wildlife Service, to prescribe the construction, operation, and maintenance of fishways at the Upper North Fork Feather River Project, Project No. 2105-089, as appropriate, including measures to determine, ensure, or improve the effectiveness of such fishways, pursuant to Section 18 of the Federal Power Act, as amended. This reservation includes, but is not limited to, authority to prescribe fishways for rainbow trout, steelhead, spring run Chinook salmon, and any other fish to be managed, enhanced, protected, or restored to the Feather River Basin during the term of the license.

MANDATORY CONDITIONS REVIEW PROCESS

On January 19, 2001, the Department adopted a process for public review and comment on mandatory conditions and prescriptions it develops pursuant to Sections 4(e) and 18 of the FPA. This process, called the Mandatory Conditions Review Process (MCRP), provides a standardized opportunity for interested parties to provide comment on the mandatory conditions and prescriptions developed by the Department. Pursuant to the MCRP, the Department invites comment on its preliminary determination to reserve authority. Interested parties must submit

any comments or new information relevant to the Department's determination within 60 days immediately following the Commission's deadline for filing comments, recommendations, terms and conditions, and prescriptions pursuant to the subject Notice of Application Ready for Environmental Analysis (REA Notice).

The Department will respond to comments received after the closure of the Commission's comment period for its DEIS or DEA. At that time, the Department will review the DEIS or DEA, and all comments and new supporting evidence received during the MCRP comment period pertaining to the reservation of fishway authority. Based on this review, the Department will modify its preliminary determination, as needed, and respond to all comments received. The Department intends to submit modified conditions, as needed, no later than 60 days after the closure of the Commission's DEIS or DEA comment period.

Comments and new information should be addressed to the Regional Director, U.S. Fish and Wildlife Service, 911 NE 11th Avenue, Portland, Oregon 97232-4181. Copies must also be sent to the Commission, and to each of the following:

1. Regional Environmental Officer, Department of the Interior, Office of Environmental Policy and Compliance, 1111 Jackson Street, Suite 520, Oakland, California 94607;
2. Pacific Southwest Regional Solicitor, Office of the Solicitor, Department of the Interior, 2800 Cottage Way, Room W-2215, Sacramento, California 95825;
3. Operations Manager, California Nevada Operations Office, U.S. Fish and Wildlife Service, 2800 Cottage Way, Room W-2606, Sacramento, California 95825; and
4. Field Supervisor, Sacramento Fish and Wildlife Office, U.S. Fish and Wildlife Service, 2800 Cottage Way, Room W-2605, Sacramento, California 95825

SUMMARY COMMENTS

We do not object to issuance of a new license for the Upper North Fork Feather River Project, provided its recommendations to protect, mitigate, and enhance fish and wildlife and recreation resources, and Section 18 prescription for fishways, are incorporated into the license. The opportunity to amend, modify, or add to these recommendations and prescriptions is reserved if resource conditions change, project plans are altered, or new information is developed, including conclusions developed during the Commission's environmental analysis.

If Commission staff determines that our recommendations are inconsistent with the purposes and requirements of the FPA, as amended by the Electric Consumers Protection Act, please contact Mr. Wayne White, Field Supervisor, U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, 2800 Cottage Way, Room W-2605, Sacramento, California 95825 (916) 414-

6700, to resolve the inconsistencies prior to issuance of the license. Lastly, the Department recommends that the Commission initiate informal consultation discussions with the FWS directly to jointly determine information needs to comply with Section 7 of the ESA on this licensing action.

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- USFWS. 2002. 12-month Finding for a Petition to List the Sierra Nevada Distinct Population Segment of the Mountain Yellow-legged Frog (*Rana muscosa*). Federal Register 68:2283, January 16, 2003.

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Endangered and Threatened Species that May Occur in or be Affected by Projects in the Area of the Following California Counties Reference File No. 1-1-04-I-108
Upper North Fork Feather River, FERC No. 2105, Plumas County, California

PLUMAS COUNTY

Listed Species

Birds

bald eagle, *Haliaeetus leucocephalus* (T)

Amphibians

California red-legged frog, *Rana aurora draytonii* (T)

Fish

Central Valley steelhead, *Oncorhynchus mykiss* (T) NMFS

delta smelt, *Hypomesus transpacificus* (T) *

Invertebrates

Critical habitat, vernal pool invertebrates, (X)

Plants

Critical habitat, vernal pool plants, (X)

slender Orcutt grass, *Orcuttia tenuis* (T)

Candidate Species

Amphibians

Mountain yellow-legged frog, *Rana muscosa* ©)

Plants

Webber's ivesia, *Ivesia webberi* ©)

slender Moonwort (= narrowleaf grapefern), *Botrychium lineare* ©) *

Species of Concern

Mammals

American (=pine) marten, *Martes americana* (SC)

California wolverine, *Gulo gulo luteus* (CA)
 Sierra Nevada red fox, *Vulpes vulpes necator* (CA)
 Sierra Nevada snowshoe hare, *Lepus americanus tahoensis* (SC)
 Yuma myotis bat, *Myotis yumanensis* (SC)
 fisher, *Martes pennanti* (SC)
 fringed myotis bat, *Myotis thysanodes* (SC)
 greater western mastiff-bat, *Eumops perotis californicus* (SC)
 long-eared myotis bat, *Myotis evotis* (SC)
 long-legged myotis bat, *Myotis volans* (SC)
 pale Townsend's big-eared bat, *Corynorhinus (=Plecotus) townsendii pallescens* (SC)
 pygmy rabbit, *Brachylagus idahoensis* (SC)
 small-footed myotis bat, *Myotis ciliolabrum* (SC)
 spotted bat, *Euderma maculatum* (SC)

Birds

American bittern, *Botaurus lentiginosus* (SC)
 American dipper, *Cinclus mexicanus* (SLC)
 American peregrine falcon, *Falco peregrinus anatum* (D)
 California spotted owl, *Strix occidentalis occidentalis* (SC)
 Lewis' woodpecker, *Melanerpes lewis* (SC)
 Nuttall's woodpecker, *Picoides nuttallii* (SLC)
 Swainson's hawk, *Buteo Swainsoni* (CA)
 Vaux's swift, *Chaetura vauxi* (SC)
 bank swallow, *Riparia riparia* (CA)
 black swift, *Cypseloides niger* (SC)
 ferruginous hawk, *Buteo regalis* (SC)
 flammulated owl, *Otus flammeolus* (SC)
 greater sandhill crane, *Grus canadensis tabida* (CA)
 little willow flycatcher, *Empidonax traillii brewsteri* (CA)
 long-billed curlew, *Numenius americanus* (SC)
 northern goshawk, *Accipiter gentilis* (SC)
 oak titmouse, *Baeolophus inornatus* (SLC)
 olive-sided flycatcher, *Contopus cooperi* (SC)
 red-breasted sapsucker, *Sphyrapicus ruber* (SC)

rufous hummingbird, *Selasphorus rufus* (SC)
 tricolored blackbird, *Agelaius tricolor* (SC)
 western burrowing owl, *Athene cunicularia hypugaea* (SC)
 white-faced ibis, *Plegadis chihi* (SC)
 white-headed woodpecker, *Picoides albolarvatus* (SC)

Reptiles

California horned lizard, *Phrynosoma coronatum frontale* (SC)
 northern sagebrush lizard, *Sceloporus graciosus graciosus* (SC)
 northwestern pond turtle, *Clemmys marmorata marmorata* (SC)

Amphibians

Cascades frog, *Rana cascadae* (SC)
 Mount Lyell salamander, *Hydromantes platycephalus* (SC)
 foothill yellow-legged frog, *Rana boylei* (SC)
 western spadefoot toad, *Spea hammondi* (SC)

Fish

Pit roach, *Lavinia symmetricus mitrulus* (SC)
 Sacramento splittail, *Pogonichthys macrolepidotus* (SC)

Invertebrates

King's Creek ecclisomyian caddisfly, *Ecclisomyia bilera* (SC)
 King's Creek parapsyche caddisfly, *Parapsyche extensa* (SC)
 amphibious caddisfly, *Desmona bethula* (SC)
 golden-horned caddisfly, *Neothremma genella* (SC)

Plants

Bute County catchfly (=long-stiped campion), *Silene occidentalis ssp. longistipitata* (SC)
 Cantelow's lewisia, *Lewisia cantelowii* (SC)
 Constance's rock-cress, *Arabis constancei* (SC)
 Egg Lake monkeyflower, *Mimulus pygmaeus* (SLC)
 Feather River stonecrop, *Sedum albomarginatum* (SC)
 Follett's monardella, *Monardella follettii* (SLC)
 Lemmon's clover, *Trifolium lemmonii* (SLC)

Modoc County knotweed, *Polygonum polygaloides* ssp. *esotericum* (SC)
 Plumas ivesia, *Ivesia sericoleuca* (SC)
 Pulsifer's (=Ames') milk-vetch, *Astragalus pulsiferae* var. *pulsiferae* (SLC)
 Quincy lupine, *Lupinus dalesiae* (SC)
 Sierra Valley ivesia, *Ivesia aperta* var. *aperta* (SC)
 Suksdorf's milk-vetch, *Astragalus pulsiferae* var. *suksdorfii* (SC)
 Webber's milk-vetch, *Astragalus webberi* (SC)
 Wilkin's harebell, *Campanula wilkinsiana* (SC)
 adobe lily, *Fritillaria pluriflora* (SC)
 closed-lip (closed-throated) beardtongue, *Penstemon personatus* (SC)
 clustered lady's-slipper, *Cypripedium fasciculatum* (SC)
 common moonwort, *Botrychium lunaria* (SC)
 cut-leaved ragwort, *Senecio* (=Packera) *eurycephalus* var. *lewisrosei* (SLC)
 felt-leaved (=woolly) violet, *Viola tomentosa* (SLC)
 lens-pod milk-vetch, *Astragalus lentiformis* (SC)
 milk-vetch, Lemmon's, *Astragalus lemmonii* (SLC)
 tall alpine-aster (= Plumas alpine aster), *Oreostemma elatum* (SLC)

KEY:

(E) *Endangered Listed (in the Federal Register) as being in danger of Extinction.*
 (T) *Threatened Listed as likely to become endangered within the foreseeable future.*
 (P) *Proposed Officially proposed (in the Federal Register) for listing as endangered or threatened.*
 (PX) *Proposed as an area essential to the conservation of the species.*
 (C) *Candidate to become a proposed species.*
 (SC) *Species of Other Concern to the Service.*
 (SLC) *Species of local or regional concern or conservation significance.*
 (D) *Delisted. Status to be monitored for 5 years*
 (CA) *State-Listed as threatened or endangered by the State of California.*
NMFS species Under jurisdiction of the National Marine Fisheries Service.
Contact them directly.
 **Extirpated Possibly extirpated from the area.*
 ***Extinct Possibly extinct*
Critical Habitat Area essential to the conservation of a species.

CERTIFICATE OF SERVICE

I hereby certify that I have caused this day the foregoing letter to be served upon each person designated on the official list compiled by the Secretary in the Upper North Folk Feather River Project proceedings, FERC No. 2105-089.

Dated at Washington, DC this 1st day of December 2003.

Terence N. Martin

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