# Low Impact Hydropower Institute

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## LOW IMPACT HYDROPOWER QUESTIONNAIRE

## Pelton Round Butte Project (FERC No. 2030)

[Excerpted from Part VI, Section E of the Low Impact Hydropower Certification Program. Words in italics are defined in Part VI, Section C, and line-by-line instructions are available in Section D of the program, available on-line in PDF format at http://www.lowimpacthydro.org.]

### E. LOW IMPACT HYDROPOWER QUESTIONNAIRE

| **Background Information** | |
|---|---|
| 1) Name of the *Facility*. | Pelton Round Butte Project (FERC No. 2030) |
| 2) Applicant's name, contact information and relationship to the Facility. If the Applicant is not the Facility owner/operator, also provide the name and contact information for the Facility owner and operator. | Julie Keil, Director, Hydro Licensing<br>Portland General Electric Company<br>121 SW Salmon Street<br>3-WTC BRHL<br>Portland, OR 97204<br>Tel: 503.464.8864<br>Fax: 503.464.2944<br>Email: Julie_Keil@pgn.com<br><br>Jim Manion, General Manager<br>Warm Springs Power Enterprises<br>5180 Jackson Trail Road<br>P.O. Box 960<br>Warm Springs, OR 97761<br>Phone: 541.553.1046<br>Fax: 541.553.3436<br>Email: J_Manion@wspower.com |

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| 3) Location of Facility by river and state. | Deschutes, Crooked, and Metolius rivers, in central Oregon |
| 4) Installed capacity. | 366.82 MW |
| 5) Average annual generation. | 1,591,000 megawatt-hours (MWh), as licensed in accordance with the terms of the Settlement Agreement |
| 6) Regulatory status. | FERC Project No. 2030 – Recently relicensed for a 50-year term by FERC Order dated June 21, 2005 |
| 7) Reservoir volume and surface area measured at the high water mark in an average water year. | Lake Billy Chinook (Round Butte reservoir):<br>Volume (gross storage capacity) at normal maximum elevation (1,945 feet msl) = 535,000 acre-feet<br>Surface area at normal maximum elevation = 4,000 acres<br>Lake Simtustus (Pelton reservoir):<br>Volume (gross storage capacity) at normal maximum elevation (1,580 feet msl) = 31,000 acre-feet<br>Surface area at normal maximum elevation = 540 acres<br>Reregulating Reservoir:<br>Volume (gross storage capacity) at normal maximum elevation (3,270 feet msl) = 3,500 acre-feet<br>Surface area at normal maximum elevation = 190 acres |
| 8) Area occupied by non-reservoir facilities (e.g., dam, penstocks, powerhouse). | Round Butte: 37.11 acres<br>Pelton: 1.23 acres<br>Reregulating: 2.59 acres |
| 9) Number of acres inundated by the Facility. | Lake Billy Chinook: 4000 acres<br>Lake Simtustus: 540 acres<br>Reregulating Reservoir: 190 acres |
| 10) Number of acres contained in a 200-foot zone extending around entire impoundment. | 8876.99 acres (including reservoirs and non-reservoir facilities) |
| 11) Please attach a list of contacts in the relevant Resource Agencies and in non-governmental organizations that have been involved in Recommending conditions for your Facility. | Please see Attachment 1 |
| 12) Please attach a description of the Facility, its mode of operation (i.e., peaking/run of river) and a map of the Facility. | Please see Attachment 2 |
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| **Questions for "New" Facilities Only:**<br><br>If the Facility you are applying for is "new" i.e., an existing dam that added or increased power generation capacity after August of 1998 please answer the following questions to determine eligibility for the program | New = Increased Power Generation Capacity |
| 13) When was the dam associated with the Facility completed? | Dam — Completion Date<br>Round Butte — December 1964<br>Pelton — June 1958<br>Reregulating — June 1958 |
| 14) When did the added or increased generation first generate electricity? If the added or increased generation is not yet operational, please answer question 18 as well. | Unit — Operation Date — Increased Capacity<br>Round Butte Unit 2 — August 5, 2002 — 32.4 MW<br>Round Butte Unit 3 — December 4, 2002 — 32.4 MW<br><br>Please see Attachment 3 |
| 15) Did the added or increased power generation capacity require or include any new dam or other diversion structure? | No |
| 16) Did the added or increased capacity include or require a change in water flow through the facility that worsened conditions for fish, wildlife, or water quality, (for example, did operations change from run-of-river to peaking)? | No |
| 17) (a) Was the existing dam recommended for removal or decommissioning by resource agencies, or recommended for removal or decommissioning by a broad representation of interested persons and organizations in the local and/or regional community prior to the added or increased capacity?<br><br>(b) If you answered "yes" to question 17(a), the Facility is not eligible for certification, unless you can show that the added or increased capacity resulted in specific measures to improve fish, wildlife, or water quality protection at the existing dam. If such measures were a result, please explain. | No |
| 18) (a) If the increased or added generation is not yet operational, has the increased or added generation received regulatory authorization (e.g., approval by the Federal Energy Regulatory Commission)? If not, the facility is not eligible for consideration; and<br><br>(b) Are there any pending appeals or litigation regarding that authorization? If so, the facility is not eligible for consideration. | (a) n/a<br><br>(b) No |
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| **A. Flows** | **PASS** | **FAIL** |
|---|---|---|
| 1) Is the Facility in *Compliance* with *Resource Agency Recommendations* issued after December 31, 1986 regarding flow conditions for fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking rate conditions, and seasonal and episodic instream flow variations) for both the reach below the tailrace and all bypassed reaches? | YES = Pass, Go to B<br>(Please see Attachment 4, section A) | |
| 2) If there is no flow condition recommended by any Resource Agency for the Facility, or if the recommendation was issued prior to January 1, 1987, is the Facility in Compliance with a flow release schedule, both below the tailrace and in all bypassed reaches, that at a minimum meets Aquatic Base Flow standards or "good" habitat flow standards calculated using the Montana-Tennant method? | | |
| 3) If the Facility is unable to meet the flow standards in A.2., has the Applicant demonstrated, and obtained a letter from the relevant Resource Agency confirming that demonstration, that the flow conditions at the Facility are appropriately protective of fish, wildlife, and water quality? | | |
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| **B. Water Quality** | **PASS** | **FAIL** |
| 1) Is the Facility either:<br><br>a) In Compliance with all conditions issued pursuant to a Clean Water Act Section 401 water quality certification issued for the Facility after December 31, 1986? Or<br><br>b) In Compliance with the quantitative water quality standards established by the state that support designated uses pursuant to the federal Clean Water Act in the Facility area and in the downstream reach? | YES = Go to B2<br>(Please see Attachment 4, section B) | |
| 2) Is the Facility area or the downstream reach currently identified by the state as not meeting water quality standards (including narrative and numeric criteria and designated uses) pursuant to Section 303(d) of the Clean Water Act? | YES = Go to B3<br>(Please see Attachment 4, section B) | |
| 3) If the answer to question B.2 is yes, has there been a determination that the Facility is not a cause of that violation? | YES = Pass<br>(Please see Attachment 4, section B) | |
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| **C. Fish Passage and Protection** | **PASS** | **FAIL** |
|---|---|---|
| 1) Is the Facility in Compliance with *Mandatory Fish Passage Prescriptions* for upstream and downstream passage of anadromous and catadromous fish issued by Resource Agencies after December 31, 1986? | YES = Go to C5<br>(Please see Attachment 4, section C) | |
| 2) Are there historic records of anadromous and/or catadromous fish movement through the Facility area, but anadromous and/or catadromous fish do not presently move through the Facility area (e.g., because passage is blocked at a downstream dam or the fish run is extinct)?<br>a) If the fish are extinct or extirpated from the Facility area or downstream reach, has the Applicant demonstrated that the extinction or extirpation was not due in whole or part to the Facility?<br>b) If a Resource Agency Recommended adoption of upstream and/or downstream fish passage measures at a specific future date, or when a triggering event occurs (such as completion of passage through a downstream obstruction or the completion of a specified process), has the Facility owner/operator made a legally enforceable commitment to provide such passage? | | |
| 3) If, since December 31, 1986:<br>a) Resource Agencies have had the opportunity to issue, and considered issuing, a Mandatory Fish Passage Prescription for upstream and/or downstream passage of anadromous or catadromous fish (including delayed installation as described in C2a above), and<br>b) The Resource Agencies declined to issue a Mandatory Fish Passage Prescription,<br>c) Was a reason for the Resource Agencies' declining to issue a Mandatory Fish Passage Prescription one of the following: (1) the technological infeasibility of passage, (2) the absence of habitat upstream of the Facility due at least in part to inundation by the Facility impoundment, or (3) the anadromous or catadromous fish are no longer present in the Facility area and/or downstream reach due in whole or part to the presence of the Facility? | | |

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| 4) | If C3 was not applicable:<br><br>a) Are upstream and downstream fish passage survival rates for anadromous and catadromous fish at the dam each documented at greater than 95% over 80% of the run using a generally accepted monitoring methodology? Or<br><br>b) If the Facility is unable to meet the fish passage standards in 4.a., has the Applicant demonstrated, and obtained a letter from the US Fish and Wildlife Service or National Marine Fisheries Service confirming that demonstration, that the upstream and downstream fish passage measures (if any) at the Facility are appropriately protective of the fishery resource? | | |
| 5) | Is the Facility in Compliance with Mandatory Fish Passage Prescriptions for upstream and/or downstream passage of *Riverine* fish? | YES = Go to C6<br>(Please see Attachment 4, section C) | |
| 6) | Is the Facility in Compliance with Resource Agency Recommendations for Riverine, anadromous and catadromous fish entrainment protection, such as tailrace barriers? | YES = Pass, go to D<br>(Please see Attachment 4, section C) | |
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| **D. Watershed Protection** | | **PASS** | **FAIL** |
| 1) | Is there a buffer zone dedicated for conservation purposes (to protect fish and wildlife habitat, water quality, aesthetics and/or low-impact recreation) extending 200 feet from the high water mark in an average water year around 50 - 100% of the impoundment, and for all of the undeveloped shoreline | YES = Pass, go to E and receive 3 extra years of certification<br>(Please see Attachment 4, section D) | |
| 2) | Has the facility owner/operator established an approved watershed enhancement fund that: 1) could achieve within the project's watershed the ecological and recreational equivalent of land protection in D.1.,and 2) has the agreement of appropriate stakeholders and state and federal resource agencies? | YES = Pass, go to E and receive 3 extra years of certification<br>(Please see Attachment 4, section D) | |
| 3) | Has the facility owner/operator established through a settlement agreement with appropriate stakeholders and that has state and federal resource agencies agreement an appropriate shoreland buffer or equivalent watershed land protection plan for conservation purposes (to protect fish and wildlife habitat, water quality, aesthetics and/or low impact recreation) | YES = Pass, go to E<br>(Please see Attachment 4, section D) | |
| 4) | Is the facility in compliance with both state and federal resource agencies recommendations in a license approved shoreland management plan regarding protection, mitigation or enhancement of shorelands surrounding the project. | YES = Pass, go to E<br>(Please see Attachment 4, section D) | |
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| **E. Threatened and Endangered Species Protection** | **PASS** | **FAIL** |
|---|---|---|
| 1) Are threatened or endangered species listed under state or federal Endangered Species Acts present in the Facility area and/or downstream reach? | YES = Go to E2<br>(Please see Attachment 4, section E) | |
| 2) If a recovery plan has been adopted for the threatened or endangered species pursuant to Section 4(f) of the Endangered Species Act or similar state provision, is the Facility in Compliance with all recommendations in the plan relevant to the Facility? | N/A = Go to E3 | |
| 3) If the Facility has received authority to incidentally *Take* a listed species through: (i) Having a relevant agency complete consultation pursuant to ESA Section 7 resulting in a biological opinion, a habitat recovery plan, and/or (if needed) an incidental Take statement; (ii) Obtaining an incidental Take permit pursuant to ESA Section 10; or (iii) For species listed by a state and not by the federal government, obtaining authority pursuant to similar state procedures; is the Facility in Compliance with conditions pursuant to that authority? | YES = Go to E4<br>(Please see Attachment 4, section E) | |
| 4) If a biological opinion applicable to the Facility for the threatened or endangered species has been issued, can the Applicant demonstrate that:<br>a) The biological opinion was accompanied by a FERC license or exemption or a habitat conservation plan? Or<br>b) The biological opinion was issued pursuant to or consistent with a recovery plan for the endangered or threatened species? Or<br>c) There is no recovery plan for the threatened or endangered species under active development by the relevant Resource Agency? Or<br>d) The recovery plan under active development will have no material effect on the Facility's operations? | YES = Pass, go to F<br>(Please see Attachment 4, section E) | |
| 5) If E.2. and E.3. are not applicable, has the Applicant demonstrated that the Facility and Facility operations do not negatively affect listed species? | | |
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| **F. Cultural Resource Protection** | **PASS** | **FAIL** |
|---|---|---|
| 1) If FERC-regulated, is the Facility in Compliance with all requirements regarding Cultural Resource protection, mitigation or enhancement included in the FERC license or exemption? | YES = Pass, go to G<br>(Please see Attachment 4, section F) | |
| 2) If not FERC-regulated, does the Facility owner/operator have in place (and is in Compliance with) a plan for the protection, mitigation or enhancement of impacts to Cultural Resources approved by the relevant state or federal agency or *Native American Tribe*, or a letter from a senior officer of the relevant agency or Tribe that no plan is needed because Cultural Resources are not negatively affected by the Facility? | | |
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| **G. Recreation** | **PASS** | **FAIL** |
| 1) If FERC-regulated, is the Facility in Compliance with the recreational access, accommodation (including recreational flow releases) and facilities conditions in its FERC license or exemption? | YES = Go to G3<br>(Please see Attachment 4, section G) | |
| 2) If not FERC-regulated, does the Facility provide recreational access, accommodation (including recreational flow releases) and facilities, as Recommended by Resource Agencies or other agencies responsible for recreation? | | |
| 3) Does the Facility allow access to the reservoir and downstream reaches without fees or charges? | YES = Pass, go to H<br>(Please see Attachment 4, section G) | |
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| **H. Facilities Recommended for Removal** | **PASS** | **FAIL** |
| 1) Is there a Resource Agency Recommendation for removal of the dam associated with the Facility? | NO = Pass, Facility is Low Impact<br>(Please see Attachment 4, section H) | |

## Attachment 1 — Agency, Tribe, and Non-Governmental Organization Contacts

Contacts in agencies and other entities that participated in the Pelton Round Butte Settlement Agreement and were involved with providing recommendations for the Project:

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# Attachment 2 — Pelton Round Butte Project Location, Facilities, and Operations

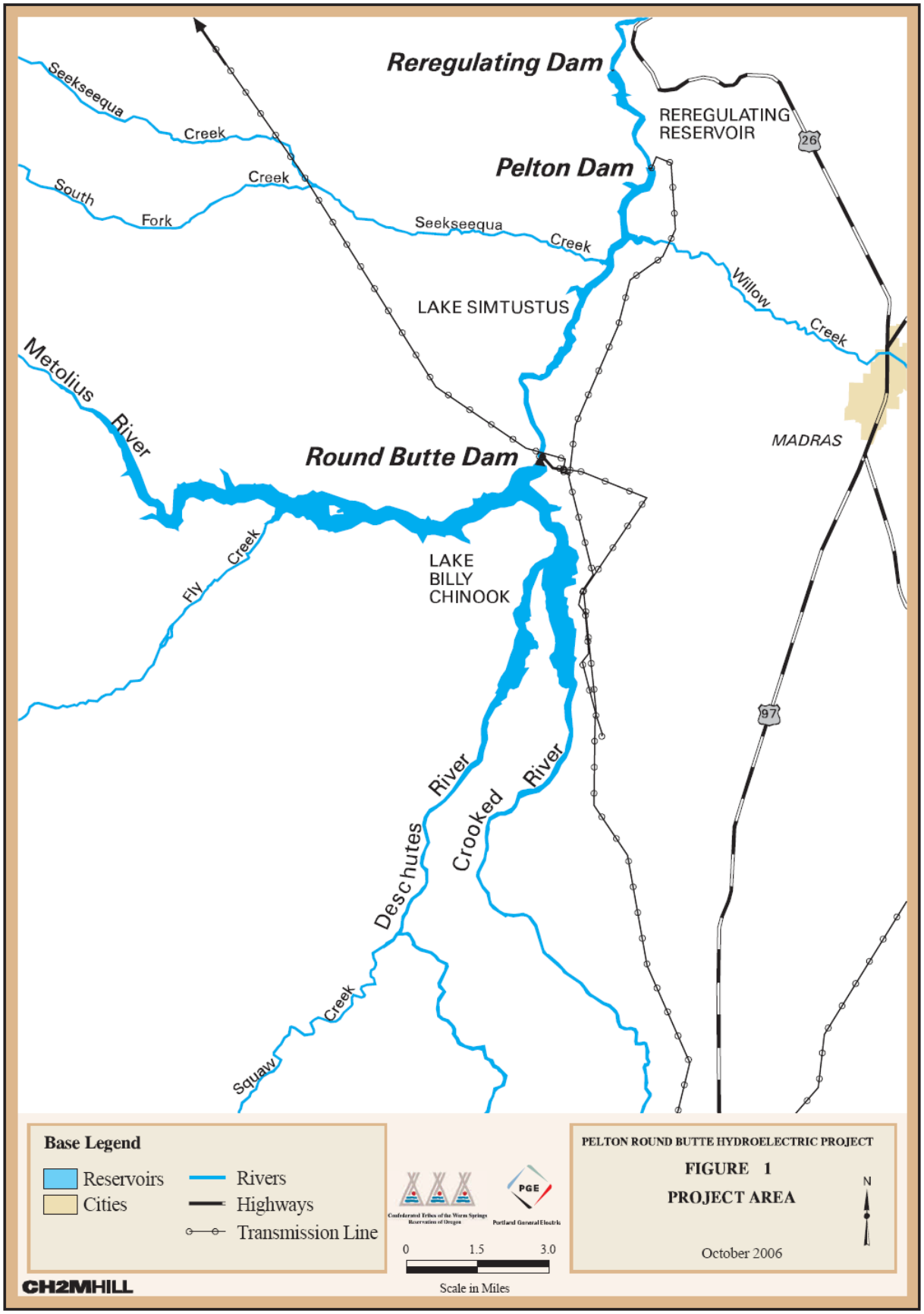
## Project Location

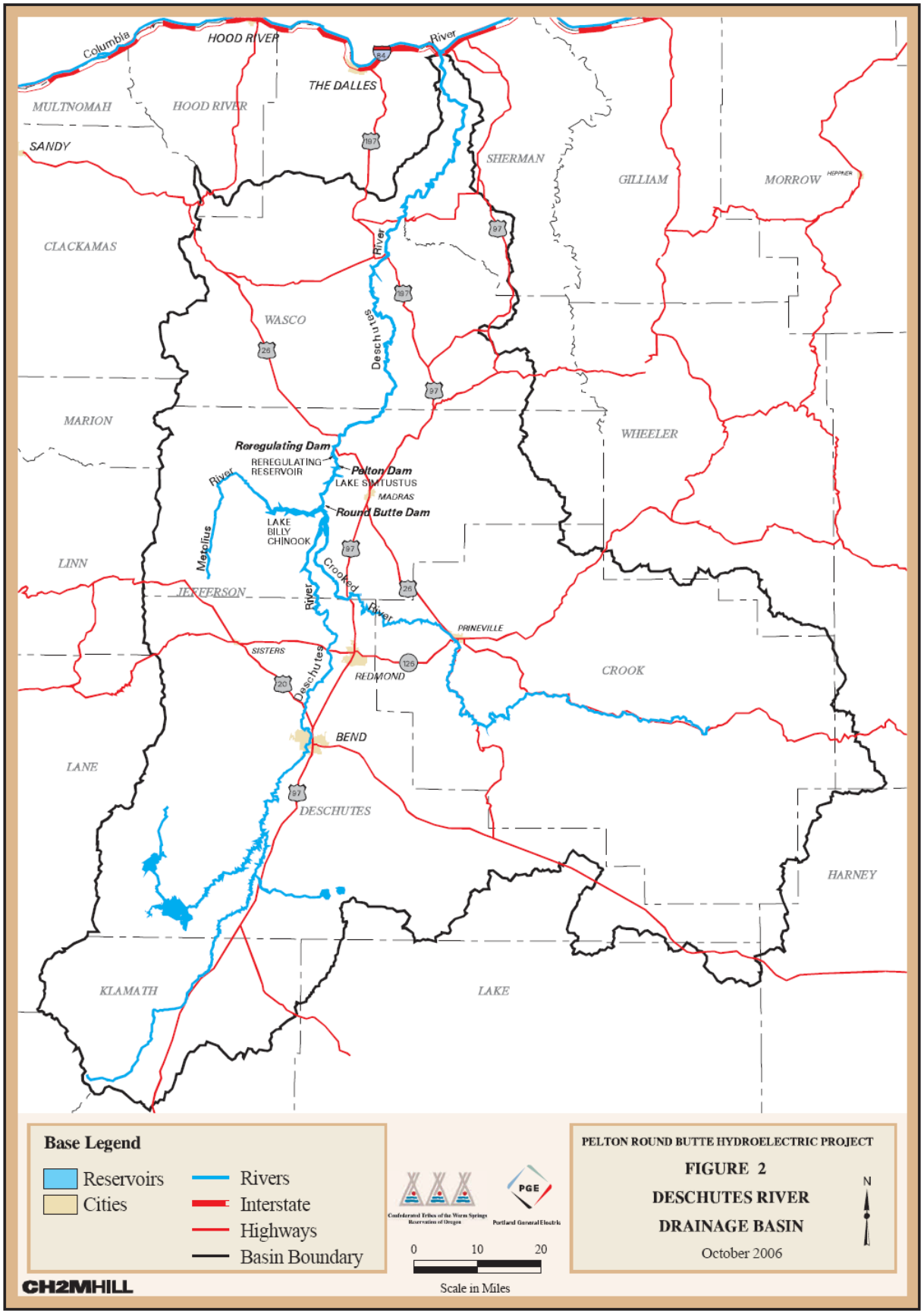
The 366.82-MW Pelton Round Butte Project (Project), owned and operated jointly by Portland General Electric Company (PGE) and the Confederated Tribes of the Warm Springs Reservation of Oregon (Tribes) (together, "Applicants"), consists of the Round Butte, Pelton, and Reregulating developments located on the Deschutes River in Jefferson County, Oregon (Figure 1). The Deschutes River basin is located in north-central Oregon and drains an area of approximately 10,500 sq mi. The Deschutes River generally flows in a northerly direction to its confluence with the Columbia River. The Project is located in the transition area between the lower and middle Deschutes River basins. The Reregulating Development is located approximately 100 miles upstream from the confluence of the Deschutes and Columbia rivers (Figure 2).

## Project and Adjacent Lands

The Project boundary encompasses a total of approximately 14,300 acres. Most of this property is owned by the United States government and administered by the U.S. Forest Service (USFS), U.S. Bureau of Land Management (BLM), and U.S. Bureau of Indian Affairs (BIA). Included in the total are approximately 2,162 acres of lands within the Warm Springs Reservation; these lands are primarily located to the north of the Metolius River and to the west of the Deschutes River. Lands adjoining the Project include property owned by PGE, the United States government, the State of Oregon, the Tribes, and private citizens. United States government land in the Project vicinity consists primarily of the Deschutes National Forest, located south of the Metolius River, and the Crooked River National Grassland, located to the east of the Deschutes River and near its confluence with the Metolius River. The Crooked River National Grassland is administered by the Ochoco National Forest.

In addition to the lands occupied by the Project facilities and reservoirs, the Project includes 10,797 acres of undeveloped uplands that are managed for wildlife habitat. Of this total, 7,700 acres are located within the Metolius Mule Deer Winter Range, generally south and west of Lake Billy Chinook; approximately 3,000 acres are located in the Trout Creek basin, a tributary to the Deschutes River downstream of the Project; and 97 acres are located along Campbell Creek near the Reregulating Reservoir within the Project boundary. Considering only shoreline along the Project's three impoundments, 55% is publicly-owned, 30% is owned by the Tribes, 5% is owned by the Licensees, and 10% is owned by private parties other than the Licensees.


Reregulating Dam
REREGULATING RESERVOIR
Pelton Dam
Seekseequa Creek
South Fork Creek
Seekseequa Creek
LAKE SIMTUSTUS
Willow Creek
Metolius River
Round Butte Dam
MADRAS
Fly Creek
LAKE BILLY CHINOOK
Deschutes River
Crooked River
Squaw Creek
26
97
Base Legend
Reservoirs
Cities
Rivers
Highways
Transmission Line
0
1.5
3.0
Scale in Miles
PELTON ROUND BUTTE HYDROELECTRIC PROJECT
FIGURE 1
PROJECT AREA
October 2006
N
CH2MHILL


Columbia River
HOOD RIVER
THE DALLES
MULTNOMAH
HOOD RIVER
SANDY
SHERMAN
GILLIAM
MORROW
CLACKAMAS
WASCO
Deschutes River
MARION
WHEELER
Reregulating Dam
REREGULATING RESERVOIR
Pelton Dam
LAKE SIMTUSTUS
MADRAS
Round Butte Dam
Metolius River
LAKE BILLY CHINOOK
LINN
JEFFERSON
Crooked River
PRINEVILLE
SISTERS
REDMOND
CROOK
Deschutes
BEND
LANE
DESCHUTES
HARNEY
KLAMATH
LAKE
Base Legend
Reservoirs
Cities
Rivers
Interstate
Highways
Basin Boundary
Confederated Tribes of the Warm Springs Reservation of Oregon
Portland General Electric
PGE
0 10 20
Scale in Miles
CH2MHILL
PELTON ROUND BUTTE HYDROELECTRIC PROJECT
FIGURE 2
DESCHUTES RIVER
DRAINAGE BASIN
October 2006
N

## Project Facilities

The 366.82-MW Pelton Round Butte Project consists of three developments located in sequence on the Deschutes River. The powerhouses for all three developments are integral with each of the three project dams, and there are no bypassed reaches. The 247.12-MW Round Butte Development is the uppermost development and is located at river mile (RM) 110.4. It includes the 4,000-acre Lake Billy Chinook, the Project's largest storage reservoir. Lake Billy Chinook is located on the Deschutes, Metolius, and Crooked rivers. The dam for the 100.8-MW Pelton Development is located on the Deschutes River about 7 miles downstream from the Round Butte Dam (at RM 103.4). The 540-acre Pelton reservoir, known as Lake Simtustus, begins at the base of the Round Butte Dam. The 18.9-MW Reregulating Development is the most downstream development; its 190-acre reservoir on the Deschutes River extends from the tailwater of the Pelton Dam 2.5 miles downstream to the Reregulating Dam at RM 100.1.

**Lake Billy Chinook, looking upstream toward the Metolius River Arm.**

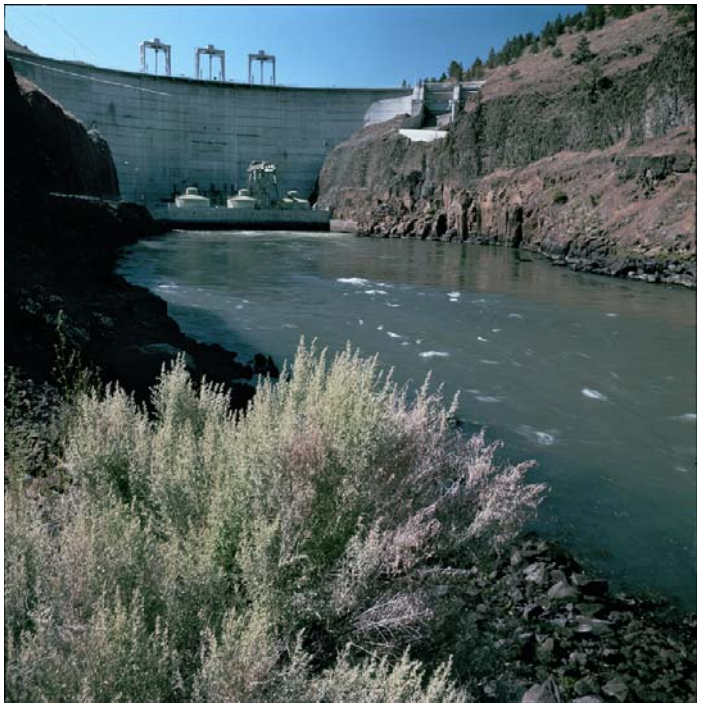
### Round Butte Development

The Round Butte Development principally consists of a 1,382-foot-long, 440-foot-high compacted, rock-filled embankment dam; a reservoir (Lake Billy Chinook) with a gross storage capacity of 535,000 acre-feet at the normal maximum water surface elevation of 1,945 feet mean sea level (msl); a powerhouse containing three 82.35-MW turbine generating units and one 70-kilowatt generating unit with a total installed capacity of 247.12 MW; three 2,800-foot-long, 230-kilovolt (kV) transmission lines extending from the powerhouse to the Round Butte Switchyard; a fish hatchery (Round Butte Hatchery) located adjacent to the dam; and appurtenant facilities.

**Round Butte Dam.**

## Pelton Development

The Pelton Development principally consists of a 636-foot-long, 204-foot-high concrete arch dam with a crest elevation of 1,585 feet msl; 7-mile-long, 540-acre reservoir (Lake Simtustus) with a gross storage capacity of 31,000 acre-feet at a normal maximum water surface elevation of 1,580 feet msl; a powerhouse with three turbine generating units with a total installed capacity of 100.8 MW; a 7.9-mile-long, 230-kV transmission line extending from the powerhouse to the Round Butte Switchyard; and other appurtenances.



**Pelton Dam.**

Reregulating Development

The Reregulating Development principally consists of a 1,067-foot-long, 88-foot-high rock-filled embankment dam with a spillway crest elevation of 1,402 feet msl; a 2.5-mile-long, 190-acre reservoir with a gross storage capacity of 3,500-acre-feet and a useable storage capacity of 3,270 acre-feet at a normal maximum water surface elevation of 1,435 feet msl; a non-operating 3-mile-long fishway extending from the tailrace upstream to the forebay of the Pelton Development; a powerhouse containing one 18.9-MW, bulb-type turbine generating unit; a 200-foot-long, 6.9 kV primary transmission line extending from the generator to a step-up transformer located adjacent to the powerhouse; and other appurtenances.

**Reregulating Dam and Reservoir.**

## Project Operations

The Settlement Agreement and the new license provide for the Licensees to institute a state-of-the-art program of controls of Project operations that will tightly constrain how the Project is operated, allowing the Licensees to operate the Round Butte and Pelton Developments for peak energy production and while operating the Reregulating Development to match Project outflows with daily average inflows.

The Round Butte and Pelton developments are operated as peaking facilities, typically generating between the hours of 6 A.M. and 11 P.M. daily. Lake Billy Chinook provides seasonal storage and is drawn down as much as 20 feet, to elevation 1,925 feet msl, in the winter, although typically the reservoir is only drawn down about 10 feet, to elevation 1,935 feet. The reservoir is typically refilled during the months of April and May. During the summer, the

reservoir is held at the highest practicable level with a relatively stable pool elevation that does not fluctuate more than 1.0 foot below the normal maximum pool elevation of 1,945 feet msl. The surface elevation of Lake Simtustus usually fluctuates less than 0.75 foot per day but exceeds 3.5 feet per day about 25 percent of the time due to flow fluctuations produced by Round Butte.

The Reregulating Development is operated to attenuate high and low peak flows produced by the upstream developments. Flow releases are controlled to maintain an average daily flow in the Deschutes River downstream of the Reregulating Dam that approximates the average daily inflow to the project. The Reregulating Reservoir surface elevation fluctuates as much as 27 feet (between 1,435 feet msl and 1,408 feet msl) daily; however, typical fluctuations are about 15 feet daily. The turbine and spillway gates automatically respond to river stage measurements recorded at a United States Geological Survey (USGS) gage (No. 14092500) located at the dam.

The Project is operated to provide flow releases below the Reregulating Development that equal or exceed the allowed minimum flow, which is defined according to a schedule of target flows that range from 3,500 cfs to 4,571 cfs by month. These target flows must be met as long as Project inflows exceed the target flows and the established provision to allow for refilling of Lake Billy Chinook under low flow conditions is not in effect. (Specific target flows by month, as well as the "Or Inflow" and "Refill Allowance" provisions, which specify conditions under which minimum flow may be reduced below the target flow, are described in Attachment 4, section A). Fluctuations in the river below the Reregulating Dam are limited to 0.1 feet per hour and 0.4 feet per day, except from May 15 to October 15, when fluctuations are limited to 0.05 feet per hour and 0.2 feet per day.

## Attachment 3 — New Capacity by Development and Unit

The Applicants have upgraded generating units at the Pelton Round Butte Project to increase their efficiency and capacity. These modifications include replacement of the turbine runners and generator step-up transformers at the Round Butte Development. Also, the Applicants have rewound one generator at the Pelton Development to increase the licensed capacity of this unit as listed below. Additional generation will be provided by the Project from the substantial increase in the generating unit operating efficiencies at the Round Butte development as listed below.

| **Round Butte Development** | | | | | |
|---|---|---|---|---|---|
| Units | Original, Tested, overall efficiency | Upgraded, Tested, overall efficiency | Additional project generation* | Equivalent capacity increase** | Date Placed in service |
| Round Butte Units 2 and 3, including transformers | 88.21% | 93.97% | 60,494 MWH | 6.91 MW | Unit 2: August 2002<br>Unit 3: December 2002 |

| **Pelton Development** | | | | | |
|---|---|---|---|---|---|
| | Original Nameplate Capacity | Capacity under Previous FERC License | Current Licensed Capacity | Capacity increase | Date of Modernization |
| Pelton Unit 1 | 32.4 MW | 32.4 MW | 36.0 MW | 3.6 MW | August 1999 |

**Notes:**

* Additional annual Project generation based on average water conditions.

** Capacity increase assumes operation at 100% plant factor.

# Attachment 4 — Supplemental Information for Sections A through H of Low Impact Hydropower Questionnaire

The supplemental information provided in this attachment supports the answers provided for Sections A through H of the Low Impact Hydro Questionnaire. For each question, the applicable goal and standard from LIHI's Low Impact Hydropower Certification Criteria are listed and compliance with the standard is described.

## Introduction

On June 21, 2005, the Federal Energy Regulatory Commission (FERC) issued a new 50-year license for the Pelton Round Butte Project, located on the Deschutes River in Oregon. The new license was issued to the Project's owners, Portland General Electric Company and the Confederated Tribes of the Warm Springs Reservation of Oregon, who are Joint Licensees for the Project.

The new license was the result of a comprehensive settlement agreement (Settlement Agreement) that the Joint Licensees signed on July 13, 2005, with 20 other parties, including every resource agency with mandatory or other authority over the resources affected by the Project. Thus, signatories included the Oregon Department of Environmental Quality (ODEQ) and the CTWS Water Control Board (WCB), which have authority, pursuant to Section 401 of the Clean Water Act, the National Marine Fisheries Service (NOAA Fisheries) and the Fish and Wildlife Service (FWS), which have authority pursuant to Section 18 of the Federal Power Act and pursuant to the Endangered Species Act, and the USDA Forest Service, the Bureau of Land Management, and the Bureau of Indian Affairs, which have authority pursuant to Section 4(e) of the Federal Power Act. Signatories also included State and Tribal resource agencies. As listed on Attachment 2, signatories also included all non-governmental organizations (NGOs) and other stakeholders affected by the relicensing of the Project.

As filed with FERC, the Settlement Agreement was based upon and included the water quality certificates issued by ODEQ and the WCB, as well as fishway prescriptions issued pursuant to Section 18 by FWS and NOAA Fisheries. Each of these mandatory conditions was incorporated verbatim into the new license. In addition, FWS and NOAA Fisheries each issued a Biological Opinion and incidental take statement pursuant to Section 7 of the Endangered Species Act. The new license also includes the reasonable and prudent measures and terms and conditions included in the NOAA Fisheries Biological Opinion.

In sum, the Settlement Agreement and new license are based upon and incorporate recent resource agency recommendations as that term is defined by the Low Impact Hydropower Institute. As described in the Low Impact Hydropower Questionnaire and in Attachment 4, the Project is operating in compliance with those recommendations and with the terms of the new license. And, as illustrated by the following information, the terms of the Settlement Agreement provide for the highest level of protection for environmental resources in the Project area. This assurance was the basis for the negotiating parties to support, and FERC to approve, a 50-year

license for the Project, and also puts the Project firmly in compliance with the Low Impact Hydropower Institute's eight objective certification criteria.

## A. Flows

Question: *Is the Facility in Compliance with Resource Agency Recommendations issued after December 31, 1986 regarding flow conditions for fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking rate conditions, and seasonal and episodic instream flow variations) for both the reach below the tailrace and all bypassed reaches?* Answer: Yes.

Goal: The facility (dam and powerhouse) should provide river flows that are healthy for fish, wildlife, and water quality, including seasonal flow fluctuations where appropriate.

Standard: For instream flows, a certified facility must comply with recent resource agency recommendations for flows.

Description of compliance with standard: The Project clearly meets the standard for this criterion, through compliance with the stringent minimum flow and other flow-related requirements contained in the June 2002 Section 401 Water Quality Certifications (401 Certificates) from the State of Oregon Department of Environmental Quality (ODEQ) and the Water Control Board (WCB) of the Tribes' Natural Resources Department, and in the Settlement Agreement, and incorporated into the FERC license, as described below. These provisions, as reflected in the Settlement Agreement, constitute recent resource agency recommendations.

Beginning with the original license, the Project has been operated as a modified run-of-the-river system. The average daily discharge from the Reregulating Development was approximately equal to the average daily inflow to the Round Butte Development. The Round Butte and Pelton developments are store-and-release facilities that operate in a peaking mode. Releases are made from the two developments in concentrated time frames corresponding to the system peak electric power demand periods, and the releases are curtailed during off-peak periods. The Reregulating Development is a store-and-release facility that operates in a reregulating mode. Through its reservoir storage, the Reregulating Development redistributes upstream peaking flows into steadier around-the-clock flows. For any given day, releases from the Reregulating Development are near constant. There are no bypassed reaches in the system.

The provisions of the Settlement Agreement (and new FERC license) impose additional constraints on this modified run-of-river operation by tightly constraining the Project's ability to alter the flow patterns in the Deschutes River below the Project (lower Deschutes River). The flow-related provisions of the Settlement Agreement reflect the conditions in the 401 Certificates. Where there were differences in flow requirements between the two 401 Certificates, the more stringent of the two conditions for any given month were incorporated into the Settlement Agreement for inclusion in the FERC license. With these highly restrictive operating conditions, protection of lower river resources is even greater than that achieved under the previous license. Specific flow-related provisions that are being implemented under the new

license, pursuant to the Settlement Agreement, are summarized as follows and described in further detail below:

- Maintain average minimum flows equal to monthly target flows, as measured at the U.S. Geological Survey (USGS) gage downstream of the Reregulating Dam (at Madras), of 4,500 cubic feet per second (cfs) in December through February; 4,571 cfs in March; 4,170 cfs in April; 4,000 cfs in May through July; 3,500 cfs in August; 3,800 cfs in September through October; and 4,049 cfs in November, or inflow to Lake Billy Chinook, whichever is less in each month;
- Provide a refill allowance of up to 150 cfs to refill Lake Billy Chinook (subject to specified limits if inflows are reduced) to meet the summer operating policy of maintaining Lake Billy Chinook within the top 1 foot between May 15 and September 15;
- Adjust minimum outflows from the Reregulating Dam on a daily basis;
- Use up to 4 feet of water stored in Lake Billy Chinook to augment outflows to maintain an instantaneous release of 3,000 cfs from September 16 to November 15 to benefit fall Chinook;
- Maintain river flows downstream of the Reregulating Development to within +/- 10 percent of average daily inflow to Lake Billy Chinook under most circumstances;
- Improve the accuracy of the USGS gage at Madras, Oregon (gage no. 14092500);
- Install new real-time gages upstream of Round Butte Dam to improve the accuracy of the measurement of inflow to Lake Billy Chinook; and
- Track indicators of predicted long-term low-flow conditions in the lower Deschutes River to anticipate long-term flow conditions lower than conditions historically observed at the USGS Madras gage.

Related conditions pertaining to reservoir drawdown/refill and compliance with operational requirements are also summarized below.

**Lower Deschutes River.**

*Minimum Flows below Project (License Article 412)*

Minimum Flows and Special Provisions:

The Project is operated to provide flow releases below the Reregulating Development that equal or exceed the allowed minimum flow, which is defined according to the schedule of "target flows" shown in Table 1, as long as Project inflows exceed the target flows and the established provision to allow for refilling of Lake Billy Chinook under low flow conditions is not in effect.

**Table 1. Target flow in cfs, measured in the Deschutes River at the USGS Madras Gage No. 14092500.**

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Target Flow | 4,500 | 4,500 | 4,571 | 4,170 | 4,000 | 4,000 | 4,000 | 3,500 | 3,800 | 3,800 | 4,049 | 4,500 |

To prevent drawdown of Lake Billy Chinook, the allowed minimum flow is reduced below the applicable target flow shown in Table 1 when Project inflows are less than the target flow. In this case, the following protocol is followed:

- The allowed minimum flow is equal to the lowest daily inflow recorded over the past seven days. The allowed minimum flow is calculated and changed daily, as defined by the inflow estimate.

- The Project is allowed a "refill allowance" between November 15 and June 15 (the reservoir refill season) to store water in Lake Billy Chinook to ensure that Lake Billy Chinook is filled to its summer operating level (minimum elevation 1,944.0) by May 15. The refill allowance is 150 cfs less than the lowest daily inflow recorded over the past seven days, except under the following conditions, which are designed to protect minimum flows in the lower river:
  - from November through February, if daily inflows are less than 3,150 cfs and greater than 3,000 cfs, the refill allowance is the difference between the daily inflow and 3,000 cfs; however, in instances where the daily inflows are 3,000 cfs or less, the refill allowance shall be 0; and
  - from March through June, if daily inflows are less than 3,650 cfs and greater than 3,500 cfs, the refill allowance is the difference between the daily inflow and 3,500 cfs; however, in instances where the daily inflows are 3,500 cfs or less, the refill allowance is 0.

  If the refill allowance is less than 150 cfs during the reservoir refill season, the refill allowance provision is extended from May 15 to June 15.

Fall Flow Augmentation in Lower River for Fall Chinook:

- To augment lower river flows for fall-run Chinook salmon during low-water years, the following special provision applies. If inflows to the Project fall below 3,000 cfs between September 16 and November 15, up to 200 cfs will be released from storage in Lake Billy Chinook to maintain a daily release of 3,000 cfs. This augmentation flow is limited to a drawdown of 4 feet measured from the average Lake Billy Chinook water surface elevation recorded on September 15. The amount of available water, rate of water release, and timing and duration of augmentation flows will be determined by the Licensees in consultation with the interagency Fish Committee that was established under the new license.

Run of River Operation for Lower River Flows (+/- 10% Rule):

- River flows below the Reregulating Development must be held to within plus or minus 10 percent of the measured Project inflow, except under the following conditions:
  - days with measured inflow in excess of 6,000 cfs;
  - any event that triggers the Project Emergency Action Plan;
  - power emergencies, as defined in the Western States Coordinating Council Minimum Operating Reliability Criteria (March 8, 1999), as such criteria may be amended during the license term;
  - equipment failures or emergencies at one of the Project dams or power plants; or
  - reservoir drawdowns for safe passage of anticipated flood flows to minimize damage to life and property.

Fish Emergency Clause:

- In years in which Project inflow is expected to be below 3,000 cfs or flow may result in in-river conditions that the Fish Committee believes to be unacceptably poor, the Licensees will consult with the Fish Committee to determine if a deviation from the minimum flow provisions outlined above or a deviation from the reservoir flow requirements of the 401 Certificates would be likely to help avoid serious harm to native species. If so, License Article 412 specifies the consultation, review and approval steps that would take place to put into place a planned deviation from the stated requirements.

*Stage Change Limits (License Article 409)*

The Settlement Agreement and new license provide for the Licensees to institute a state-of-the-art program of controls that will tightly constrain how the Project is operated. Fluctuations in the river below the Reregulating Dam are limited to 0.1 feet per hour and 0.4 feet per day, except from May 15 to October 15, when fluctuations are limited to 0.05 feet per hour and 0.2 feet per day.

*Measurement of Flows (License Articles 410 and 411)*

There are two major components to the flow measurement provisions of the new Project license: one pertaining to measurement of flows in the river below the Reregulating Dam and the other pertaining to measurement of Project inflows. Together, these will enable the Licensees to track and match inflow as closely as possible with current technology.

Measurement of Flows at the USGS Madras Gage:

The protocol for determining compliance with the minimum flow requirements in the new license (as outlined above) is as follows:

- The real-time flow release at the USGS Madras gage is the most recent 15-minute interval USGS gage reading (converted to flow using a flow rating table). The daily outflow of the Project is defined as the average flow measured at the USGS Madras gage each calendar day, as calculated from the average of the day's 96 quarter-hour (15-minute interval) flow release readings.
- The daily allowed minimum flow is determined each day by the Licensees, based on the provisions of the Project Operating Plan (Exhibit C to the Settlement Agreement), including monthly minimum flows, refill allowances, the +/- 10% Rule, measured inflows and other constraints.
- The Project is deemed to be in compliance with the minimum flow requirements whenever the flow setpoint at the Reregulating Development equals or exceeds the allowed minimum flow. In order to accommodate flow measurement inaccuracies, control-system variations, and the inability of the turbine and spillway gates to exactly produce the flow setpoint, non-compliance with this minimum flow requirement is deemed to be any event where the 15-minute measured flow release

falls more than 0.10 foot (approximately 260 cfs) below the allowed minimum flow for more than 30 minutes.

Measurement of Project Inflows:

The Settlement Agreement provided for improvements in the accuracy of Project inflow monitoring through a combination of upstream USGS gage improvements — to allow real-time telemetry of hourly inflow data from these gages to the Project control facility — and the installation of additional reservoir level monitoring stations in Lake Billy Chinook. With these improvements in place, estimates of inflow will be made using a combination of the "Storage Change" and "Average Ungaged" estimating methods as defined in the Project Operating Plan (which was filed with FERC as Exhibit C to the Settlement Agreement). The Settlement Agreement, and new license, prescribe the use of these two complementary methods to achieve the greatest possible accuracy under the widest range of flow conditions. These improvements are scheduled to be in place within two years of license issuance (i.e., by June 2007).

*Long-Term Low Flow Conditions (License Article 413)*

In accordance with the Settlement Agreement and new license, the Licensees, in consultation with the Fish Committee, have developed a plan to track indicators of predicted long-term low flow (LTLF) conditions in the lower Deschutes River throughout the license term. The plan establishes LTLF "triggers" that signal onset or predicted onset of flow conditions in the river that are lower than historically observed at the USGS Madras gage, and provides that remedial action, as determined in consultation with the Fish Committee and other resource managers, will be initiated if an LTLF trigger is reached. The LTLF plan is intended to address low flow conditions that are not otherwise addressed by the Fish Emergency Clause in Article 412 and to provide additional protection for the lower river's aquatic resources and federal Wild and Scenic River outstandingly remarkable values (ORVs). The plan also requires that if changes in Project operations are recommended to ameliorate the effects of LTLF conditions on the lower river, the Licensees will also consult with the appropriate resource managers and stakeholder working groups regarding potential impacts to ORVs, scenic waterway values, lake recreation, cultural/archaeological resources, shoreline erosion and riparian habitat that may result from potential changes in Project operations.

*Impoundment Levels (License Article 414)*

Management of reservoir levels at the Project is integral with management of Project outflows into the lower Deschutes River. The seasonal drawdown of Lake Billy Chinook begins in the fall of each year followed by refill during the late fall, winter, and spring. Historically, the reservoir could be drawn down as much as 85 feet, though drawdown traditionally did not reach this far. Under the new license, the reservoir must be refilled:

- by May 1 when inflows meet or exceed the target flows specified by License Article 412 (see Table 1);
- by May 15 when inflows are below the target flows; and

- by June 15 in years when the refill allowance is less than 150 cfs as provided in Article 412.

Drawdown and fluctuation limits (except under extraordinary conditions) for Lake Billy Chinook, Lake Simtustus, and the Reregulating Reservoir are as shown in the Table 2. As noted, these drawdown and fluctuation limits represent a reduction in the allowable maximum seasonal drawdown of Lake Billy Chinook and daily drawdown of the Reregulating Reservoir, compared to the original FERC license for the Project.

**Table 2. Seasonal drawdown and fluctuation limits for project reservoirs.**

| Reservoir | Operating Water Surface Elevation (feet ) | |
|---|---|---|
| | Minimum Summer | Winter |
| Lake Billy Chinook | 1,944 (May 15* to Sept 15) | 1,925 (Sept 16 to May 14) |
| Lake Simtustus | 1,576 (June 1 to Aug 31) | 1,573 (Sept 1 to May 31) |
| Reregulating Reservoir | 1,414 (year round) | 1,414 (year round) |

*As provided in License Article 412, in years when the refill allowance is less than 150 cfs, the refill date is June 15.

**Lake Billy Chinook at Round Butte Dam.**

*Operations Compliance Plan (License Article 415)*

The Pelton Round Butte Project Operations Compliance Plan, which was recently developed as a condition of the new license, describes how the Licensees will comply with the operational requirements of this license, including the flow-related requirements outlined above. The plan includes:

- a provision to monitor compliance with the stage change, gaging, inflow estimation, minimum flow, reservoir refill, reservoir level and LTLF requirements specified in License Articles 409 through 414;
- a description of the exact location of all gages and/or measuring devices that would be used to monitor compliance, the method of calibration for each gage and/or measuring device, the frequency of recording for each gage and/or measuring device, and a monitoring schedule;
- provisions to notify the fisheries Services, 401 Certification agencies, FERC and others promptly (within 48 hours) after the Licensees become aware of any deviation from operational requirements related to flows and reservoir levels;
- a provision to maintain a log of Project operation;
- provisions for issuance of an Annual Project Operations Report and incident reports documenting any events where the operation of the Project deviated from the operational requirements of this license;
- a provision for an annual Project review meeting with the Coordinating Committee defined in the Settlement Agreement; and
- identification of a Licensee staff member to serve as an operations compliance monitor with the responsibility for coordinating and ensuring the implementation of the Operations Compliance Plan and serving as a point of contact for compliance inquiry purposes.

**Summary**

The Project is in compliance with all agency recommendations regarding flow conditions for fish and wildlife protection, mitigation and enhancement for all reaches affected by the Project. These conditions are contained in the June 2002 water quality certificates issued by ODEQ and the WCB and included in the Settlement Agreement. They have been incorporated into the new license for the Project issued by FERC.

## B. Water Quality

Question: *Is the Facility either*

*(a) in compliance with all conditions issued pursuant to a Clean Water Act Section 401 water quality certification issued for the Facility after December 31, 1986;* Answer: Yes

*or (b) in compliance with the quantitative water quality standards established by the state that support designated uses pursuant to the federal Clean Water Act in the Facility area and in the downstream reach?* Answer: Not applicable

*Is the Facility area or the downstream reach currently identified by the state as not meeting water quality standards (including narrative and numeric criteria and designated uses) pursuant to Section 303(d) of the Clean Water Act?* Answer: Yes

*If so, has there been a determination that the Facility is not a cause of that violation?* Answer: Yes

Goal: Water quality in the river is protected.

Standard: The water quality criterion has two parts. First, a facility must demonstrate that it is in compliance with state water quality standards, either through producing a recent (after 1986) Clean Water Act Section 401 certification, or demonstrating compliance with state water quality standards (typically by presenting a letter prepared for the application from the state confirming the facility is meeting water quality standards). Second, a facility must demonstrate that it has not contributed to a state finding that the river has impaired water quality under Clean Water Act Section 303(d) (relating to water quality limited streams). In the future, a limited program of regular water quality monitoring and reporting to the public may be required of certified facilities.

Description of compliance with standard: Although various river reaches above and below the Project are on Section 303(d) lists, the Project meets both parts of the standard for this criterion, based on the facts that (i) both ODEQ and the WCB have issued 401 Certificates for the Project as it is operated under the terms of the Settlement Agreement and the new license; and (ii) the Licensees' are in compliance with the conditions of the 401 Certificates. Each water quality certificate finds that there is reasonable assurance that the Project will meet all applicable State or Tribal water quality requirements, contains conditions to improve water quality, and includes other measures to further assess and alleviate Project impacts to aquatic habitat conditions. These requirements, which were incorporated into the Settlement Agreement and — verbatim — as requirements of the new license, are described below.

*Summary of Existing Conditions and Standards of Concern*

Water quality in Project-related waters is generally good, but there are existing 303(d) listings for dissolved oxygen (DO), temperature, and pH in the Project impoundments as well as the lower Deschutes River. The Project has, historically, affected DO and temperature in the reservoirs and lower Deschutes River. However, ODEQ and WCB have determined that the Project is not responsible for pH conditions in these waters and that the Project is within a

regulatory exemption from this standard. In terms of temperature and DO, the Licensees are in the process of implementing significant structural and operational measures required in the 401 Certificates (and new license) to improve conditions in the reservoirs and lower river. The following information provides additional detail regarding existing conditions and applicable standards related to temperature and DO. Measures the Licensees are taking in accordance with the 401 Certificates to address temperature and DO exceedances are described in the section after the summary of existing conditions.

Temperature:

Monthly data collected on the major tributary rivers to Lake Billy Chinook (the Metolius, Deschutes, and Crooked rivers) show distinct differences between the tributaries; the Metolius River is notably cooler than the others, the Deschutes River is intermediate, and the Crooked River is the warmest. The running 7-day mean daily high temperature in the Metolius River above Lake Billy Chinook was greater than 10°C (i.e., in exceedance of the water quality standard for bull trout) for much of the time from mid-June through August. Temperatures in the Crooked River and the Deschutes River were greater than 12.8°C (i.e., in exceedance of the standard for native salmonid spawning, incubation, and fry emergence) for the same period. The exceedances in the three tributaries are the result of processes that occur outside the boundaries of the Project and are a reflection of the natural condition of the rivers. These temperatures do not reflect Project impacts.

Lake Billy Chinook stratifies in the summer, developing a thermocline at approximately 10 m depth. This stratification isolates the surface waters from those at depth and influences the flow and mixing of waters in the reservoir. Stratification typically lasts from May until October, but Lake Billy Chinook does not mix completely in all years. Lake Simtustus is thermally stratified in the summer from approximately mid-May until mid-September, with a thermocline developing at approximately 4 m. Stratification breaks down in September, and the reservoir is vertically isothermal by late October. The reservoir continues to cool until March or April.

Temperatures in Lake Billy Chinook and Lake Simtustus exceed 10°C at all depths from June through October for the years studied. The warming that occurs in the hypolimnion is the result of inflow of warm water from the tributary streams, because there is no mechanism to warm the hypolimnetic water by contact with the atmosphere when the reservoirs are stratified.

Temperature measured in the Deschutes River below the Project range from a maximum monthly value of 14.8°C to a minimum monthly value of 6.9°C, with a median temperature of 11.1°C. Based on mass balance calculations adjusted for estimated warming during travel in the absence of the reservoirs, the annual range of temperatures measured below the Reregulating Dam is similar to what would exist at that point in the Deschutes River in the absence of the reservoirs (Raymond et al. 1998). Detailed computer analysis (Huntington et al. 1999) confirms that the annual maximum and minimum temperatures have changed little as a result of the Project. However, detailed temperature modeling of the Deschutes River suggests that weekly mean temperatures immediately below the Reregulating Dam have been shifted in time so that they are warmer by approximately 0.7°C (range: 0.2 to 1.5°C warmer) from early August to mid-

December and cooler by an average of about 1.7°C (range: 0.2 to 3.5°C cooler) during the remainder of the annual cycle as a result of the Project (Huntington et al. 1999).

In summary, applicable temperature standards for bull trout and salmonid spawning are currently exceeded during the summer in the Deschutes River below the Project, in Lake Billy Chinook and Lake Simtustus, and in the Crooked, Deschutes, and Metolius rivers above the Project. Detailed field data and computer modeling suggest that the Project currently has had a net cooling effect on the lower Deschutes River during the early to mid-summer, has delayed and reduced slightly the maximum summer temperature in the river, and has had a slight warming effect later in the year.

Dissolved Oxygen:

Because Project-related waters, including the Deschutes River below the Project, support spawning by salmonids, the applicable standards for DO in these waters during the periods from spawning until fry emergence from the gravels, are as follows:

- DO must be at least 11.0 mg/L, unless the minimum intergravel dissolved oxygen (IGDO), measured as a spatial median, is 8.0 mg/L or greater, in which case the DO criterion is 9.0 mg/L;
- Where conditions of barometric pressure, altitude, and temperature preclude attainment of the 11.0 mg/L or 9.0 mg/L criteria, DO levels must be at least 95 percent of saturation

Lake Billy Chinook is well oxygenated during the winter throughout its depth; however, DO falls below the 8.0 mg/L standard in the deeper water during the summer. Near the surface, DO values stay at or above 10 mg/L throughout the year, with the highest concentrations of DO typically occurring in late March and October. In general, DO remains above 8 mg/L at depths less than 15 m. At depths between 15 m and 75 m, the majority of DO measurements were greater than 8 mg/L; DO values of less than 4.0 mg/L occur near the bottom at the deepest stations.

Lake Simtustus shows seasonal vertical stratification in DO concentration similar to Lake Billy Chinook but does not exhibit significant depletion of oxygen in the hypolimnion during the summer.

During a 1994–1996 study, DO was measured in the Deschutes River below the Project. Of 24 monthly daytime samples, 11 were below 11 mg/L. However, conditions of temperature, altitude, and pressure sometimes precluded reaching 11 mg/L concentration. Of the 24 monthly measurements, eight were below 95 percent saturation. During the course of the study, one monthly value of DO less than 8.0 mg/L was recorded below the Project. Most values were between 9 and 13 mg/L. The relatively low DO concentration measured immediately below the Project is caused by drawing DO-depleted water from deep in Lake Billy Chinook and Lake Simtustus for power generation. Additional diurnal measurements of DO made in 1998 and 1999 suggest that the oxygen deficiency immediately below the Reregulating Dam is rapidly replenished with distance downstream.

Based on these existing conditions, waters affected by the Project currently did not consistently meet the applicable standards for DO.

**Field work for the Licensees' water quality research in the lower Deschutes River.**

*401 Certificate Requirements for Temperature and DO Mitigation*

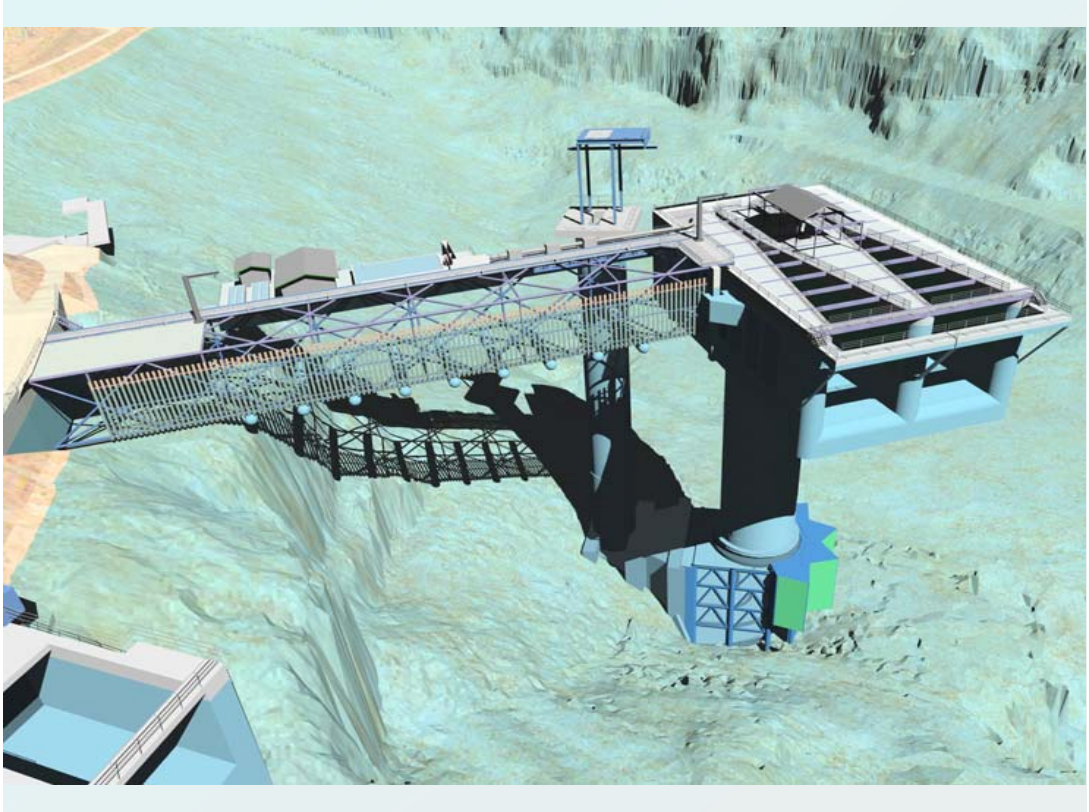
In issuing their respective 401 Certificates for the Project, ODEQ and WCB each certified that the Project will not violate applicable water quality standards if it complies with the requirements of each 401 Certificate. The centerpiece of each 401 Certificate is the Licensees' proposal to construct a selective water withdrawal (SWW) facility that can withdraw water from the surface as well as from at depth in Lake Billy Chinook; this contrasts with the existing situation, in which water for power generation can only be withdrawn at depth. The SWW is currently in the detailed engineering planning phase. Once it is constructed and in operation (by the spring of 2009), the system will return temperature and DO conditions in the Deschutes River below the Project to natural conditions and eliminate any Project impact on these criteria in this reach. The SWW capability is also predicted to improve water quality in Lake Billy Chinook.

After implementation of SWW, modeling indicates that discharges from the Reregulating Dam will meet the relevant temperature criterion. SWW will shift temperature conditions in the lower Deschutes River back toward pre-Project conditions. These improved conditions will persist over much of the lower river. Conditions in the reservoirs will also improve, and conditions will

meet the relevant temperature criteria where the associated beneficial uses occur or are expected to occur.

Modeling also indicates that DO levels below the Project will improve and discharges from the Reregulating Dam will meet the relevant DO criterion following implementation of SWW. DO levels will be higher than existing conditions throughout the summer, as a result of which IGDO levels will be greater than 8.0 mg/l, and ambient DO levels will exceed 9.0 mg/l. Conditions in the reservoirs will improve and will meet the relevant DO criterion where the associated beneficial uses occur or are expected to occur. In addition, if it should prove necessary, selective spills will be implemented at the Reregulating Dam to ensure the Project discharges comply with the dissolved gas standard.

The Project is in compliance with both 401 Certificates, with development of the SWW facility well underway and with the Licensees meeting all requirements contained in the Water Quality Management and Monitoring Plan (WQMMP) that was developed for the Project as a requirement of the 401 Certificates and approved by ODEQ and the WCB. Continued implementation of the WQMMP ensures that the Project will remain in compliance with the 401 Certificates through the duration of the new license term.



**Conceptual drawing of the planned selective water withdrawal (SWW) facility in the Round Butte Dam forebay.**

**Summary**

The Project is in compliance with all conditions issued pursuant to the June 2002 Clean Water Act Section 401 water quality certifications issued by the Oregon Department of Environmental Quality and the CTWS Water Control Board. These conditions are contained in the water quality certificates issued by ODEQ and the WCB and contained in the Settlement Agreement. They have been incorporated into the new license for the Project issued by FERC. These certifications constitute determinations that the Project is not the cause of any Section 303(d) listings of waters affected by the Project.

## C. Fish Passage and Protection

Question: *Is the Facility in Compliance with Mandatory Fish Passage Prescriptions for upstream and downstream passage of anadromous and catadromous fish issued by Resource Agencies after December 31, 1986?* Answer: Yes

*Is the Facility in Compliance with Mandatory Fish Passage Prescriptions for upstream and/or downstream passage of Riverine fish?* Answer: Yes

*Is the Facility in Compliance with Resource Agency Recommendations for Riverine, anadromous and catadromous fish entrainment protection, such as tailrace barriers?* Answer: Yes

Goal: The facility provides effective fish passage for riverine, anadromous and catadromous fish, and also protects fish from entrainment.

Standard: For riverine, anadromous, and catadromous fish, a facility must be in compliance with post-1986 mandatory prescriptions regarding fish passage (such as a Fish and Wildlife Service prescription for a fish ladder) as well as any recent resource agency recommendations regarding fish protection (e.g., a tailrace barrier). If anadromous or catadromous fish historically passed through the facility area but are no longer present, the applicant must show that the fish are not extirpated or extinct in the area because of the facility and that the facility has made a legally binding commitment to provide any future fish passage recommended by a resource agency.

Description of compliance with standard: Based on the suite of aquatic measures contained in the Settlement Agreement, Section 18 prescriptions, 401 Certificates, and FERC license, the Project satisfies the standard for this criterion. These measures, including the Fish Passage Plan, are described below, along with additional information for context.

*Description of Impacts*

The Licensees, as well as the resource agencies and other organizations with interests affected by the Project, have long recognized that fish passage is the major resource issue associated with the Project. Since fish passage at the Project was halted in the late 1960s, the Project has blocked access to habitat (over 155 miles of habitat on the Crooked River, about 30 miles on the Deschutes River, and approximately 41 miles on the Metolius River) and has thereby limited the ability of Deschutes River basin anadromous fish to exist as naturally spawning, genetically diverse populations.

The Project has prevented the full complement of native anadromous fish, including fall and spring Chinook salmon, sockeye salmon, summer-run steelhead trout and Pacific lamprey from migrating to historic spawning areas. In addition, Deschutes River bull trout, an ESA-listed threatened species, have been divided into isolated subpopulations in Lake Billy Chinook and the Metolius River, the lower Deschutes River, and two lower river tributaries, Shitike Creek and the Warm Springs River. Inland redband trout, a State of Oregon and USFS sensitive fish species, mountain whitefish, and other native fish species also have become isolated in the Crooked, middle and upper Deschutes, and Metolius river watersheds due the lack of fish passage at the Project.

Recent and potential future listings under the ESA, such as summer steelhead in the Deschutes River, emphasize the need to provide fish passage as a means of increasing or restoring self-sustaining populations to historic habitat and ensure species conservation. Moreover, fish passage has been the focus of a number of management plans. All of these plans advocated feasibility studies and restoration of anadromous and migratory resident fish to their historic ranges.

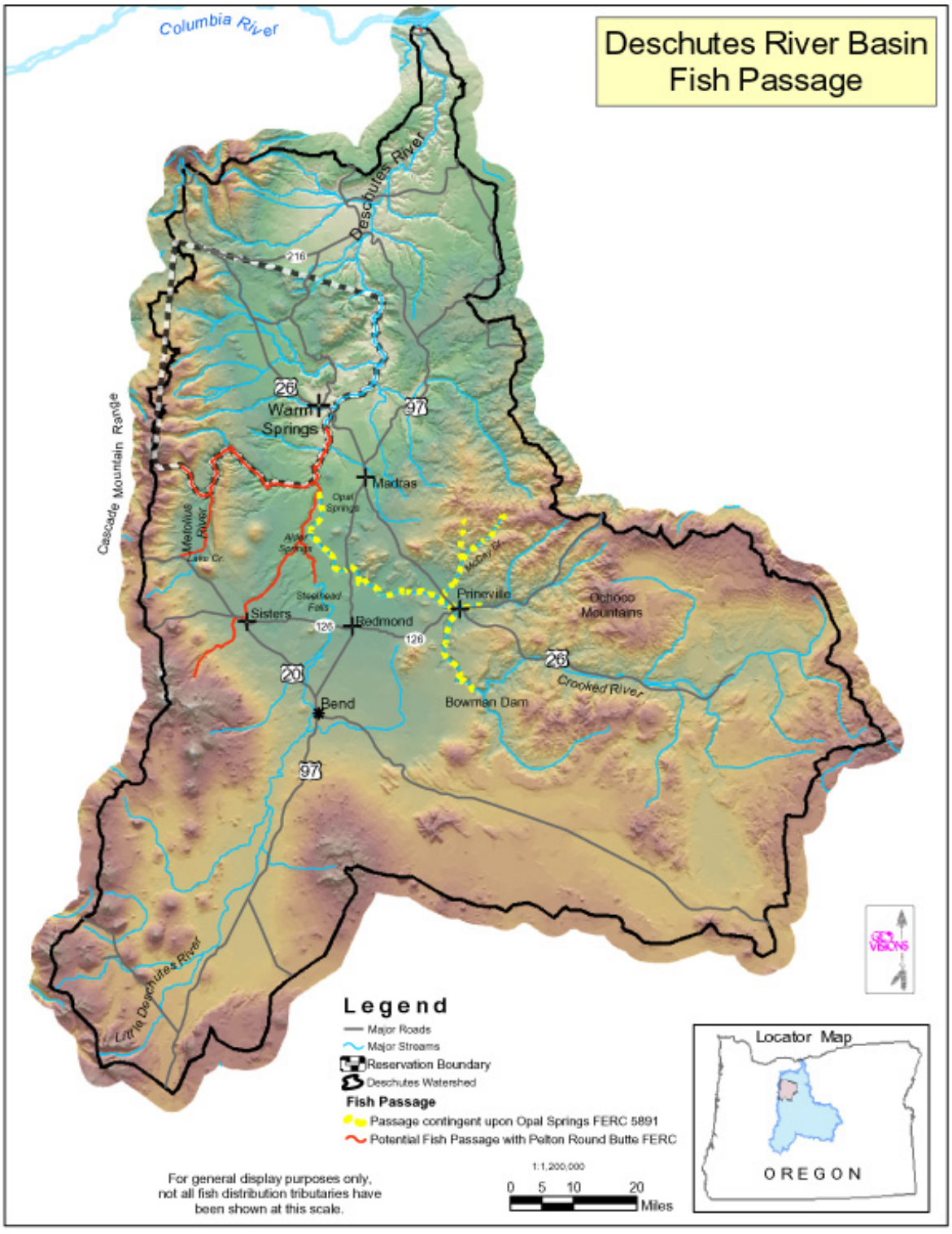
*Fish Passage Plan*

Restoration of passage and access to habitats upstream of the Project was a central concern in the settlement negotiations. The restoration of fish passage at the Project through the construction of a SWW facility at Round Butte Dam is the centerpiece of the Settlement Agreement and the new license. It has also been the focus of the Licensees' study and consultation efforts since preparation of applications for new licenses began in 1994. The Pelton Round Butte Fish Passage Plan, originally developed by the Licensees to accompany the license application, was substantially updated in conjunction with settlement negotiations and filed as an exhibit to the Settlement Agreement. The requirements set forth in the Fish Passage Plan have been incorporated as Section 18 fishway prescriptions by NOAA Fisheries and FWS and incorporated verbatim as conditions of the new license. The Plan is now being implemented in consultation with the Fish Committee and the Fish Agencies.

Species Addressed by the Fish Passage Plan:

The Fish Passage Plan is intended to provide access to historic anadromous spawning areas upstream of the Project, to restore connectivity, and to alleviate Project impacts on the following primary fish species and populations:

- Spring Chinook salmon
- Fall Chinook salmon
- Sockeye salmon
- Steelhead
- Bull trout
- Rainbow trout
- Pacific lamprey



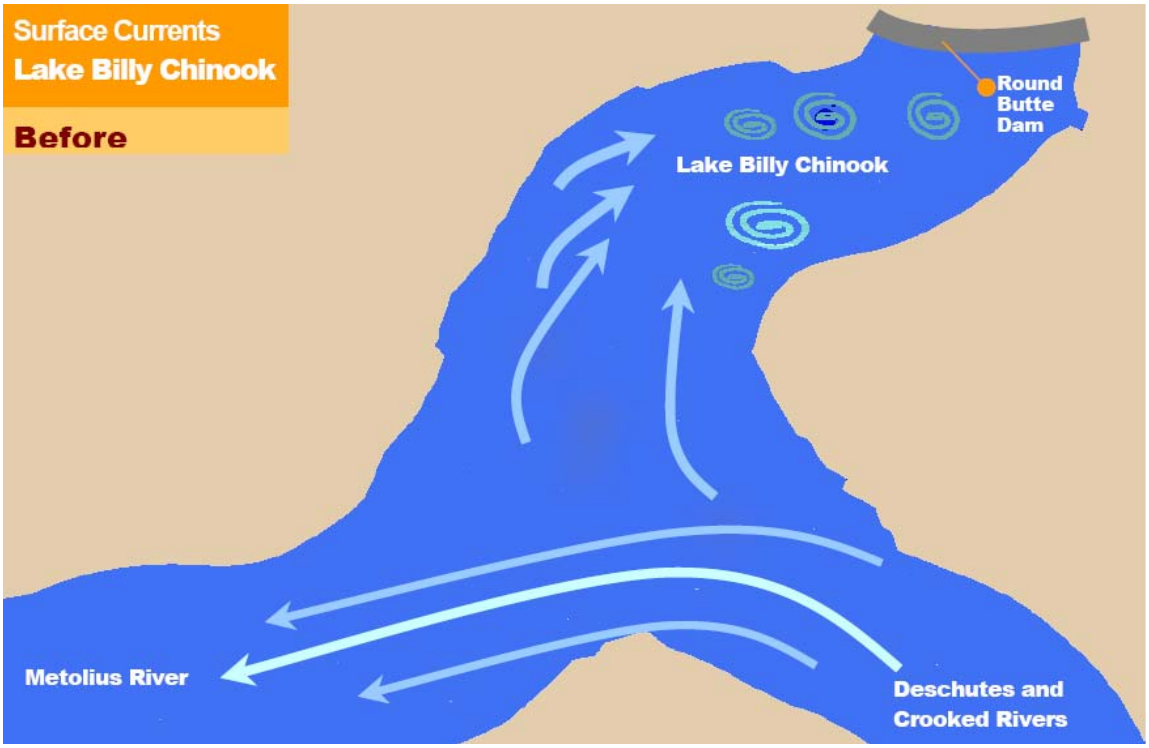

**Map showing habitat that will be made accessible to anadromous fish with the reestablishment of fish passage at the Pelton Round Butte Project.**

Elements of the Fish Passage Plan:

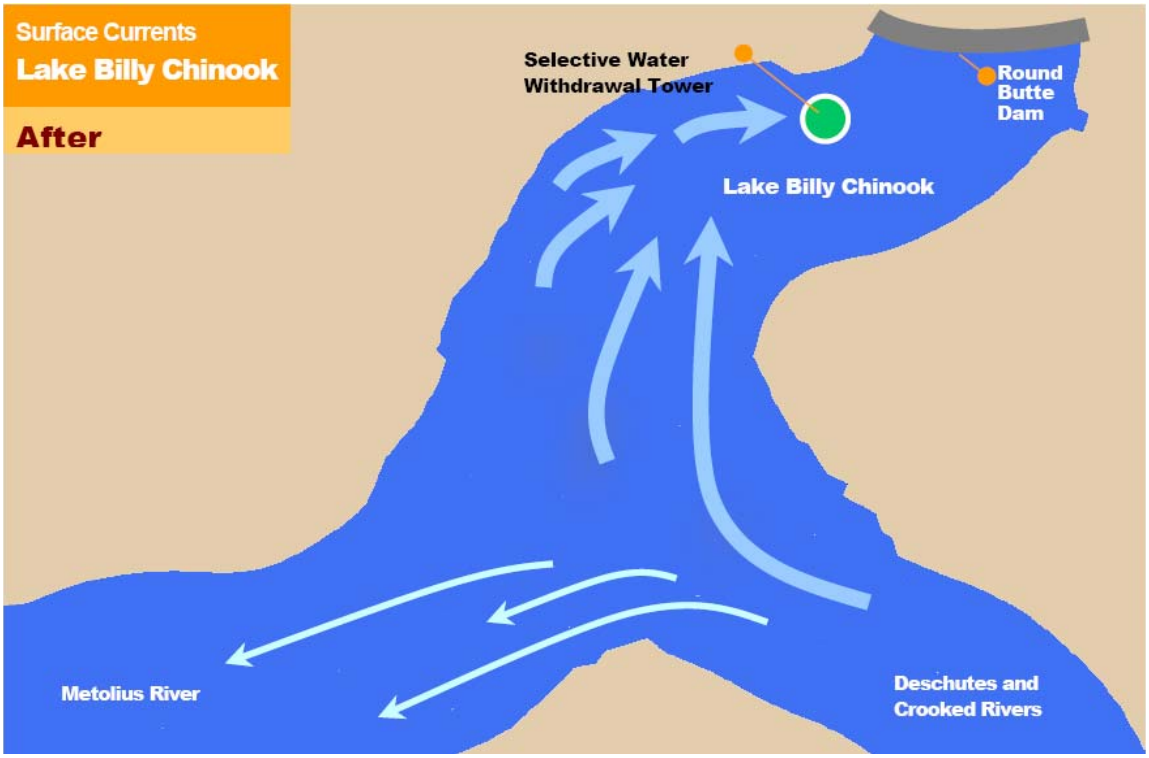
Three-Phase Approach

To accomplish the lengthy and complex design and construction of the required fish passage facilities, the parties to the Settlement Agreement agreed on a three-phase, adaptively managed Fish Passage Plan. The Fish Passage Plan's three phases are the Experimental, Interim, and Final phases. The Plan provides for the Licensees to advance fish passage development from one phase to the next based on achieving specified prerequisites and approvals of the participating governmental fish agencies. These phases will facilitate a methodical, step-by-step evaluation and decision process to maximize the probability of restoring passage and to minimize risks, such as the passage of fish diseases above the Project. The major components of the three Fish Passage Plan phases are:

- *Experimental Phase* — This phase began in 1999 and will continue until the prerequisites for the Interim Phase are completed. Prerequisites include issuance of a new license, completion of amendments to basin management plans, and the Oregon Department of Fish and Wildlife (ODFW) and Tribes' Natural Resources Department approval to move fish upstream past the dams. The Experimental Phase began with placing gametes in the form of either eggs or smolts into the upper Deschutes River basin. Adult fish are not moved upstream of the Project during this phase to avoid introducing diseases. Meanwhile, the pathogen risk assessment continued to evaluate the threat of certain fish pathogens and their movement into the upper basin. Monitoring of success of the downstream juvenile fish migration includes survival and efficiency rates at the collection facilities, and evaluation of survival rates of juvenile fish as they migrate through the tributaries and reservoir arms to collection facilities.
- *Interim Phase* — During the Interim Phase of the Fish Passage Plan, disease clearance will have been received from ODFW and the Tribes' Natural Resources Department, and trap and haul operations will begin to pass selected adult salmonids upstream. During this phase, the SWW facility and Round Butte forebay adult release facility will be constructed. Prerequisites that must be achieved before moving to the Final Phase include confirmation that the SWW facility (i) reorients reservoir currents in Lake Billy Chinook as predicted by the Licensees' modeling (and as shown on the next page), and, at a minimum, (ii) provides for attainment of water quality requirements, also as predicted by the Licensees' water quality modeling.
- *Final Phase* — The Final Phase will begin with achievement of downstream passage goals during the Interim Phase. Key to the initiation of this phase are determinations that IHNV Type 2 and whirling disease are not established above the Project. The primary focus of the Final Phase will be assessing the feasibility and development of volitional upstream passage facilities. Sorting of upstream migrants will continue at the Pelton Trap for an period of time due to concerns regarding out-of-basin stray steelhead, their potential genetic impacts and the potential for disease introduction.




**Lake Billy Chinook water currents under existing conditions; currents directed upstream into the Metolius River Arm are pronounced, and downstream current in the forebay is not easily detectable to fish.**




**Lake Billy Chinook water currents with selective water withdrawal; downstream currents are enhanced.**

### Implementation of the Fish Passage Plan

The Fish Passage Plan, along with all other aquatic PM&Es, will be implemented by the Joint Licensees in consultation with the Fish Committee, which will consist of representatives from the following entities: FWS; NOAA Fisheries; CTWS BNR and WCB; BIA; USDA Forest Service; BLM; ODFW; ODEQ; non-governmental organizations; and the Joint Licensees. The Fish Committee will be responsible for monitoring progress of the activities identified in this plan, reviewing annual work plans, providing expert advice regarding work plan implementation, and evaluating the results of ongoing fish passage efforts. A key role of the Fish Committee will be determining progress towards achieving specific measures of success identified in the Fish Passage Plan.

The Settlement Agreement and Section 18 prescriptions also provide for the Licensees to obtain certain agency approvals from resource agencies referred to as "Fish Agencies" prior to making specified Commission filings. NOAA Fisheries, the FWS, the ODFW, and the CTWS BNR are collectively referred to as the Fish Agencies. Which agency approvals are required will depend upon the particular type of filing.

### Adaptive Management

The Fish Passage Plan is being implemented according to the tenets of adaptive management, as incorporated into the proposed license articles. This approach helps to reduce uncertainty and, more importantly, provides a broader base of knowledge and experience that helps managers to manage more effectively in the face of continued uncertainty and ever-changing conditions.

The Testing and Verification program is a significant element of the Fish Passage Plan's adaptive management approach. This program is a series of studies to evaluate the effectiveness of temporary and permanent fish passage facilities and to provide information for decision making on near-term and long-term aspects of the fish passage program. Downstream passage efficiency will be tested by marking, releasing and tracking radio-tagged salmon and steelhead smolts, and determining the percentage of each species that are safely captured and transported at the downstream migrant facility. Other factors that impact passage efficiency, such as predation, residualization, disease, handling and tagging mortality, and angling, will also be evaluated. Upstream passage efficiency will be tested by releasing and tracking radio-tagged salmon and steelhead adults. The percentage of each species that is safely passed at the adult release facility will be determined, along with the number that reach spawning areas and successfully spawn. Spawning areas will be monitored to evaluate pre-spawning mortality.

The information gained during these evaluations is needed so that the Fish Committee, agency resource managers, and decision makers can determine whether modifications in facilities and operations are necessary or desirable to meet established goals and objectives and to ensure compliance with license articles related to the fish passage program.

### Fish Passage Criteria and Goals

The primary consideration for designing an effective fishway is a fish's swimming ability. Research has shown that the swimming ability of a fish varies and depends on a number of

factors such as species, size, photoperiod, behavior, migrational stage, and physical condition. Additionally, water quality parameters such as DO, temperature, turbidity, and suspended solids affect swimming ability. Therefore, the parties to the settlement negotiations established design, performance, and effectiveness criteria that ensure maximum survival performance for all life stages of salmonids. These criteria are spelled out in the Settlement Agreement, incorporated into the FWS and NOAA Fisheries Section 18 prescriptions, and included verbatim in the new license.

First, the Licensees will design the proposed fishways to satisfy established Fish Agency design criteria, except where the Fish Agencies determine that the criteria should be waived because of conditions unique to the Project. Second, to ensure that the relevant facilities perform as intended, and to ensure that the fish passage effort is successful, the performance standards rely on hydraulic evaluation of the completed fishways and on life cycle modeling to evaluate the success of anadromous fish reintroduction. Third, the performance standards will be used to evaluate the post-construction effectiveness of the Project's upstream and downstream fishways. This will ensure that the Interim and Final Phase fishway elements and structures provide for safe, timely, and effective fish passage. Fish passage effectiveness will be determined by comparing actual observed fishway performance with the performance objectives. The criteria and performance metrics are listed in Table 3.

**Table 3. Downstream and Upstream Passage Criteria and Goals.**

| Issue | Numerical Objective |
|---|---|
| 1. Screen Hydraulic Criteria | NOAA Fisheries smolt criteria |
| 2. Downstream Passage Facility Survival (from Round Butte collection to lower Deschutes River release point) | 93 percent smolt survival for interim facility during first five years of operations.<br>96 percent smolt survival for permanent facility. |
| 3. Upstream Passage Facility Survival (from lower Deschutes River collection point through Adult Release Facility) | 95 percent during first five years of operations.<br>98 percent after 5 years. |
| 4. Round Butte Reservoir Downstream Passage Associated with Interim Passage Facilities | >50 percent of a statistically significant sample of tagged steelhead or spring Chinook outmigrants from any Project tributary averaged over four years of study. |
| 5. Round Butte Reservoir Downstream Passage Associated with Permanent Collection Facilities | >75 percent survival of PIT-tagged smolts calculated as a rolling 4-year average during the first 12 years. |

## Downstream Passage Facilities at Round Butte Dam

Downstream passage for juvenile salmonids is an essential component of fish passage at the Project, because once adults are spawning and rearing upstream, juveniles will need to get back downstream to reach the ocean and grow to maturity. A detailed design for the downstream fish collection and passage facilities is currently being developed by the Licensees in consultation with the Fish Committee. While the NOAA National Marine Fisheries Service (NOAA Fisheries) and the U.S. Fish and Wildlife Service (USFWS) generally prefer that all fishway

designs and specifications employ conventional fish passage technology and conform to existing design criteria for juvenile, sub-adult, and adult salmonids, the Settlement Agreement and Section 18 fishway prescriptions provided for appropriate flexibility given the unprecedented nature of the facilities to be constructed.

The designs for temporary and permanent passage facilities have been developed in consultation with the resource agencies, including NOAA Fisheries and the USFWS, over nearly 10 years. In addition to facilities design, the agencies have worked cooperatively with the Licensees to develop a comprehensive program of facilities testing, evaluation, and adaptive management. These facilities will meet most NOAA Fisheries fish passage standards, and therefore should adequately protect aquatic resources during the Interim and Final phases of fish passage operations.

Entrainment Protection

As agreed in the Settlement Agreement and incorporated into the Section 18 prescriptions, to minimize entrainment, which can be a source of fish mortality at hydroelectric projects, the SWW's deep water intake will be screened with an exclusion device that will meet smolt criteria for approach velocity and screen mesh size, but not for sweeping velocity or contact time. The parties to the settlement negotiations believe that relatively few fish will be present at this depth. In addition, under the proposed program of Project operations, the deep intake will not be operated during spring months, which are the primary out-migration period for anadromous species. In addition to facilities design, the agencies have worked cooperatively with the Licensees to develop a comprehensive program of facilities testing, evaluation, and adaptive management. These facilities will minimize entrainment, thereby adequately protecting aquatic resources during the interim and permanent phases of fish passage operations.

While the Settlement Agreement provides for intake screening at Round Butte Dam, it does not require screens at the Pelton and the Reregulating dams. During the primary outmigration period in the spring, downstream migrating smolts will be moved around Lake Simtustus and the Reregulating Reservoir. This will eliminate several potential sources of mortality, such as harvest, predation, and turbine entrainment. In addition, the Licensees agreed to take several measures to protect aquatic resources, including reactivating the Pelton Skimmer, installing a guidance net system at Pelton Dam, and upgrading the Round Butte Dam upstream fish trap.

Upstream Passage

Agencies generally do not approve trap-and-haul systems because of the amount of handling stress fish may experience, and because volitional passage allows fish to determine on their own when to move upstream. However, the Project presents unique challenges for design of a volitional passage facility, and the parties to the Settlement Agreement therefore agreed that a trap-and-haul system would initially be the best solution. The total distance of the Project (nearly 10 miles from the Reregulating Dam to Round Butte Dam) and the elevation gain (approximately 550 feet) present both physical and biological challenges. The existing fish ladder (roughly 2.8 miles long) was only partially successful at passing adult salmonids during the initial years of the Project. The exact cause of ladder rejection is unknown at this time, but it is thought that the ladder developed its own unique water chemistry during the warmer months,

causing fish to turn back. These agreements regarding trap and haul operation are spelled out in the Settlement Agreement, incorporated into the FWS and NOAA Fisheries Section 18 prescriptions, and included verbatim in the new license.

In addition, the uncertainties regarding collection of smolts from Lake Billy Chinook may take a number of years to overcome, and it must be determined that no new pathogens will be introduced above the Project and that disease risk can be managed. The existing trap facility has been in operation for nearly 30 years, with improvements made to both the facility and the protocols employed for handling live fish. The current fish mortality rate for trap operations approaches 0 percent. Finally, the trap and haul facility will give fisheries managers a tool to monitor and control the number and type of species passed above the Project and allow for disease risk management during the Interim Phase of the Fish Passage Plan. For these reasons, the parties to the settlement negotiations agreed that the initial use of a trap-and-haul system will provide adequate resource protection and that it is prudent to utilize the existing facility during the Interim Phase. This approach is also prudent, because it allows the parties to determine if juvenile passage is feasible before investing extensive staff and capital resources in the study and implementation of the proposed adult volitional passage.

The parties to the Settlement Agreement agreed that unless feasibility studies find that volitional passage facilities should not be built, based on pre-determined criteria specified in, the Licensees will install volitional upstream passage facilities following the installation of permanent downstream passage facilities at Round Butte Dam and the achievement of downstream survival targets. The parties determined that this timing is necessary before development of volitional passage facilities because of the Project's unique passage issues.

**Kokanee spawning in Canyon Creek, a tributary to the Metolius River.**

## Fish Passage Infeasibility

The reintroduction of anadromous fish at the Pelton Round Butte Project is a tremendously complex task. While all the parties that negotiated the Settlement Agreement are dedicated to the success of fish passage at the Project, significant uncertainty remains. The parties worked diligently to develop a fisheries program and contingency provisions that will benefit fish resources over the entire term of the license. In addition to a life-of-license commitment to provide funding to operate and maintain the Round Butte hatchery, the Settlement Agreement also provides for alternative mitigation should fish passage prove to be infeasible. Thus, the Settlement Agreement provisions recognize both the risks inherent in attempting to reintroduce anadromous fish and the immense commitment of staff and capital resources necessary to make a good-faith effort. By recognizing the potential for infeasibility issues, the Settlement Agreement

ensures that if passage does not work, aquatic resources will still receive mitigation needed to meet the goals of fish passage.

*Other Aquatic Measures*

Other aquatic measures included in the Settlement Agreement and as conditions of the new license are also designed to assess and alleviate other Project impacts that may be a consequence of the barrier created by the Project between the upper and lower Deschutes River. These measures include studies and experiments regarding spawning gravels and gravel augmentation in the lower Deschutes River, the management of large woody debris entering the Project reservoirs, and a habitat improvement project on Trout Creek, an important tributary of the lower Deschutes River. These additional measures are described below in section D, Watershed Protection.

**Summary**

The Project is in compliance with all mandatory fish passage prescriptions for upstream and downstream passage of fish. These conditions are contained in the Section 18 fishway prescriptions issued by FWS and NOAA Fisheries and contained in the Settlement Agreement. They have been incorporated into the new license for the Project issued by FERC.

## D. Watershed Protection

Question: *Is there a buffer zone dedicated for conservation purposes (to protect fish and wildlife habitat, water quality, aesthetics and/or low-impact recreation) extending 200 feet from the high water mark in an average water year around 50 - 100% of the impoundment, and for all of the undeveloped shoreline?* Answer: Yes (as explained below)

*Has the facility owner/operator established an approved watershed enhancement fund that: 1) could achieve within the project's watershed the ecological and recreational equivalent of land protection in D.1.,and 2) has the agreement of appropriate stakeholders and state and federal resource agencies?* Answer: Yes

*Has the facility owner/operator established through a settlement agreement with appropriate stakeholders and that has state and federal resource agencies agreement an appropriate shore land buffer or equivalent watershed land protection plan for conservation purposes (to protect fish and wildlife habitat, water quality, aesthetics and/or low impact recreation)?* Answer: Yes

*Is the facility in compliance with both state and federal resource agencies' recommendations in a license approved shore land management plan regarding protection, mitigation or enhancement of shore lands surrounding the project?* Answer: Yes

Goal: Sufficient action has been taken to protect, mitigate and enhance environmental conditions in the watershed.

Standard: A certified facility must be in compliance with resource agency recommendations and FERC license terms regarding watershed protection, mitigation or enhancement. These may cover issues such as shoreline buffer zones, wildlife habitat protection, wetlands protection, erosion control, etc.

Future Enhancement: The Watershed Protection Criterion was substantially revised in 2004. The revised criterion is designed to reward projects with an extra three years of certification that have: a buffer zone extending 200 feet from the high water mark; or, an approved watershed enhancement fund that could achieve within the project's watershed the ecological and recreational equivalent of land protection in D.1. and has the agreement of appropriate stakeholders and state and federal resource agencies. A facility can pass this criterion, but not receive extra years of certification, if it is in compliance with both state and federal resource agencies recommendations in a license approved shore land management plan regarding protection, mitigation or enhancement of shore lands surrounding the project.

Description of compliance with standard: The Pelton Round Butte Project satisfies this standard and, based on the establishment of the Pelton Round Butte Fund, meets the criteria for receiving an additional three years of certification. A description of the Pelton Round Butte Fund is provided below. Also described below are the numerous management plans applicable to the Project area that collectively form a comprehensive framework for achieving a high level of ecological protection and enhancement within the watershed.

*Pelton Round Butte Fund*

The parties to the Settlement Agreement agreed that riparian and riverine protection and opportunities for acquisition of land and water, as well as water rights, are important restoration components in the new FERC license for the Project. Additionally, the restoration and enhancement of habitat above the Project will support and benefit the fish passage program by increasing natural production of anadromous salmonids.

For these reasons, the Licensees agreed to make contributions totaling $21.5 million (2003 Dollars) over the term of the new license to establish the Pelton Round Butte Fund, which will be used to support resource projects in the Deschutes River basin and to acquire or lease instream water rights, or participate in water conservation projects, each of which would result in increased instream flows that benefit aquatic habitat. FERC adopted the Settlement Agreement provisions related to the Fund as License Article 436.

**Deschutes River Basin upstream of the Pelton Round Butte Project.**

The Fund has two components, a General Fund and a Water Rights Fund. Contributions to the General Fund will total $11.5 million (2003$) over the life of the new license. Contributions to the Water Rights Fund will total $10 million over the same period.

- *General Fund*

The General Fund will be administered by an 11-member Governing Board consisting of representatives of the Licensees and parties to the Settlement Agreement. Resource projects funded by the Pelton Round Butte Fund will be located in the Deschutes River basin, including the middle and lower Deschutes River, the Crooked River, the Metolius River, and any tributaries to those river segments, and may include:

- *Land acquisition or lease of riparian, wetlands, and uplands* — Funds may be used for locating appropriate parcels, purchase costs, purchase and title expenses, surveying, and ongoing restoration, monitoring, and management for the life of the new license.
- *Water rights acquisition or lease* — Funds may be used for locating appropriate rights, purchase/lease costs, purchase and title expenses, and ongoing monitoring.
- *Water conservation* — Funds may be used for conservation projects that yield legally protected instream water rights.
- *Conservation easements* — Funds may be used for locating appropriate parcels, establishment of easements, surveying, and ongoing restoration, monitoring and enforcement.
- *Construction of fish passage facilities and removal of fish passage barriers* — Funds may be used for private, non-federal dam and diversion removal, construction or improvement of fish passage facilities and screens, including planning, design, and effectiveness monitoring (but not for improvement or removal of barriers at other FERC-licensed projects).
- *Instream habitat improvements* — Funds may be used for projects that improve or enhance fish habitat such as cover, pool and riffle structure, spawning beds, and water quality, including planning, design, and effectiveness monitoring.
- *Riparian and wetland protection and enhancement* — Funds may be used to protect riparian corridors and wetlands from grazing, provide for native species plantings, non-native plant species management, and erosion control, including planning, design, and effectiveness monitoring.
- *Off-Project recreation impacts* — Funds may be used to protect and restore riparian corridors, wetlands, and spawning and rearing habitats that are adversely impacted by off-Project recreation use. Such projects may include planning, design and effectiveness monitoring.

Projects not described in the eight categories above may be funded only if (1) the Licensees include them in their proposed project recommendations to the Governing Board and (2) the proposed projects receive unanimous support from the Governing Board.

Proposed Resource Projects must be consistent with federal, state and Tribal laws and policies in effect at the time the project is proposed. Resource Projects will be identified, approved, and funded in accordance with the following criteria and factors (listed in order of priority):

1. Activities upstream of the Project that will support the anadromous reintroduction program by helping to achieve a self-sustaining Chinook salmon population and a sustainable salmon harvest.
2. Activities in the lower Deschutes River mainstem and tributaries that increase the likelihood of adult and juvenile salmonid survival as the fish pass through the Pelton Round Butte Project to and from the upper basin.
3. Activities that enhance existing or reintroduced populations of resident and anadromous fish and terrestrial wildlife above and below the Pelton Round Butte Project.

If fish passage is determined to be infeasible and is to be replaced by alternative mitigation, the above criteria and evaluation system will be revised as necessary to be consistent with the then-applicable objectives expressed in the Fish Passage Plan and the License, and submit them to the Governing Board for approval.

- *Water Rights Fund*

The Water Rights Fund will be administered by the Licensees in consultation with the appropriate resource agencies. Resource projects funded by the Pelton Round Butte Fund will be located in the Deschutes River basin, including the middle and lower Deschutes River, the Crooked River, the Metolius River, and any tributaries to those river segments. The Water Rights Fund will be used to acquire or lease instream water rights, or participate in water conservation projects, each of which would result in instream flows that benefit aquatic habitat. As with projects funded by the General Fund, water rights projects must be consistent with Federal, State, and Tribal laws and policies. Water rights acquisitions must go instream at times and locations that improve aquatic habitat beyond existing conditions, and must result in a net benefit to aquatic resources.

*Flow and Reservoir Level Protections*

As described in section A of this Attachment (Flows), the Settlement Agreement, the 401 Certificates, and the new license provide for the Licensees to institute a state-of-the-art program of controls that will tightly constrain how the Project is operated. This program will allow the Licensees to maximize the economic value of the Project, while minimizing environmental impacts resulting from operation of the Project.

Pursuant to the Settlement Agreement and new license, the Licensees will continue to operate the Round Butte and Pelton Developments for peak energy production and operate the Reregulating Development to match Project outflows with daily average inflows. To reduce effects of the modified run-of-river operations on water quality and aquatic resources, the Licensees will increase minimum flows and reduce ramping rates below the Reregulating Development, reduce seasonal drawdowns of Lake Billy Chinook and daily drawdowns of the Reregulating Reservoir, monitor flow more accurately at the Madras gage downstream of the Project, and improve monitoring of Project inflows. During the summer, the Licensees will operate Lake Billy Chinook with a drawdown no greater than one foot. (See section A for further detail.)

*Terrestrial Resources Management Plan*

As originally licensed, the Project occupied some 8,300 acres of land, including the lands within the 110-mile Bethel–Round Butte transmission line right-of-way, which has since been removed from the Project. The initial Project license did not include specific protection, mitigation, and enhancement (PME) measures for botanical and wildlife resources. Consequently, no terrestrial resource management plan was required. Nonetheless, during the term of the initial license, the Licensees gradually acquired nearly 11,000 acres of habitat lands, in order to provide protection for terrestrial resources in the Project area.

Throughout the pre-application consultation and settlement negotiation processes, all stakeholders agreed that there was a need for a comprehensive mitigation or management plan for the botanical and wildlife resources associated with the Project. All stakeholders agreed that the need for such a plan, referred to as a Terrestrial Resources Management Plan (TRMP), was increased by the Licensees' proposal to include within the Project the nearly 11,000 acres of additional habitat lands that had been acquired by PGE in the Project area.

**Trout Creek Ranch property, part of the Project under the new license.**

In accordance with the Settlement Agreement and new license, the TRMP for the Project, which was developed in consultation with resource agencies, has recently been completed and is now being implemented. Implementation of the TRMP will serve as the basis for implementing a program of mitigation and enhancements to reduce or eliminate the continuing effects of Project operations on terrestrial resources during the new license term. The TRMP applies to all lands currently inside the FERC boundary, including the reservoirs and shorelines, the Licensee-owned

Metolius Mule Deer Winter Range lands and Trout Creek Ranch property, and federal/state lands on which the Licensees will be conducting specific habitat improvement projects in accordance with the new license. The TRMP includes the following resource management strategies for implementing specific PME measures:

- Riparian and wetland restoration and protection strategy
- Vegetation management strategy
- Exotic and invasive vegetation management strategy
- Comprehensive bald eagle management strategy
- Raptor protection strategy
- Threatened, endangered, and sensitive species and habitats of special concern protection strategy
- Wildlife control strategy
- Travel and access management strategy
- Public access strategy
- Pelton Fish Ladder wildlife protection strategy
- Wildlife monitoring strategy

Additional terrestrial resource protection measures include funding for the ODFW mule deer winter range telemetry study. In addition, the TRMP lists construction standards and best management practices (BMPs) for minimizing or mitigating the impacts of Project-related construction activities on terrestrial and aquatic resources. In association with the construction standards and BMPs, the Licensees have implemented a "worker environmental program" for Project employees, as well as employees of contractors and subcontractors engaged in work or operations at the Project.

*Shoreline Management Plan*

In accordance with the Settlement Agreement and new license, the Licensees have developed a Shoreline Management Plan (SMP) to address development on lands around Lake Billy Chinook. The SMP has been integrated with other plans, such as recreation and terrestrial resources management plans, to comprehensively address long-term issues. Although there is limited opportunity for private development on Project reservoirs, the SMP establishes design guidelines for new docks and dock replacements, so that, over time, the visual and recreational effects of private docks will be reduced.

**Lake Billy Chinook shoreline.**

*Shoreline Erosion Plan*

In conjunction with development of the SMP, the Licensees have, as required by the Settlement Agreement and the new license, developed a Shoreline Erosion Plan. The Shoreline Erosion Plan serves as the basis for implementing measures to monitor and control stream and impoundment shoreline erosion at the Project. The plan discusses the conditions and probable causes of, as well as potential measures for, shoreline erosion and provides for implementation by the Licensees of the following measures:

- Initiating the rehabilitation (within three years of license issuance) of numerous specific identified existing erosion sites.
- Conducting, or providing for an entity to conduct, a baseline survey of the Project area to identify, map, and assess existing erosion sites that are Project-related and are significantly affecting terrestrial habitats, fish habitats or water quality (or, if the site is located on the Warm Springs Reservation, is causing or is likely to cause significant loss of shoreline).
- Annual monitoring of the Project area to monitor existing erosion sites and identify and map any new Project-related erosion sites.
- Monitoring identified erosion sites following (i) any event at the Round Butte development where the outflow exceeds inflow by more than the maximum turbine flow, (ii) any drawdown of Lake Simtustus resulting in 7 or more feet of reservoir

elevation change in a 24-hour period, or (iii) other events that could rapidly change the shoreline condition.

- Developing, in consultation with the appropriate agencies and organizations, site-specific measures for all existing erosion sites and any Project-related erosion sites identified during the baseline survey or subsequent annual monitoring. Preference is to be given to "soft" erosion control techniques including, bioengineering, planting and seeding of appropriate native riparian species, sediment replenishment, or anchored woody debris, but may, when necessary, utilize "hard" erosion control, including use of geotextiles, rock armoring, or other hard surfaces.

*Tribal Resource Management Plans*

Warm Springs Reservation Integrated Resource Management Plans:

The Tribes have developed two Integrated Resource Management Plans (IRMPs) that cover natural resource issues on the Warm Springs Reservation, including the Project area. Pursuant to the Settlement Agreement, the Licensees have agreed to comply with the IRMPs before undertaking any ground-disturbing activities on the Reservation.

IRMP I provides management direction for the use and/or protection of the natural resources within the forested area of the Reservation. It establishes an integrated approach to project planning and provides management direction for some 398,466 acres of forested Tribal land. The management direction in IRMP I provides for a system of riparian buffers, the practice of leaving snags and live trees after harvest, erosion control, and transportation system management.

IRMP II pertains to non-forested and rural lands. The Tribal IRMP II addresses numerous resource issues, including the designation of Extensive Management Zones, management of woodlands outside of commercial forestry areas, uplands management, riparian management, transportation system management, and measures to protect, enhance, and reintroduce threatened or endangered species. IRMP II recommends average road density guidelines that reduce road densities in riparian and wetland zones, reducing the number of roads in non-forested areas, and reducing impacts through road closures, culvert placement, and revegetation of cutbanks.

Pelton-Round Butte Comprehensive Management Plan:

During the pre-application consultation process for the FERC license for the Project, the Tribes sponsored a planning process that culminated in the development of the Pelton-Round Butte Comprehensive Management Plan, completed in 1999. Pursuant to the Settlement Agreement, Licensees have agreed that measures implemented pursuant to the Recreation Resources Implementation Plan will be consistent with the Comprehensive Management Plan.

The impetus for development of the Comprehensive Management Plan was that the Tribes and other government agencies having management responsibilities in the Project vicinity agreed there was no overall plan that addressed the fragmented land ownership patterns and differing management responsibilities and priorities of the agencies involved. It was recognized that this

lack of coordination had resulted in unnecessary conflicts and inefficiencies. With the support of the other stakeholders in the Project area, the Tribes facilitated a joint agency comprehensive planning process designed to address recreation, land use, and aesthetic/visual resource issues. The resulting Comprehensive Management Plan identified overarching land management goals and objectives for the Project area and recommended PME measures to address issues in the areas of shoreline development, shoreline erosion, recreation, road use and management, and aesthetic concerns. As intended, the Comprehensive Management Plan has helped guide development of specific measures included in the Settlement Agreement and in the individual management plans being developed under the new Project license.

**View of the Metolius River Arm of Lake Billy Chinook and adjacent portions of the Warm Springs Reservation, including Chinook Island.**

*Law Enforcement Agreement*

As part of the Settlement Agreement, the Licensees are providing funding on an annual basis to Jefferson County to increase law enforcement in the Project area and thereby ensure that certain PME measures implemented pursuant to the terms of the Settlement Agreement are effective. Under the terms of the law enforcement agreement with the County, the Licensees provide funding for one full-time land-based patrol officer and two seasonal marine patrol officers to patrol all campgrounds, developed recreation sites and dispersed recreation areas within the Project. Responsibility of the full-time officer include compliance with the relevant provisions of the TRMP, including seasonal and permanent road closures, all-terrain vehicle use, eagle nest sites and winter range area protection, dispersed camping, shooting ordinances, and wildlife harassment.

*Lower River Gravel Study and Pilot Augmentation Plan*

In accordance with the Settlement Agreement, the new license requires the Licensees to conduct a study of gravel in the lower Deschutes River to evaluate gravel mobility, supply, and use by spawning salmonids in the lower Deschutes River. The study area extends from the Reregulating Dam (RM 100.5) to the Trout Creek confluence (RM 87.3). The Lower River Gravel Study comprises two primary components, a geomorphic aspect and a biological aspect. A final plan for this study has recently been completed, in consultation with the Fish Committee, and filed with FERC.

**Deschutes River, downstream of the Reregulating Dam.**

The geomorphic component of the Lower River Gravel Study consists of two major tasks: (1) a field-based sediment transport monitoring program, and (2) experimental gravel augmentation between the Reregulating Dam and Shitike Creek. The objective of the monitoring and augmentation is to assess the impacts of the Project on downstream gravel availability and channel morphology. This information will provide a basis for Parties to evaluate whether or not the Project has significantly affected downstream gravel factors for spawning salmonids.

The biological component of this study includes careful implementation of gravel augmentation experiments to: (1) monitor the mobility of the placed spawning gravels, to determine overall bed mobility and sediment transport in the reach, and to inform future gravel augmentation efforts, and (2) monitor the quality of the augmented gravels for salmonid spawning and their use by spawning fish.

Based on the recommendations resulting from this study, and any other relevant information, the Fish Committee will determine whether a long-term gravel augmentation action plan should be implemented. If a long-term plan is required by the Fish Committee, the Licensees will develop and implement the plan in coordination with the Fish Committee, pursuant to adaptive management principles.

*Lower River Large Wood Management*

Measures for managing large wood in the lower Deschutes River, as agreed to in the Settlement Agreement, are also being undertaken by the Licensees through a Large Wood Management Plan (LWMP) as part of the new license. The wood management program will help to connect the upper and lower Deschutes River ecosystems by providing for the transfer to the lower river of large woody debris that enters the Project reservoirs. This wood may also be used to help stabilize the shoreline of Lake Billy Chinook and promote riparian vegetation around the reservoir. The management of large wood in the system includes a monitoring plan to be conducted through the term of the license to evaluate the effectiveness of placed wood, including river transport (for wood moved below the project), use by wildlife and fish, and as appropriate, erosion control for the establishment of shoreline riparian vegetation. The LWMP will be adapted in consultation with the Fish Committee to reflect improvements identified through monitoring to improve the erosion control function of shoreline wood and the habitat value of all wood placements for riparian vegetation, fish and wildlife.

**Large wood on the shoreline of Lake Billy Chinook.**

*Lower Basin Fish Habitat (Trout Creek) Enhancement*

Under the Settlement Agreement and new license, the Licensees are conducting a major habitat enhancement project on Trout Creek, which enters the Deschutes approximately 12 miles below the Reregulating Dam. Currently, Trout Creek in the reach to be enhanced is degraded as a result of past events and activities, including the erosion of the active channel during the major flood of 1964, and subsequent artificial straightening and channelization. This project will involve regrading, reshaping, and realignment of the stream channel to make the channel more hydraulically stable; and revegetation of the riparian zone.

The purpose of the proposed projects is to restore instream habitat, improve the currently existing channel form and function characteristics, and increase the density and vigor of riparian vegetation, thereby improving habitat for Middle Columbia steelhead listed as "threatened" pursuant to the Endangered Species Act (ESA). Improvement of habitat should lead, in the long term, to increased production and increased numbers of steelhead (*Oncorhynchus mykiss*) in the Trout Creek Watershed and in the Deschutes River sub-basin.

**Portion of Trout Creek that will be improved through the planned habitat enhancement project.**

Buffer Zone

The Project does not include a formally-designated 200-foot buffer zone around the Project impoundments. Rather, the benefit that would at other projects be created by a buffer zone is

accomplished at the Project by the overlapping layers of resource protection plans described above that govern and protect all aspects of shoreline resources at the Project. In addition, with the exception of a small area on Lake Billy Chinook, virtually all of the land adjoining the reservoirs is under public ownership. This array of management plans, combined with the extensive public ownership, provides a level of resource protection comparable to what would result from a buffer zone. In any case, a formal buffer zone is not required for a facility to meet the Watershed Protection Criterion if the licensee has established a watershed enhancement fund, as the Licensees have done with the Pelton Round Butte Fund.

**Summary**

The Licensees have established a watershed enhancement fund and are in compliance with all state and federal agency recommendations regarding protection, mitigation, and enhancement of shore lands surrounding the Project. These conditions are contained in an array of overlapping management plans contained in the Settlement Agreement. They have been incorporated into the terms of the new license for the Project issued by FERC and provide a level of resource protection comparable to a buffer zone. Accordingly, the Licensees qualify for an additional three years of certification from LIHI.

## E. Threatened and Endangered Species Protection

Question: *Are threatened or endangered species listed under state or federal Endangered Species Acts present in the Facility area and/or downstream reach?* Answer: Yes

*If a recovery plan has been adopted for the threatened or endangered species pursuant to Section 4(f) of the Endangered Species Act or similar state provision, is the Facility in Compliance with all recommendations in the plan relevant to the Facility?* Answer: Not applicable

*If the Facility has received authority to incidentally Take a listed species through: (i) Having a relevant agency complete consultation pursuant to ESA Section 7 resulting in a biological opinion, a habitat recovery plan, and/or (if needed) an incidental Take statement; (ii) Obtaining an incidental Take permit pursuant to ESA Section 10; or (iii) For species listed by a state and not by the federal government, obtaining authority pursuant to similar state procedures; is the Facility in Compliance with conditions pursuant to that authority?* Answer: Yes (for item (i); items (ii) and (iii) are not applicable)

*If a biological opinion applicable to the Facility for the threatened or endangered species has been issued, can the Applicant demonstrate that:*

*a) The biological opinion was accompanied by a FERC license or exemption or a habitat conservation plan?* Answer: Yes

*or b) The biological opinion was issued pursuant to or consistent with a recovery plan for the endangered or threatened species?* Answer: Not applicable

*or c) There is no recovery plan for the threatened or endangered species under active development by the relevant Resource Agency?* Answer: Not applicable

*or d) The recovery plan under active development will have no material effect on the Facility's operations?* Answer: Not applicable

Goal: The facility does not negatively impact state or federal threatened or endangered species.

Standard: For threatened and endangered species present in the facility area, the facility owner/operator must either demonstrate that the facility does not negatively affect the species, or demonstrate compliance with the species recovery plan and any requirements for authority to "take" (damage) the species under federal or state laws.

Description of compliance with standard: Based on complete Section 7 consultation between FERC and the Services (USFWS and NOAA Fisheries), and the issuance of Biological Opinions including incidental take statements and reasonable and prudent measures incorporated into the FERC license, the Project meets the standard for this criterion. Further explanation is provided below.

*Threatened, Endangered, and Sensitive Species in the Project Area*

Several fish, wildlife and plant species that are listed as threatened, endangered or sensitive (TES) species occur in the Project area. In this context, TES species are defined as any species listed, protected, or given special management consideration by federal or State of Oregon agencies. These species, and their corresponding TES status, are shown in Table 4. Following Table 4 is a description of the Project's potential effects on listed threatened or endangered species known to occur in the Project area.

**Table 4. Threatened, endangered, and sensitive (TES) fish, wildlife, and plant species known to occur or potentially occurring in the Pelton Round Butte Project area.**

| Species [1] | Status [2] |
|---|---|
| **Fish** | |
| **Steelhead**<br>***Oncorhynchus mykiss*** | Federal: Threatened<br>State: Threatened, ONHP List 1 |
| **Bull Trout**<br>***Salvelinus confluentus*** | Federal: Threatened<br>State: Threatened, ONHP List 1 |
| **Amphibians** | |
| Western Toad<br>*Bufo boreas* | Federal: BLM BT<br>State: Sensitive Vulnerable, ONHP List 3 |
| Tailed Frog<br>*Ascaphus truei* | Federal: Species of Concern, BLM BT<br>State: Sensitive Vulnerable, ONHP List 3 |
| Oregon Spotted Frog<br>*Rana pretiosa* | Federal: Candidate, USFS Sensitive Species, BLM BS<br>State: Sensitive Critical, ONHP List 3 |
| **Reptiles** | |
| Northern Sagebrush Lizard<br>*Sceloporus graciosus graciosus* | Federal: Species of Concern, BLM BT<br>State: Sensitive Vulnerable, ONHP List 4 |
| **Birds** | |
| Horned Grebe<br>*Podiceps avritus* | Federal: USFS Sensitive Species, BLM BA<br>State: Sensitive Peripheral, ONHP List 2 |
| Red-necked Grebe<br>*Podiceps grisegena* | Federal: USFS Sensitive Species<br>State: Sensitive Critical, ONHP List 2 |
| American White Pelican<br>*Pelecanus erthrorhynchos* | Federal: BLM BA<br>State: Sensitive Vulnerable, ONHP List 2 |
| **Aleutian Canada Goose**<br>***Branta canadensis leucopareia*** | Federal: Threatened, USFS Sensitive Species, BLM BS<br>State: Endangered, ONHP List 2 |
| Barrow's Goldeneye<br>*Bucephala islandica* | Federal: --<br>State: Sensitive Undetermined Status, ONHP List 4 |
| Bufflehead<br>*Bucephala albeola* | Federal: USFS Sensitive Species, BLM BA<br>State: Sensitive Undetermined Status, ONHP List 2 |
| Great Egret<br>*Ardea alba* | Federal: --<br>State: ONHP List 3 |
| Harlequin Duck<br>*Histionicus histrionicus* | Federal: Species of Concern, USFS Sensitive Species, BLM BA<br>State: Sensitive Undetermined Status, ONHP List 2 |
| Sandhill Crane<br>*Grus canadensis* | Federal: BLM BT<br>State: Sensitive Vulnerable, ONHP List 4 |

**Table 4, continued…**

| **Species** [1] | **Status** [2] |
|---|---|
| Franklin's Gull<br>*Larus pipixan* | Federal: BLM BA<br>State: Sensitive Peripheral, ONHP List 2 |
| Forster's Tern<br>*Sterna forsteri* | Federal: BLM BA<br>State: ONHP List 4 |
| Black Tern<br>*Chlidonias niger* | Federal: Species of Concern, BLM BT<br>State: ONHP List 4 |
| **Bald Eagle**<br>***Haliaeetus leucocephalus*** | Federal: Threatened, USFS Sensitive Species, BLM T<br>State: Threatened, ONHP List 4 |
| Northern Goshawk<br>*Accipiter gentilis* | Federal: Species of Concern, BLM BS<br>State: Sensitive Critical, ONHP List 4 |
| Swainson's Hawk<br>*Buteo swainsoni* | Federal: BLM BT<br>State: Sensitive Vulnerable, ONHP List 4 |
| Ferruginous Hawk<br>*Buteo regalis* | Federal: Species of Concern, BLM BS<br>State: Sensitive Critical, ONHP List 4 |
| Merlin<br>*Falco columbarius* | Federal: BLM BA<br>State: ONHP List 2 |
| **Peregrine Falcon**<br>***Falco peregrinus*** | Federal: USFS Sensitive Species, BLM BS<br>State: Endangered, ONHP List 2 |
| Great Gray Owl<br>*Strix nebulosa* | Federal: BLM BT<br>State: Sensitive Vulnerable, ONHP List 4 |
| Flammulated Owl<br>*Otus flammeolus* | Federal: BLM BS<br>State: Sensitive Critical, OHNP List 4 |
| Boreal Owl<br>*Aegolius funereus* | Federal: --<br>State: Sensitive Undetermined Status; ONHP List 3 |
| Western Burrowing Owl<br>*Athene cunicularia hypugea* | Federal: Species of Concern, BLM BS<br>State: Sensitive Critical, ONHP List 4 |
| Mountain Quail<br>*Oreortyx pictus* | Federal: BLM BT<br>State: Sensitive Undetermined Status, ONHP List 4 |
| Pileated Woodpecker<br>*Dryocopus pileatus* | Federal: BLM BT<br>State: Sensitive Vulnerable, ONHP List 4 |
| Lewis' Woodpecker<br>*Melanerpes lewis* | Federal: BLM BA<br>State: Sensitive Critical, ONHP List 2 |
| Williamson's Sapsucker<br>*Sphyrapicus thyroideus* | Federal: BLM BT<br>State: Sensitive Undetermined Status, ONHP List 3 |
| White-headed Woodpecker<br>*Picoides albolarvatus* | Federal: BLM BS<br>State: Sensitive Critical, ONHP List 2 |
| Black-backed Woodpecker<br>*Picoides articus* | Federal: BLM BS<br>State: Sensitive Critical, ONHP List 4 |
| Olive-sided Flycatcher<br>*Contopus cooperi* | Federal: Species of Concern, BLM BT<br>State: Sensitive Vulnerable, ONHP List 4 |
| Little Willow Flycatcher<br>*Empidonaz traillii brewsterii* | Federal: Species of Concern, BLM BT<br>State: Sensitive Undetermined Status, ONHP List 4 |
| Gray Flycatcher<br>*Empidonax wrightii* | Federal: USFS Sensitive Species<br>State: -- |
| Bank Swallow<br>*Riparia riparia* | Federal: BLM BT<br>State: Sensitive Undetermined Status, ONHP List 4 |

**Table 4, continued…**

| Species [1] | Status [2] |
|---|---|
| Pygmy Nuthatch<br>*Sitta pygmaea* | Federal: BLM BT<br>State: Sensitive Vulnerable, ONHP List 4 |
| Sage Sparrow<br>*Amphispiza belli* | Federal: BLM BT<br>State: Sensitive Critical, ONHP List 4 |
| Loggerhead Shrike<br>*Lanius ludovicianus* | Federal: BLM BT<br>State: Sensitive Vulnerable, ONHP List 4 |
| Tri-colored Blackbird<br>*Agelaius tricolor* | Federal: Species of Concern, USFS Sensitive Species, BLM BA<br>State: Sensitive Peripheral, ONHP List 2 |
| **Mammals** | |
| Mountain Sheep<br>*Ovis canadensis* | Federal: Species of Concern, USFS Sensitive Species, BLM BT<br>State: ONHP List 4 |
| White-tailed Jackrabbit<br>*Lepus townsendii* | Federal: BLM BT<br>State: Sensitive Undetermined Status; ONHP List 3 |
| Pygmy Rabbit<br>*Brachylagus idahoensis* | Federal: Species of Concern, USFS Sensitive Species, BLM BA<br>State: Sensitive Vulnerable, ONHP List 2 |
| Western Gray Squirrel<br>*Sciurus griseus* | Federal: BLM BT<br>State: Sensitive Undetermined Status, ONHP List 4 |
| Preble's Shrew<br>*Sorex preblei* | Federal: Species of Concern, BLM BT<br>State: ONHP List 3 |
| Yuma Myotis<br>*Myotis Yumanensis* | Federal: Species of Concern, BLM BT<br>State: ONHP List 4 |
| Long-eared Myotis<br>*Myotis evotis* | Federal: Species of Concern, BLM BT<br>State: Sensitive Undetermined Status, ONHP List 4 |
| Long-legged Myotis<br>*Myotis volans* | Federal: Species of Concern<br>State: Sensitive Undetermined Status, ONHP List 3 |
| Western Small-footed Myotis<br>*Myotis ciliolabrum* | Federal: Species of Concern, BLM BT<br>State: Sensitive Undetermined Status, ONHP List 4 |
| Silver-haired Bat<br>*Lasionycteris noctivagans* | Federal: BLM BT<br>State: Sensitive Undetermined Status, ONHP List 4 |
| Townsend's Big-eared Bat<br>*Corynorhinus townsendii townsendii* | Federal: Species of Concern, BLM BS<br>State: Sensitive Critical, ONHP List 2 |
| Pallid Bat<br>*Antrozous pallidus* | Federal: USFS Sensitive Species, BLM BA<br>State: Sensitive Vulnerable, ONHP List 2 |
| **Plants** | |
| Brewer's Reedgrass<br>*Calamagrostis breweri* | Federal: USFS Sensitive Species, BLM BA<br>State: ONHP List 2 |
| Cascade Rockcress<br>*Arabis furcata* | Federal: BLM BT<br>State: ONHP List 4 |
| Common Water-milfoil<br>*Myriophyllum sibiricum* | Federal: BLM BT<br>State: ONHP List 4 |
| Creamy Stickseed<br>*Hackelia diffusa* v. *cottonii* | Federal: BLM BT<br>State: ONHP List 4 |
| Cushion Coryphantha<br>*Coryphantha vivipara* v. *vivpara* | Federal: BLM BT<br>State: ONHP List 2 |
| Elmera<br>*Elmera racemosa* var. *racemosa* | Federal: BLM BT<br>State: ONHP List 4 |

**Table 4, continued…**

| **Species** [1] | **Status** [2] |
|---|---|
| Estes' Artemisia<br>*Artemisia ludoviciana* ssp. *estesii* | Federal: Species of Concern, USFS Sensitive Species, BLM BS<br>State: ONHP List 1 |
| Gorman's Aster<br>*Aster gormanii* | Federal: USFS Sensitive Species,<br>State: ONHP List 1 |
| Ground Cedar<br>*Lycopodium complanatum* | Federal: USFS Sensitive Species, BLM BS<br>State: ONHP List 2 |
| Hedgehog Cactus<br>*Pediocactus simpsonii* v. *robustior* | Federal: BLM BT<br>State: ONHP List 4 |
| Hepatic Monkey-flower<br>*Mimulus jungermannioides* | Federal: Species of Concern, BLM BS<br>State: Candidate, ONHP List 1 |
| Klamath gooseberry<br>*Ribes inerme* v. *klamathense* | Federal: BLM BT<br>State: ONHP List 3 |
| Lahontan Sagebrush<br>*Artemisia arbuscula ssp. longicaulis* | Federal: BLM BT<br>State: ONHP List 3 |
| Many-spiked Cotton-grass<br>*Eriophorum angustifolium* | Federal: BLM BT<br>State: ONHP List 4 |
| Mountain Lady's-slipper<br>*Cypripedium montanum* | Federal: BLM BT<br>State: ONHP List 4 |
| Nevius' Chaenactis<br>*Cypripedium montanum* | Federal: BLM BT<br>State: ONHP List 4 |
| **Peck's Milkvetch**<br>***Astragalus peckii*** | Federal: Species of Concern, USFS Sensitive Species, BLM T<br>State: Threatened, ONHP List 1 |
| Peck's Penstemon<br>*Penstemon peckii* | Federal: Species of Concern, USFS Sensitive Species, BLM BS<br>State: ONHP List 1 |
| Peltula (lichen)<br>*Peltula euploca* | Federal: BLM BT<br>State: ONHP List 3 |
| Porcupine Sedge<br>*Carex hystricina* | Federal: USFS Sensitive Species, BLM BA<br>State: ONHP List 2 |
| Scribner's Grass<br>*Scribneria bolanderi* | Federal: BLM BT<br>State: ONHP List 4 |
| Sessile Mousetail<br>*Myosurus sessilis* | Federal: Species of Concern, BLM BS<br>State: Candidate, ONHP List 1 |
| Short-lobed Beardtongue<br>*Penstemon seorsus* | Federal: BLM BT<br>State: ONHP List 4 |
| Short-seeded Waterwort<br>*Elatine brachysperma* | Federal: BLM BA<br>State: ONHP List 2 |
| Spinescent Flameflower<br>*Talinum spinescens* | Federal: BLM BA<br>State: ONHP List 2 |
| Stiff Clubmoss<br>*Lycopodium annotiunum* | Federal: BLM BT<br>State: ONHP List 4 |
| Suksdorf Campion<br>*Silene suksdorfii* | Federal: BLM BT<br>State: ONHP List 4 |
| Tall Agoseris<br>*Agoseris elata* | Federal: USFS Sensitive Species, BLM BA<br>State: ONHP List 2 |
| Tall Collomia<br>*Collomia larsenii* | Federal: BLM BT<br>State: ONHP List 4 |

**Table 4, continued…**

| **Species** [1] | **Status** [2] |
|---|---|
| Water lobelia<br>*Lobelia dortmanna* | Federal: USFS Sensitive Species<br>State: ONHP List 2 |
| Watson Desert-parsley<br>*Lomatium watsonii* | Federal: USFS Sensitive Species, BLM BA<br>State: ONHP List 2 |
| Woven-spore Lichen<br>*Texosporium sancti-jacobi* | Federal: Species of Concern, BLM BA<br>State: ONHP List 2 |

Notes:

1 Species names in **bold** indicate federally or state-listed threatened and endangered species.

2 List status:

Federal:

U.S. Fish and Wildlife Service (USFWS) status:

- Endangered = in danger of becoming extinct within the foreseeable future throughout all or a significant portion of its range
- Threatened = likely to become endangered in the foreseeable future
- Candidate = candidate for federal listing
- Species of Concern = federal species of concern

U.S. Forest Service (USFS) status:

- Sensitive Species = Region 6 Forester's Sensitive Species List, updated July 2004

U.S. Bureau of Land Management (BLM) special status species documented or suspected in Prineville BLM district; list updated March 2005:

- BLM BA = Bureau Assessment Species; species on ONHP List 2 or on the Oregon List of Sensitive Wildlife Species and are not a federal candidate, state-listed, or BLM sensitive species
- BLM BS = Bureau Sensitive Species; species eligible for federal listing, federal candidate, state listing or state candidate, or on ONHP List 1
- BLM BT = Bureau Tracking Species; species on ONHP List 3 or 4
- BLM T = federal and/or state-listed threatened species

State:

Oregon Department of Fish and Wildlife status:

- Sensitive Undetermined Status = species for which status is unclear
- Sensitive Vulnerable = species for which listing as threatened or endangered is not imminent and can be avoided through protective measures
- Sensitive Critical = species for which listing as threatened or endangered is pending or warranted if immediate conservation measures are not taken
- Sensitive Peripheral = species on the edge of their range in Oregon

Oregon Department of Agriculture status:

- Threatened = species likely to become endangered within the foreseeable future
- Candidate = species for which there is sufficient information to support a proposal to list as threatened or endangered.

Oregon Natural Heritage Program (ONHP) status:

- List 1 = species threatened with extinction or presumed to be extinct throughout their entire range
- List 2 = species threatened with extirpation or presumed to be extirpated from the state of Oregon
- List 3 = species for which more information is needed before status can be determined, but which may be threatened or endangered in Oregon or throughout their range
- List 4 = species that are of conservation concern but are not currently threatened or endangered

Fish:

Bull Trout

Bull trout (*Salvelinus confluentus*) became federally listed as a threatened species throughout Oregon in 1998. Five distinct populations of bull trout have been identified in the Deschutes River basin, including three in the Metolius River basin upstream of the Project and two in tributaries to the lower Deschutes River downstream of the Project. Bull trout from the Metolius River population migrate downstream to rear in Lake Billy Chinook, and mature bull trout return to the Metolius River basin to spawn. Kokanee (*Oncorhynchus nerka*), which are abundant in the reservoir, provide an important food source for the rearing juvenile, sub-adult and post-spawning adult bull trout.

**Bull trout from Lake Billy Chinook.**

Ongoing cooperative research, protective regulations, and habitat protection and enhancement since the mid-1980s have enabled the bull trout population in Lake Billy Chinook to recover from previously low levels, and Lake Billy Chinook currently supports a healthy bull trout population and popular bull trout fishery. Even with the recent federal listing of bull trout as a threatened species, the USFWS is allowing a consumptive fishery in Lake Billy Chinook to continue under supervision of ODFW because of the overwhelming evidence that this population is robust and productive.

Bull trout are rare in Lake Simtustus, and those present apparently enter the reservoir from Lake Billy Chinook upstream. Currently, there is no upstream passage, so these bull trout are unable to move to their cold-water spawning areas in the upper Metolius River basin.

Bull trout are not abundant in the lower Deschutes River, and those observed are foraging adults and subadults from populations in Shitike Creek and the Warm Springs River. Bull trout from these two populations are found at low densities from Sherars Falls at approximately River Mile (RM) 44 upstream to the Reregulating Dam (RM 100). Maturing adult bull trout ascend these two tributaries during summer and spawn in the upper reaches of these streams where the water is cold during late August and September. No legal sport harvest for bull trout in the lower Deschutes River has been allowed since 1994.

In its November 2004 Biological Opinion, the USFWS listed the effects of the Project under the previous license (i.e., prior to reinitiation of fish passage and implementation of other protection and mitigation measures) as including lack of fish passage (leading to isolation of upstream and downstream populations and preclusion of genetic exchange), injury and mortality due to entrainment at the Project's unscreened turbine intakes, reduced bull trout prey due to kokanee entrainment, and water quality effects from altered temperature, DO, and nutrient regimes in the Project reservoirs and in the lower Deschutes River. In its Biological Opinion, USFWS concluded that the Project is not likely to jeopardize the continued existence of the bull trout.

Steelhead

Steelhead (*O. mykiss*) enter the lower Deschutes River from June through October and pass Sherars Falls from July through October. Steelhead spawn annually in the mainstem lower Deschutes River and tributaries, including the Warm Springs River, Shitike Creek, and others. Before construction of the Project, steelhead were also found in the Deschutes River upstream to Steelhead Falls (RM 128), in Squaw Creek, and in the Crooked River system. The termination of passage in 1968 (based on the finding that a number of factors were making it difficult for downstream-migrating juvenile fish to navigate their course through Lake Billy Chinook) eliminated steelhead spawning in these upper-basin locations. Following the decision to terminate fish passage, PGE constructed the Round Butte Hatchery at the base of Round Butte Dam to mitigate for the lost natural production of spring-run chinook and summer-run steelhead upstream of the Project. The mitigation goal for steelhead, an annual average run of 1,800 into Pelton Fish Trap, was achieved quickly.

**Deschutes River wild steelhead.**

The steelhead in the lower Deschutes River are part of the Mid-Columbia River (MCR) steelhead Evolutionarily Significant Unit (ESU). The MCR steelhead ESU was listed as threatened on March 25, 1999. In 2005, NOAA Fisheries added to this ESU over 100 hatchery populations and resident populations of *O. mykiss*, including the Round Butte Hatchery population, based on NOAA Fisheries' determination that the hatchery population is genetically no more than moderately divergent from the natural populations.

NOAA Fisheries' Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Consultation for the Pelton Round Butte Project (February 2005) identified the loss of access to historical spawning and rearing habitat, and inundation of nearly 41 miles of rearing habitat, as the primary impact the Project has had on MCR steelhead. In its Biological Opinion, NOAA Fisheries determined that the Project is not likely to jeopardize the continued existence of the steelhead.

Wildlife:

Bald Eagle

One listed threatened or endangered wildlife species, the bald eagle (*Haliaeetus leucocephalus*), has been documented in the Project vicinity. The Project vicinity supports both resident and migrant bald eagles, and a number of relicensing studies were conducted to understand the Project-area resources and habitats used by these populations for nesting, roosting, and foraging. The number of bald eagle breeding pairs in the vicinity of Lake Billy Chinook has increased from three to eight since 1989. Migrant bald eagles also use the area during the fall and winter months, and peak counts of bald eagles at Lake Billy Chinook in late winter ranged from 17 to 215 between 1989 and 2002.

**Bald eagle nest near Lake Billy Chinook.**

Although construction activities can disturb occupied bald eagle nests when these activities occur within proximity to the nests, the USFWS, in its 2004 Biological Opinion, stated that relicensing and continued operation of the Project is not likely to adversely affect bald eagles. The USFWS's conclusion was based on several key facts, including the following:

- None of the activities associated with operation of the Project under the new license will have significant direct or indirect adverse effects on bald eagles in the area.
- No construction activities are proposed within several miles of any existing bald eagle nests or roost sites.
- Fish and waterfowl species that bald eagles rely on as forage will not be adversely affected by proposed actions associated with the relicensing.
- Recreation, public access, and travel access will be managed to minimize potential impacts to bald eagles.
- The status of bald eagles in the Project area will be monitored during the new license term by bald eagle nesting production surveys, communal roost surveys, and winter use surveys.
- Information from studies conducted under the TRMP will be used to adapt terrestrial management activities to ensure that resource goals for terrestrial species, including the bald eagle, are fully achieved.

Other Species:

The Aleutian Canada goose (*Branta canadensis leucopareia*), identified through literature reviews as potentially occurring in the Project area, is also federally listed as threatened and state listed as endangered; however this species has never been observed at the Project despite extensive, multi-year winter waterfowl surveys that have been conducted in the area. Therefore, this species is not considered to be subject to Project-related adverse effects. Similarly, the peregrine falcon (*Falco peregrinus*) potentially migrates through the vicinity of the Project reservoirs in winter, spring and fall, but has not been observed at the Project. The peregrine falcon was removed from the federal list of endangered species in August 1999 but remains state listed as endangered. As with the Aleutian Canada goose, the peregrine falcon is therefore not considered to be subject to Project-related adverse effects.

Plants:

Surveys for TES species on Licensee-owned winter range and on lands adjacent to the Project reservoirs located several TES species; however, none of the species are listed as threatened or endangered. Peck's Milkvetch (*Astragalus peckii*) was identified through literature reviews as potentially occurring in the Project area, but this species has not been documented to occur at the Project, so is unlikely to be adversely affected by the Project.

*Measures to Protect Threatened and Endangered Species*

FERC engaged in full Section 7 consultation with the Services under Section 7 of the Endangered Species Act, and the agencies each issued Biological Opinions including incidental

take statements and associated reasonable and prudent measures pertaining to bull trout and steelhead (the two threatened or endangered species considered to be experiencing adverse Project-related impacts), respectively.

The USFWS Biological Opinion concluded that relicensing of the Project under the terms proposed in the Settlement Agreement is not likely to jeopardize the continued existence of bull trout based on several considerations, including the fact that Deschutes River basin bull trout populations upstream and downstream of the Project will be reconnected by implementation of fish passage. The USFWS noted that several measures to be implemented under the Settlement Agreement — including implementing fish passage, eliminating turbine entrainment, increasing rearing habitat, minimizing Project effect on the lower Deschutes River, implementing habitat restoration projects that benefit bull trout, and performing scientific studies to ensure that mitigation measures achieve their intended benefits — are intended to potentially reduce the present level of take and contribute to bull trout recovery. The USFWS also noted that reconnecting separated populations is a significant goal of the USFWS's Bull Trout Draft Recovery Plan. The reasonable and prudent measures being undertaken (or to be undertaken) by the Licensees in accordance with the USFWS Biological Opinion incidental take statement are as follows:

- Implementing all PME measures identified in the Settlement Agreement and its attachments that avoid or minimize effects to bull trout.
- Using the best available science to adaptively manage Project operation, maintenance, and construction activities to avoid or minimize effects to bull trout during the period of the new Project license.

NOAA Fisheries in its Biological Opinion concluded that relicensing of the Project under the terms of the Settlement Agreement would not be likely to jeopardize the continued existence of MCR steelhead. NOAA Fisheries noted that there will be continuing adverse impacts to MCR steelhead, including 1) continuation of the Project, resulting in the loss of some spawning and rearing habitat caused by the reservoirs, the potential for delay, injury or mortality associated with fish passage and associated studies and monitoring; and 2) some harassment or injury resulting from instream construction activities associated with habitat enhancement projects. Nevertheless, NOAA Fisheries determined that these effects are reduced to levels that are not likely to reduce the functioning of already impaired habitat or retard the progress of impaired habitat towards properly functioning conditions, given the following considerations:

- Reintroducing MCR steelhead to historical habitat above the Project should improve the viability of the Deschutes River basin population through increased distribution and production.
- Implementation of passage structure and activities designed to achieve a long-term juvenile and adult passage survival standard of 75 percent and 98 percent, respectively, should ensure the success of the fish passage program.
- Operation of the SWW facility will improve water quality in the Project's reservoirs and the lower Deschutes River.

- The proposed ramping rates, new flow gages, and minimum flows will protect steelhead spawning and rearing habitat in the Lower Deschutes River.
- The Gravel Augmentation Study, Large Wood Management Program, and Trout Creek Enhancement project, coupled with habitat and water conservation projects completed through the Pelton Round Butte Fund, should result in a low likelihood of the Project reducing the functioning of downstream spawning and rearing habitat. In addition, habitat and water conservation projects carried out through the Pelton Round Butte Fund will advance the reestablishment of MCR steelhead above the Project by improving spawning and rearing habitat.

The reasonable and prudent measures being undertaken (or to be undertaken) by the Licensees in accordance with the NOAA Fisheries Biological Opinion incidental take statement are as follows:

- Carrying out all protection, mitigation, and enhancement measures identified in the Settlement Agreement and its attachments that avoid or minimize effects to MCR steelhead.
- Using the best available science to adaptively manage Project operation, maintenance, and construction activities to avoid or minimize effects to MCR steelhead during the period of the new Project license.

The relevant requirements of the two Biological Opinions are included in the FERC license, which also includes a Threatened and Endangered Species Protection Plan (Article 440). This plan, which was prepared in consultation with resource agencies and filed with FERC in December 2005, establishes a schedule for implementation of all reasonable and prudent measures in the Biological Opinions.

The Licensees are in compliance with the FERC license, the Biological Opinions, and the reasonable and prudent measures incorporated into the license, and thus are meeting all requirements toward minimizing adverse impacts on threatened or endangered species. In addition, reinitiation of fish passage at the Project will meet a significant goal of the USFWS's Bull Trout Draft Recovery Plan by reconnecting separated bull trout populations.

**Summary**

The Project's impacts on threatened and endangered species have been fully addressed through consultation pursuant to Section 7 of the Endangered Species Act. Both the USFWS and NOAA Fisheries have issued biological opinions, including incidental take statements, and the Project is operating pursuant to the terms of those opinions, as incorporated into the new license.

## F. Cultural Resource Protection

Question: *If FERC-regulated, is the Facility in Compliance with all requirements regarding Cultural Resource protection, mitigation or enhancement included in the FERC license or exemption?* Answer: Yes

Goal: The facility does not inappropriately impact cultural resources.

Standard: Cultural resources must be protected either through compliance with FERC license provisions, or, if the project is not FERC regulated, through development of a plan approved by the relevant state, federal, or tribal agency.

Description of compliance with standard: The Project complies with the standard for this criterion through the Pelton Round Butte Project Cultural Resources Management Plan (CRMP), which was approved by FERC, and the Programmatic Agreement (PA) entered into by FERC, the Advisory Council on Historic Preservation (ACHP), the Oregon State Historic Preservation Officer (SHPO), and the Warm Springs Tribal Historic Preservation Officer (THPO). Background and descriptive information on the CRMP and PA is provided below.

The management of historic properties (including archaeological, historic, and traditional use sites) within the Project area is the responsibility of a diverse array of federal, tribal, and state agencies, as well as the Project Licensees. During the consultation process for the license application and in the course of settlement negotiations, the Licensees developed (in cooperation with the appropriate federal, tribal, and state land management agencies) the CRMP for the Project, a final version of which was submitted as a component of the Settlement Agreement.

**Tule harvest, a traditional activity for the Warm Springs Tribes, on Project wildlife lands.**

The CRMP is a management tool to facilitate responsible stewardship of cultural resources in the Project area, particularly historic properties eligible for listing in the National Register of Historic Places (NRHP) and protected under Section 106 of the National Historic Preservation Act (NHPA) and other Federal and Tribal regulations. The overall purpose of the CRMP is to serve as a procedural guide for the Licensees' staff to follow in the management of cultural resources and the conduct of consultation in compliance with Section 106 of the NHPA, and to define a program for mitigating potential effects of the Project on historic properties. The objective of the CRMP is to ensure that NRHP-eligible or potentially eligible historic properties are protected from the adverse effects of any Project undertaking in the area of potential effect (APE), which includes lands within the Project boundary and lands outside the Project boundary that are subject to effects from Project-related activities.

The PA for managing historic properties that may be affected by the continued operation of the Project was executed on December 6, 2004, by FERC, the ACHP, SHPO and THPO. Article 432 of the new license requires the Licensees to implement the PA, which includes implementing the CRMP for the Project. Implementation of the PA provides protection for all known and any subsequently discovered historic properties located within the Project boundary and satisfies FERC's responsibilities under Section 106 of the National Historic Preservation Act.

Major elements of the Pelton Round Butte Project CRMP that will be implemented throughout the term of the new license include the following:

- *Consultation and coordination with agencies and Tribes* — Consultation will be conducted to inform agencies and the Tribes of current or future Project actions that may affect historic properties on non-Project lands within the APE, define mitigation for the adverse effects of these activities (if any), and establish roles and responsibilities.
- *Avoidance of anticipated Project effects* — Proposed projects and changes to Project operations that affect historic properties will be reviewed by the Licensees' Cultural Resources Coordinator (CRC), who will work with Project operations staff to move or modify the proposed action to avoid these sites, where feasible.
- *Mitigation of Project effects* — If NRHP-eligible prehistoric or historic archaeological sites cannot be avoided or protected from ongoing Project effects or projects planned during the license period, the Licensees will implement site protection measures and/or data recovery investigations to mitigate adverse effects, in consultation with the appropriate tribes, agencies, SHPO, THPO, and other interested parties.
    - *Preservation in place through site protection* — In general, if an NRHP-eligible property or unevaluated site cannot be avoided but can be preserved in place by protecting the site from adverse project effects, this alternative will be followed.
    - *Mitigation of adverse Project effects through data recovery* — If NRHP-eligible properties cannot be avoided by or protected from ongoing or planned projects, the Licensees will mitigate adverse project effects through data recovery

excavations and investigations to recover a substantial sample of the scientific data contained in the site.

- *Monitoring archaeological resources potentially affected by the Project* — The Licensees will coordinate a monitoring program of NRHP-eligible and unevaluated historic properties in the Project APE with responsible state and federal land management agencies and the Tribes to identify any adverse effects in order to guide plans for protection or mitigation.
- *Site evaluation testing program* — For unevaluated sites, the Licensees will test all high- and medium-priority sites (a total of 16 sites) to determine NRHP eligibility within six years of license issuance. Third priority sites (those least likely to experience adverse Project-related effects) will be evaluated if projects that may adversely impact the site are proposed, or if site condition monitoring identifies ongoing adverse Project effects.
- *Minimization of vandalism* — The Licensees will work to minimize looting and vandalism through several programs, and will coordinate and cooperate with other agencies in their anti-vandalism programs. The Licensees will restrict access to known historic properties, to the extent that restricting access is compatible with other resource plans and is within their control. In addition, the Licensees will train appropriate staff to recognize evidence of vandalism and the correct procedures to follow upon its discovery. Finally, the Licensees will support additional law enforcement personnel who will be trained to recognize signs of looting and vandalism and will be trained in procedures for reporting such vandalism.
- *Confidentiality policy* — Potentially sensitive information on historic property locations and contents will be released only on a "need to know" basis.
- *Programs for enhancement of culturally important resources* — The Licensees will work with the Tribes, the other land managing agencies, and private landowners to enhance habitat for fish and native animals and plants of cultural importance in the Project area.
- *Cultural Resources Annual Report* — Each year the CRC will prepare an Annual Report on Cultural Resources to provide the federal land management agencies, THPO, and SHPO with information regarding historic property management at the Project.
- *Interpretation and education opportunities* — The Licensees will work with the land managing agencies to develop an interpretation and education plan and to develop opportunities for increasing public awareness and appreciation of cultural resources in the Project area.
- *Staffing and training* — As part of the ongoing program to manage historic properties in the Project APE, the Licensees will maintain on staff a designated CRC to be responsible for the following duties:
  - Reviewing activities that may affect historic properties or unevaluated sites
  - Conducting consultation

- Monitoring archaeological, historical, and traditional use sites and mitigation measures
- Coordinating the ongoing Site Evaluation Testing Program
- Coordinating cultural resource training for Project staff, subcontractors, and law enforcement officers
- Coordinating interpretive efforts

In addition, the Licensees will ensure that all managers, field crews, consultants, and construction or maintenance contractors are adequately informed about cultural resource management issues and the legal requirements for cultural resource management. Training will be provided, as appropriate, for identified staff.

**Summary**

The Project is in compliance with all requirements regarding cultural resource protection. These requirements are contained in a FERC-approved Cultural Resources Management Plan, and a Programmatic Agreement between FERC, the Advisory Council on Historic Preservation, the State Historic Preservation Officer, and the Tribal Historic Preservation Officer.

## G. Recreation

Question: *If FERC-regulated, is the Facility in Compliance with the recreational access, accommodation (including recreational flow releases) and facilities conditions in its FERC license or exemption?* Answer: Yes

*Does the Facility allow access to the reservoir and downstream reaches without fees or charges?* Answer: Yes

Goal: The facility provides free access to the water and accommodates recreational activities on the public's river.

Standard: A certified facility must be in compliance with terms of its FERC license or exemption related to recreational access, accommodation and facilities. A certified facility must also provide the public access to water without fee or charge.

Description of compliance with standard: The Project is in compliance with this standard, as described below. The Licensees are in compliance with the Recreation Resources Implementation Plan (RRIP) required by the Settlement Agreement and the new license, and public access is available to all Project impoundments without charge, where consistent with safety requirements.

Recreation resources in the Project area are extensive and varied. The Project itself is one of the most heavily used recreation resources in central Oregon. The Project provides a wide variety of recreational activities, including water-based activities such as boating, jet skiing, waterskiing, fishing, and swimming, and land-based activities such as camping, wildlife viewing, hiking, sightseeing, and biking. Recreation opportunities at the Project are provided by both developed facilities, such as campgrounds and day-use sites, and undeveloped sites and use areas, such as dispersed shoreline camping areas with no developed infrastructure. Recreation resources in the Project vicinity are managed by a variety of public, Tribal, and private entities, including the U.S. Bureau of Land Management (BLM), the U.S. Forest Service (USFS), the Oregon Parks and Recreation Department, the Licensees, and other private land owners and recreation providers. Public access to the Project reservoirs is provided without charge, though there may be user fees for facilities such as USFS campgrounds.

Recreational use at the Project increased significantly during the term of the original license. To ensure that infrastructure and resource protection measures are adequate to meet the existing and anticipated demand for recreational access to the Project through the new license term, the Settlement Agreement provided for, and the subsequent FERC license required, the Licensees to develop a Recreation Resources Implementation Plan (RRIP) within one year of license issuance to define the Licensees' responsibilities for implementing recreation improvements and monitoring their use over the term of the new license. All aspects of the RRIP were developed in consultation with federal, state, and Tribal governments. The RRIP was filed on June 21, 2006, and is being implemented by the Licensees.

**Houseboat on Lake Billy Chinook.**

As contemplated in the Settlement Agreement, the comprehensive recreation improvements provided for in the RRIP are consistent with other resource management plans (as described above under section D, Watershed Protection), without increasing recreation use of Project impoundments. In general, planned measures specified under the RRIP include improving recreational resources at existing recreational sites around the Project, improving accessibility as required by the Americans with Disabilities Act, partially funding operation and maintenance costs at recreational facilities operated by the state and USFS, evaluating whether navigational hazards in the reservoirs should be marked or removed, studying the need for improvements in emergency communications, improving annual maintenance at certain dispersed recreation sites, and providing funding for additional law enforcement in the Project area. These obligations are further formalized by a series of articles in the new license. In its Final Environmental Impact Statement for the relicensing of the Project, FERC concluded that these proposed recreational enhancement measures would be beneficial because they would address a back-log of maintenance needs and the RRIP would provide a framework to ensure that public use of the Project's recreational facilities remains consistent with the resource objectives of the resource and land management agencies.

As part of the Settlement Agreement, the Licensees also provide financial support for non-Project recreational facilities that serve as alternative destinations away from the Project. Specifically, the Licensees are contributing funding to the USFS for infrastructure maintenance or improvements at Haystack Reservoir, located approximately 12 miles from the Project, and to the BLM to implement site improvement measures at several BLM-managed recreation sites on the lower Deschutes River. Also as part of the Settlement Agreement, the Licensees are funding

road maintenance activities on Jefferson County roads affected by Project-generated traffic (including recreation-related traffic).

As noted above and described in more detail in section D (Watershed Protection), potential recreation impacts on other resources, such as wildlife, habitat and cultural resource sites, will be controlled through the Licensees' law enforcement agreement with Jefferson County, through which funding will be provided for County law enforcement officers to patrol all recreation sites and areas within the Project.

**Licensee-owned and -operated Pelton Park, on Lake Simtustus.**

## Summary

The Licensees are in compliance with the provisions of the Settlement Agreement pertaining to recreational access, accommodation and facilities and provide public access to the water without fee or charge. The requirements of the Settlement Agreement have been incorporated into the terms of the new license and the Project is now operating in compliance with those terms.

**H. Facilities Recommended for Removal**

Question: *Is there a Resource Agency Recommendation for removal of the dam associated with the Facility?* Answer: No

Goal: To avoid encouraging the retention of facilities that have been considered for removal due to their environmental impacts.

Standard: If a resource agency has recommended removal of a dam associated with the facility, certification is not allowed.

Description of compliance with standard: All parties to the Settlement Agreement agreed that the Project should receive a 50-year license from FERC, and that Project removal or decommissioning was not appropriate. Therefore, the Project meets the standard for this criterion.