



Final

**Bull Trout Genetics Monitoring Plan for the Wallowa Falls
Hydroelectric Project**

(FERC No. P-308)

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1.0 INTRODUCTION

The Oregon Department of Environmental Quality (DEQ) issued a new 401 Water Quality Certification for the Wallowa Falls Hydroelectric Project (Project) March 31, 2016. Elements within the new 401 Water Quality Certificate that pertain to fishery resources were triggered when the Federal Energy Regulatory Commission issued a new operating license for the Project January 7, 2017. Section 4(a) of the 401 permit states *“The Licensee shall conduct periodic monitoring to assess the rate of brook trout introgression in the bull trout population residing in the East Fork and West Fork. Within six (6) months of issuance of a new license, the Licensee shall consult with ODFW, USFWS, and USFS to specify the goals, objectives, protocols and schedule for the monitoring program.”*. Section 4(a) of the permit goes on to say *“Repeat the above monitoring, assessment and reporting 15 years after license issuance. The final report shall provide a comparison of the results among pre-license information, year two (2) and year 15 results.”*

Resident and migratory bull trout (*Salvelinus confluentus*) and brook trout (*Salvelinus fontinalis*) currently inhabit the West Fork and East Fork Wallowa rivers (Study Area) at varying densities, depending on time of year. Past surveys of the Study Area and subsequent lab analysis of tissue sampled from bull trout captured therein have revealed introgression of non-native brook trout genes into the native bull trout population, with the current level of hybridization unknown.

This Plan and the information contained within, along with the necessary implementation schedule, fulfill Consulting requirements contained in Section 4(a) of the DEQ issued 401 Water Quality Certificate as well as actions necessary to assess the License year 2 rate of brook trout genetic introgression into bull trout residing within Project affected waters. This rate will be revisited in License year 15 and compared to all other data collected at that time.

2.0 STUDY AREA

The bypassed portion of the East Fork Wallowa River within and near the Project area is approximately 2,800 meters (m) long from the Project diversion dam to its confluence with the West Fork Wallowa River. Gradient in this reach is high, with the upper 1,600 m averaging 19 percent and the lower 1,200 m averaging 8.5 percent. Channel morphology within most of the upper reach is dominated mainly by steep bedrock, vertical waterfalls, and cascades over boulders; though the upper reaches are steep, the lower 800 m to the confluence with the West Fork is a shallower gradient consisting of numerous riffles and pools. Over the course of its length, the bypassed East Fork Wallowa River drops approximately 365 m from the dam to the confluence with the West Fork Wallowa River. The upper and lower portions are divided by a 3.7 m vertical falls, an impassible upstream migration fish barrier.

The West Fork Wallowa River from its confluence with Wallowa Lake to an impassible upstream fish migration falls is approximately 2,400 m in length with an average wetted-width of 15 m. The West Fork Wallowa is a high-energy, high velocity river with substrate dominated by large boulders, cobble, and gravel.

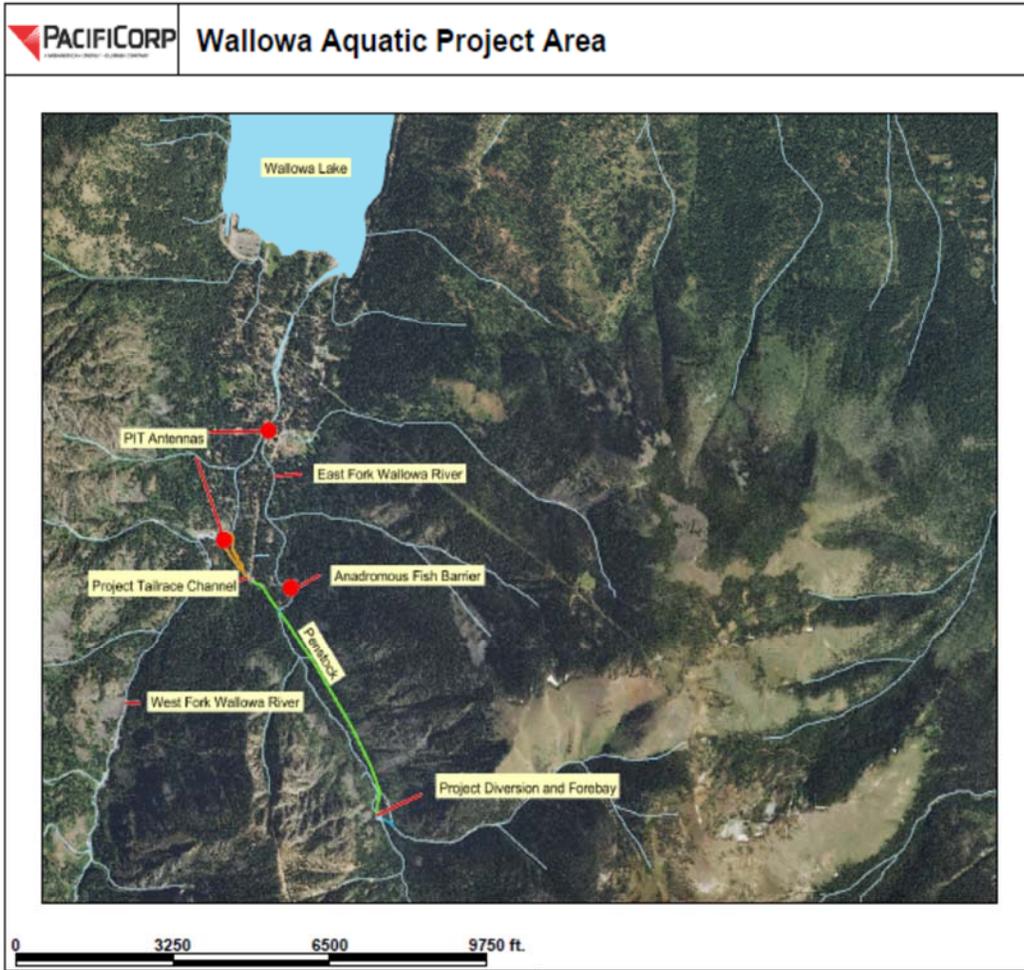


Figure 2.0.1 Wallowa Falls Hydroelectric Project.

3.0 METHODS

Section 4(a)(i) of the 401 Water Quality Certificate states “*Within two (2) years of issuance of a new license or in 2018, whichever is first, perform monitoring which includes electrofishing the East Fork and West Fork in July or August to collect no less than 30, but no more than 50, bull trout. Measure and record the length, weight, and capture location of each bull trout. Remove a 0.75 by 0.75 cm tissue sample from the caudal fin of all bull trout captured for genetic analysis.*”

To that end, a Smith-Root LR-24 (or similar model) backpack electrofisher shall be utilized to capture bull trout in the East and West Fork Wallowa rivers in July of 2018. Two biologists shall electrofish the anadromously accessible portion of the East Fork Wallowa River below the water fall barrier as well as the margins of the anadromously accessible portion of the West Fork Wallowa River also below its anadromous fish barrier. The survey shall begin in the lower portion of each river reach and proceed in an upstream fashion, employing single pass electrofishing techniques. The backpack electrofisher will be set to Direct Current (DC) and applied at the lowest voltage setting possible to minimize stress and or mortality yet still allow capture of bull trout. All electrofishing activities will follow protocols as set forth in the National Marine Fisheries Service Backpack Electrofishing Guidelines (NMFS 2000).

To remain compliant with stipulations contained within the USFWS issued Biological Opinion, PacifiCorp shall also ensure that fish capture operations are conducted by a qualified biologist, and that all staff participating in the operation have the necessary knowledge, skills, and abilities to ensure safe handling of fish. All captured fish will be held in five gallon buckets with aerators until liberation back into stream point of capture. Fish capture operations shall take all appropriate steps to minimize the amount and duration of handling. The operations shall maintain captured fish in water to the maximum extent possible during capture and handling to prevent and minimize stress. Capture activities shall only occur if stream temperatures are at or below 15° Celsius.

Prior to liberation, bull trout will be quantified, weighed, and measured to their caudal fork. A small tissue sample will be taken from the upper lobe of the caudal fin and stored in uniquely marked ethanol filled vials for later transport to a genetics lab. General location within the stream will also be recorded for each bull trout capture. The goal of these activities will be to collect at minimum thirty samples, with an upper target of no more than fifty. Multiple survey days may be necessary if the minimum goal is not readily achieved. In order to minimize sampling of related individuals, if numerous like-sized bull trout (i.e. fry) are captured within a small spatial area (i.e. 5 m²), then only one to two genetic samples will be taken from this cohort. Multiple siblings within the capture sample will skew representation of available genetic diversity, especially within the given small sample size.

Upon completion of capture and sampling activities, all tissue samples will be sent to a genetics lab for analysis of identification to species, as well as rate, if any, of brook trout genetic introgression within the given sample.

4.0 REPORTING

Section 4(a)(iii) of the DEQ issued 401 Water Quality certificate states “*Within six (6) months of completion of genetic analysis, provide a draft written report of the results to ODFW, USFWS, and USFS including relative abundance, distribution and condition of bull trout captured. The report should compare results of genetic analysis to pre-License information on the status of bull trout genetics and brook trout introgression. Allow agency stakeholders 30 days to review the draft report, provide a revised report that addresses all agency stakeholder comments or explains why comments are not addressed.*”

PacifiCorp shall provide a Final Report of actions contained within this Plan, detailing 401 certificate specified data, six months after completion of genetic analysis.

5.0 CITATIONS

National Marine Fisheries Service. 2000. National Marine Fisheries Service Backpack Electrofishing Guidelines.

Oregon Department of Environmental Quality. 2016. 401 Water Quality Certification for the Wallowa Falls Hydroelectric Project.

United States Fish and Wildlife Service. 2016. Biological Opinion for the Wallowa Falls Hydroelectric Project.

APPENDIX A
AGENCY COMMENTS

AGENCY	COMMENT	UTILITY RESPONSE
USFWS, ODFW & USDA-FS	The Genetics plan, as written, fails to include all requirements of the ODEQ 401 Water Quality Certificate Condition 4. Under the ODEQ 401 Condition 4 requirements, the monitoring is to be repeated 15 years following license issuance. The plan should indicate that the monitoring will be repeated and that PacifiCorp will produce a report that compares all genetics data (pre-license, 2-year, and 15-year) and brook trout introgression. The Service recommends that the Genetics Plan be revised to include all of the requirements of ODEQ’s 401 Certificate Condition 4.	Comment noted, Plan reflects changes made to include language concerning repeating study in License Year 15 and also at that time comparing all data collected to date.
USFWS & USDA-FS	Section 2 of the plan discusses the East Fork and West Fork in terms of “anadromously” accessible portions. Bull trout in this system are not anadromous, but are resident and fluvial. The plan should discuss the barriers in terms that are appropriate for bull trout.	Being there are no standardized, defined parameters concerning barrier dimensions and bull trout accessibility, lab defined dimensions with concern to pool depth and jump height for anadromous salmonids such as Chinook, coho, and steelhead have been adopted to convey context of whether or not a defined barrier would or would not also be a barrier to bull trout (Bell, 1984 “Fisheries Handbook of Engineering Requirements & Biological Criteria”). In no way is PacifiCorp implying that bull trout found in this system are anadromous, the Plan is simply stating that if a barrier is defined as being inaccessible to other large anadromous salmonids then it is likely inaccessible to bull trout as well.