Final

Bull Trout Redd Monitoring Report for the Wallowa Falls Hydroelectric Project

East Fork Wallowa River barrier to upstream fish migration, photo courtesy of Kendrick Moholt

(FERC No. P-308)

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1.0 INTRODUCTION

The United States Fish and Wildlife Service (USFWS) issued a new Biological Opinion (BiOp) for the Wallowa Falls Hydroelectric Project (Project) on October 14, 2016. Monitoring elements within the new BiOp specifically pertaining to Endangered Species Act (ESA) listed bull trout (*Salvelinus confluentus)* were triggered when the Federal Energy Regulatory Commission (FERC) issued a new operating license for the Project on January 7, 2017.

The USFWS listed five reasonable and prudent measures (RPM) to be undertaken in order to minimize incidental take of bull trout by Project operations. Elements within this Plan pertain specifically to RPM 4 which seeks to "*minimize the risk of adverse effects to bull trout from emergency shut-down and ramping"*. Section 8.4 4(a) of the BiOp adds specific language and actions to be taken in order to achieve RPM 4.

Bull trout currently inhabit the East Fork Wallowa River (Study Area) at varying densities, depending on time of year. Past redd surveys of the Study Area have revealed bull trout actively constructing redds, while no bull trout redds have ever been observed within the neighboring West Fork.

This Report and the information contained therein fulfills reporting requirements per Section 8.4 4(a) of the USFWS issued BiOp as well as results pertinent to implementation of actions necessary to assess abundance and spatial distribution of bull trout redds within the East Fork Wallowa River.

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 Wallowa River (Figure 1). 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 Wallowa River has 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 Wallowa River. The upper and lower portions are divided by a 3.7 m vertical falls (Report cover photo), an impassible upstream migration fish barrier.

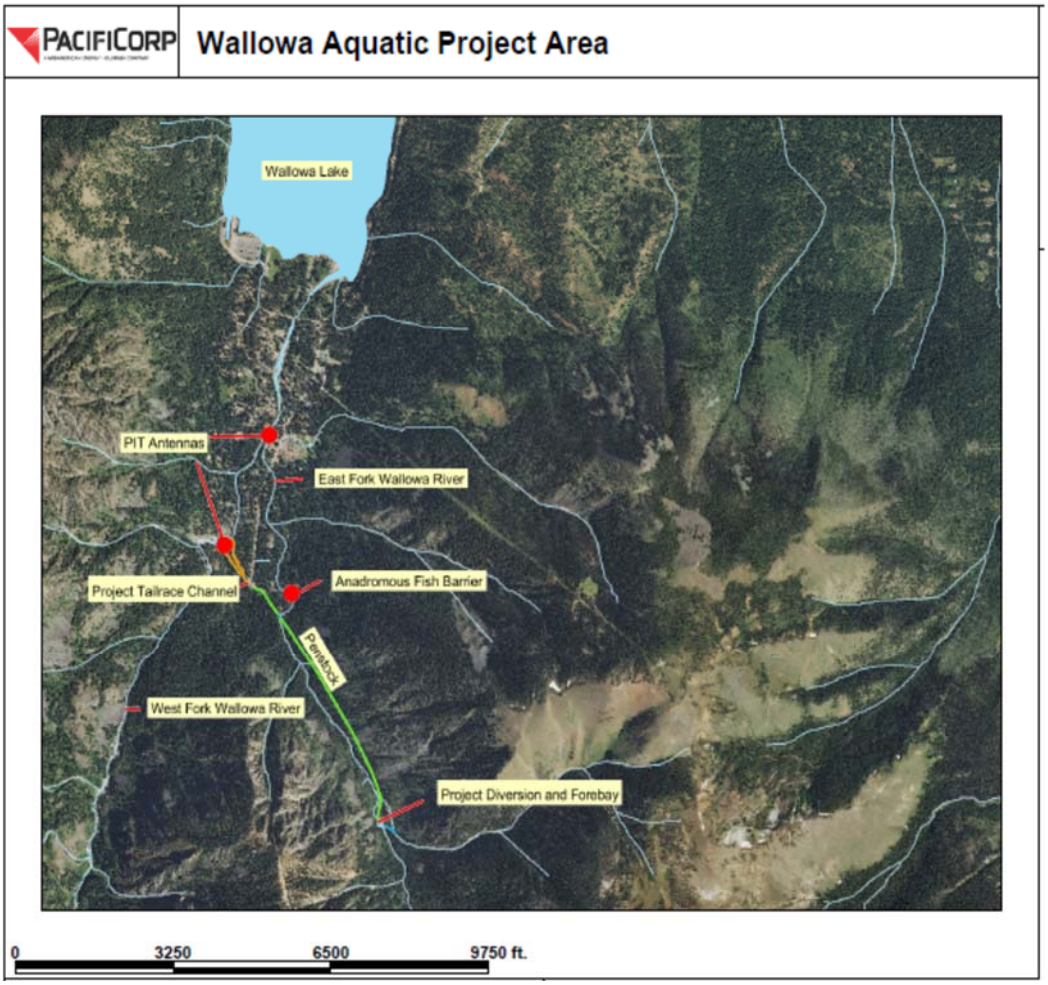

Figure 1. Wallowa Falls Hydroelectric Project.

3.0 METHODS

Section 8.4 4(a) of the BiOp states the following terms and conditions are necessary for the implementation of RPM 4, "*Conduct bull trout redd monitoring in the East Fork Wallowa River (from the upstream falls to the confluence with the Wallowa River) on an annual basis for 10 years to monitor take. FERC/PacifiCorp shall meet with the Service at the end of the 10 year period to determine whether additional years of redd monitoring are necessary GPS and map redds and photo document redds during survey. Measure the size of a redd and its location. Document bull trout observed (<6 inches in length, < 12 inches in length, <14 inches in length, and > 14 inches in length, while conducting redd count and document if bull trout occupy the redd). Note if brook trout are spawning with bull trout. Document flows during annual redd counts and during a shutdown and ramping. Conduct this redd monitoring in mid-September and October. If an emergency shutdown and ramping occurs during the spawning season, the East Fork Wallowa River spawning area will be field visited for any new redds built near the water's edge that could be dewatered due to shut down and ramping. Notify the Service of both positive and negative findings".*

Bull trout redd surveys of the lower portion of the East Fork Wallowa River began September 1, 2018 and continued weekly through October 30, 2018 for a total of nine redd surveys. During each survey the entire lower portion of the East Fork Wallowa River was walked by an experienced qualified biologist, from the confluence with the West Fork Wallowa River upstream 800 m to the migratory fish barrier. In order to standardize inherent observer error, the same experienced surveyor was utilized for all nine surveys in 2018. All encountered bull trout redds were demarcated by handheld GPS, flagged for visual reference within the stream, and photographs were taken of each redd. During subsequent surveys, previously identified redds were revisited and assessed for visibility. Flagging was either marked Still Visible along with the survey date if redd could still be visually identified, or the flagging taken down if the redd was no longer visible. Time taken for redd to no longer remain visible within the stream was recorded in order to assess redd life. Though the Planning document called for only four redd surveys during the spawning period, this being the second year of study and redd life still being characterized, nine surveys were performed in order to gain an accurate understanding of visual redd persistence within this watershed. Observed redd life will be utilized to adjust frequency of surveys moving forward.

All fish observed in the vicinity of identified redds were recorded to species if possible, as well as estimated for fork length.

4.0 RESULTS

Four bull trout redds were identified and marked by GPS during the nine redd surveys performed of the East Fork Wallowa River in 2018 (Figure 2). All four bull trout redds were large and indicative of being constructed by large migratory-sized fish (Table 1). One new bull trout redd was observed during each of the first four surveys (Sept. 1 – Sept. 24), no new redds were observed during the final five surveys (Oct. 2 – Oct. 30). All four observed redds had bull trout either on and actively constructing or in very close proximity to. Three of the four redds had a

pair (Figure 3), one male/one female, associated with the redd; while the fourth identified redd only had a single fish in close proximity (Table 1).

Table 1. East Fork Wallowa River bull trout redd data.

Date	Survey Location	Redd	Redd Dimension	Live bull trout				Survey Conditions
				<6 in.	<12 in.	<14 in.	>14 in.	
9/1/2018	EF Wallowa mouth to barrier	1	50 in. long 27 in. wide	0	0	0	3	Clear sky, Good H2O vis
9/8/2018	EF Wallowa mouth to barrier	2	72 in. long 39 in. wide	0	0	0	3	Clear sky Good H2O vis
9/16/2018	EF Wallowa mouth to barrier	3	42 in. long 20 in. wide	0	1	0	1	Clear sky Good H2O vis
9/24/2018	EF Wallowa mouth to barrier	4	79 in. long 37 in. wide	0	0	0	1	Clear sky Good H2O vis
10/2/2018	EF Wallowa mouth to barrier	0	n/a	0	0	0	0	Clear sky Good H2O vis
10/9/2018	EF Wallowa mouth to barrier	0	n/a	0	0	0	0	Light rain Good H2O vis
10/16/2018	EF Wallowa mouth to barrier	0	n/a	0	0	0	0	Clear sky Good H2O vis
10/25/2018	EF Wallowa mouth to barrier	0	n/a	0	0	0	0	Clear sky Good H2O vis
10/30/2018	EF Wallowa mouth to barrier	0	n/a	0	0	0	0	Overcast Good H2O vis

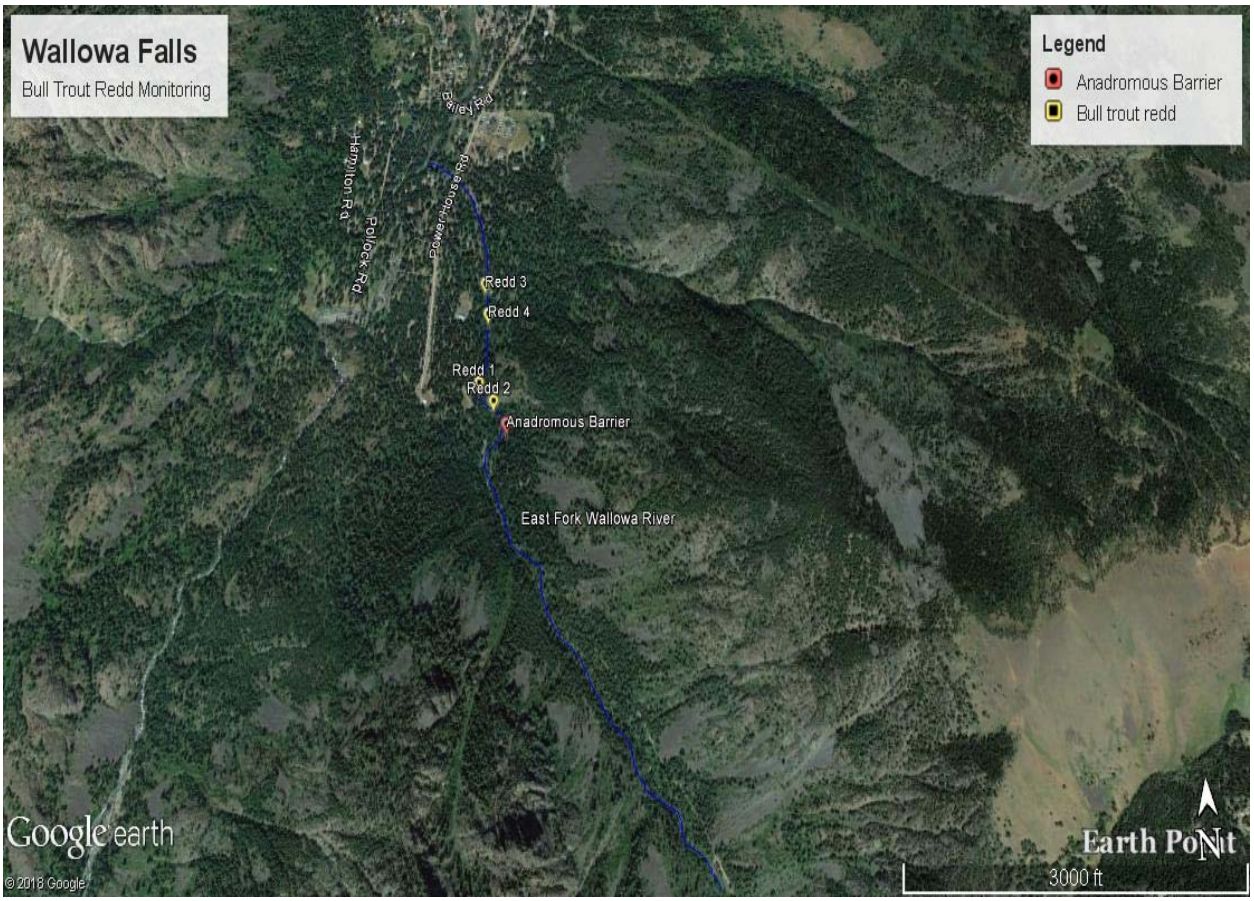

Figure 2. GPS marked locations (yellow dots, n=4) of bull trout redds within the East Fork Wallowa River

All four bull trout redds were in the upper portion of available habitat below the barrier, with the uppermost redd ~ 40 meters below the impassible falls. Redd 1 visually persisted for 45 days, redd 2 for 47 days, redd 3 for 39 days, and redd 4 for 22 days. No observed fish during any survey was identified as a brook trout (*Salvelinus fontinalis*). Flows during the survey period remained stable as measured at the United States Geological Service gage station, and never deviated below prescribed minimum flows for this portion of the year.

Three unit trips occurred during the bull trout spawning period in 2018. All three unit trips were less than four hours in duration before the unit was brought back on-line and ramped back up following prescribed ramping protocols. PacifiCorp made the real-time decision, based on professional judgment, that no emergency redd survey need be performed prior to the unit being brought back on-line when any outage is less than 24 hours in duration. PacifiCorp believes that 24 hours or less is not enough time for bull trout to pair up, stage on an area within the stream, construct a redd, and spawn successfully. Therefore, no emergency redd surveys of the bypassed portion of the East Fork Wallowa River due to a Wallowa Falls generator unit trip was observed during the August 1 – October 31 bull trout spawn timeframe.

In 2019 it is anticipated bull trout redd surveys will occur at the same rate, timeframe and duration as that observed in 2018.

Figure 3. Bull trout paired over the top of redd #3.

5.0 CITATIONS

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.