

VIA ELECTRONIC FILING

April 10, 2014

Kimberly D. Bose, Secretary  
Federal Energy Regulatory Commission  
Mail Code: DHAC, PJ-12  
888 First Street, N.E.  
Washington, D.C. 20426

**RE: Priest Rapids Hydroelectric Project No.2114-164  
License Compliance Filing – Article 401(a)(10) and (25) – Updated Bull Trout Monitoring  
and Evaluation Plan**

Dear Ms. Bose,

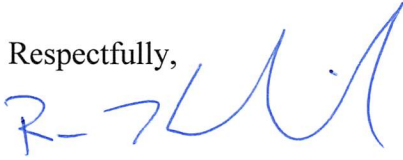
Please find enclosed the for the Federal Energy Regulatory Commission's (FERC) approval, Public Utility District No. 2 of Grant County, Washington's (Grant PUD) updated Bull Trout Monitoring and Evaluation Plan (BTMEP) consistent with the Requirements of Article 401(a)(10) and Article 401(a)(25) of the Priest Rapids Hydroelectric Project License and Appendix C, "Biological Objectives and Implementation Measures", of the Washington Department of Ecology 401 Water Quality Certification.

On June 4, 2009, the Federal Energy Regulatory Commission (FERC) issued an Order modifying and approving Grant PUD's Bull Trout Monitoring and Evaluation Plan. Under this Order, Grant PUD is required to file with FERC by April 17, 2014, an updated BTMEP. The plan is to include Grant PUD's monitoring and evaluation plan for the subsequent five-year monitoring period, including a description of any apparent trends in bull trout abundance or frequency of occurrences in the Priest Rapids Project and any technological or methodological advances that may allow evaluation of project effects on bull trout.

On February 20, 2014, Grant PUD prepared and disseminated the draft update BTMEP for a thirty day comment period to members of the Priest Rapids Fish Forum including the Washington Department of Ecology (WDOE), U.S. Fish & Wildlife Service (USFWS), Washington Department of Fish & Wildlife (WDFW), Colville Confederated Tribes, Yakama Nation, the Columbia River Inter-Tribal Fish Commission, Bureau of Indian Affairs, and the Confederated Tribes of the Umatilla Indian Reservation. Comments were received from USFWS and are provided in Appendix B. On March 10, 2014, WDOE approved the updated BTMEP (Appendix A). A comment/comment response summary table showing agency comments and Grant PUD's response is attached to the plan as Appendix C.

FERC staff with any questions should contact Tom Dresser at 509-754-5088, ext. 2312.

Respectfully,



Ross Hendrick  
License Compliance Manager

Enclosures: Updated Bull Trout Monitoring and Evaluation Plan

**Priest Rapids Project**  
**Bull Trout Monitoring and Evaluation Plan**  
**FERC Article 401(a)(10)(25)**

Public Utility District No. 2 of Grant County  
PO Box 878  
Ephrata, Washington 98823

**March 2014**

## Executive Summary

A 401 Water Quality Certification (401 WQC) was issued by the Washington State Department of Ecology (WDOE) on April 3, 2007 to the Public Utility District No. 2 of Grant County, Washington (Grant PUD), and amended March 6, 2008, for the operation of the Priest Rapids Project (Project), FERC License No. 2114 (License). The License for the Project was issued by Federal Energy Regulatory Commission (FERC) on April 17, 2008 (FERC 2008). Under FERC License Article 401(a)(10) and the 401 WQC 6.2 (3)(b), Grant PUD was required, in consultation with the Priest Rapids Fish Forum (PRFF), to develop and submit for approval a Bull Trout (*Salvelinus confluentus*) Monitoring and Evaluation Plan (BTMEP) within one year of issuance of the License to achieve the Biological Objectives for bull trout identified in Appendix C of the 401 WQC. On June 4, 2009, FERC issued an order approving the BTMEP which was developed with PRFF consultation and approval, and the implementation of the BTMEP was initiated.<sup>1</sup> On September 19, 2009, Grant PUD filed its Bull Trout Hydrologic and Water Quality Study Plan (BTWQP) required by License Article 401(a)(25) and requested that its reporting requirements be combined with the BTMEP. On February 17, 2010, FERC issued an order modifying and approving the BTWQP and ordered Grant PUD to include the water quality monitoring results in the annual BTMEP reports required under the June 4, 2009 order which modified and approved the BTMEP.

The two biological objectives for bull trout identified within 401 WQC Appendix C were the following:

- 1). Rearing and migration: No negative effects by the Project or Project Operations, and
- 2). Rearing and migration: Identify and mitigate any unavoidable Project effects on bull trout rearing or migration.

Appendix C of the 401 WQC requires that the BTMEP be updated, in consultation with the PRFF, every five years following the issuance of the New License. The updated plan should describe any trends in bull trout abundance or frequency of occurrence in the Project and shall address technological or methodological advances that may allow evaluation of project effects on bull trout.

The goal of this plan is to monitor and evaluate bull trout presence in the Project, to identify potential Project-related impacts, collect and analyze hydrologic and water quality data related to Project operations and to specify a basis for identifying measures Grant PUD will implement to address any adverse effects on bull trout determined to result from operation of the Project.

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<sup>1</sup> 127 FERC ¶ 62,188

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## 1.0 Introduction

A 401 Water Quality Certification (401 WQC) was issued by the Washington State Department of Ecology (WDOE) on April 3, 2007 to the Public Utility District No. 2 of Grant County, Washington (Grant PUD), and amended March 6, 2008, for the operation of the Priest Rapids Project (Project), FERC License No. 2114 (License). The License for the Project was issued by Federal Energy Regulatory Commission (FERC) on April 17, 2008 (FERC 2008). Under FERC License Article 401(a)(10) and the 401 WQC 6.2 (3)(b), Grant PUD was required, in consultation with the Priest Rapids Fish Forum (PRFF), to develop and submit for approval a Bull Trout (*Salvelinus confluentus*) Monitoring and Evaluation Plan (BTMEP) within one year of issuance of the License to achieve the Biological Objectives for bull trout identified in Appendix C of the 401 WQC. The two biological objectives for bull trout identified within 401 WQC Appendix C were the following:

- 1). Rearing and migration: No negative effects by the Project or Project Operations, and
- 2). Rearing and migration: Identify and mitigate any unavoidable Project effects on bull trout rearing or migration.

To achieve the two biological objectives, the 401 WQC Appendix C identified three tasks that were incorporated into the BTMEP:

Task 1: Continue operating the Project's adult upstream fishways and downstream juvenile bypasses.

Task 2: Identify any adverse Project effects on adult and sub-adult bull trout passage through monitoring and evaluation.

Task 3: Identify and implement appropriate measures to modify the upstream adult fishway, downstream juvenile bypass, or Project operations if adverse impacts on bull trout are identified.

On June 4, 2009, FERC issued an order approving the BTMEP which was developed with PRFF consultation and approval, and the implementation of the BTMEP was initiated.<sup>2</sup>

On September 19, 2009, Grant PUD filed its Bull Trout Hydrologic and Water Quality Study Plan (BTWQP) required by License Article 401(a)(25) and requested that its reporting requirements be combined with the BTMEP. On February 17, 2010, FERC issued an order modifying and approving the BTWQP and ordered Grant PUD to include the water quality monitoring results in the annual BTMEP reports required under the June 4, 2009 order which modified and approved the BTMEP.<sup>3</sup> In summary, as of February 17, 2010, the annual reports of the BTMEP incorporated the reporting requirements of FERC Article 401(a)(10), License Article 401(a)(25), 401 WQC 6.2(3)(b), and 401 WQC Appendix C to collectively report Grant PUDs efforts to achieve the two biological objectives for bull trout as described in 401 WQC Appendix C.

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<sup>2</sup> 127 FERC ¶ 62,188

<sup>3</sup> 130 FERC ¶ 62,141

## 2.0 Summary of 2009 – 2012 Bull Trout Monitoring and Evaluation Plan Implementations

Grant PUD has monitored bull trout observations and water quality at its facilities and within the Project to achieve the two biological objectives and the three tasks within 401 WQC Appendix C. Grant PUD summarized the statuses of the biological objective implementations annually as required by FERC. In the annual reports, the BTMEP reported the following:

- 1) Bull trout observations within the Project,
- 2) Nason Creek and White River bull trout observations and handling,
- 3) Water quality evaluation within the Project,
- 4) Monitoring of White River acclimation site discharge, and
- 5) Bull trout surveys.

### 2.1 Bull Trout Observations within the Project

According to the 401 WQC Appendix C Task 1 and the Bull Trout Biological Opinion for the Project (USFWS 2007; Terms and Conditions 1 and 2), Grant PUD continues to provide adequate year-round passage conditions for bull trout at Project facilities and reports bull trout moving through Wanapum and Priest Rapids dams between April 15 and November 15 of each year. Grant PUD maintains video adult fish counting equipment at Priest Rapids and Wanapum dams and full duplex PIT-Tag detection equipment at Priest Rapids Dam. The adult video fish-counting season runs from April 15 through November 15, annually, which is also in accordance with Terms and Condition 1.22 of the Biological Opinion for Upper Columbia River (UCR) spring-run Chinook (*Oncorhynchus tshawytscha*) and Upper Columbia River steelhead (*Oncorhynchus mykiss*) (NMFS 2008). The adult fishway PIT-tag detectors are operated year-round.

In 2010, Grant PUD in consultation with the PRFF and National Marine Fisheries Service (NMFS) installed new fish counting stations in the ladders of Priest Rapids and Wanapum dams. The installation of these new fish counting stations also included known distance identifiers to assist with the life-history identification of returning adult fish. In 2012, Grant PUD reviewed all available bull trout video data to document the life history of bull trout observed in the Project (i.e., juvenile, sub-adult, or adult). The modifications of the fish ladders improved the BTMEPs implementation of the 401 WQC Appendix C Task 1, Task 2 and Task 3 by providing the means for bull trout life stages to be identified at the adult fishways.

Grant PUD observed a total of 42 bull trout in the adult video fish-counting stations from 2010-2012. Grant PUD also incorporated another 16 bull trout observed at the previous fish counting stations from 2007-2009 to provide additional information to better understand the presence of bull trout in the Project over an extended period of time (**Error! Reference source not found.**). Grant PUD analyzed the available photographs from bull trout observed within the new fish counting stations to provide information on the size and life-stage of bull trout observed in the fishways of Wanapum and Priest Rapids dams. Twenty-six of the 42 bull trout observed from 2010 to 2012 had digital photographs collected during the fish counting period. The measurement lines in the fish counting windows identified lengths of 12-inch, 22-inch, and 24-inches. Grant PUD staff applied a proportional stoichiometric calculation to generate a total length for the bull trout observed in the fish counting windows when photographs were obtainable from 2010 through 2012. Bull trout 5-13 inches in total length were classified as sub-adult and bull trout greater than 13 inches in total length were classified as adults (USFWS

2007). All bull trout observed in the fish-counting windows at Priest Rapids and Wanapum dams were classified as adult bull trout.

Grant PUD continues to operate the downstream fish bypass at Wanapum Dam, has completed the installation of advanced turbines at Wanapum Dam, and is constructing the downstream fish bypass at Priest Rapids Dam through the implementation of the Biological Opinion for UCR spring-run Chinook and steelhead through coordination with the Priest Rapids Coordinating Committee (PRCC). Grant PUD is implementing the 401 WQC Appendix C Task 3 through the continual efforts and operations of the Project in compliance within the Biological Opinion for UCR spring-run Chinook and steelhead (NMFS 2008).

Grant PUD also reports PIT-tagged bull trout that are detected within the Project. Of the more than 27,000 PIT-tagged bull trout in the PTAGIS database (as of 2013), only three bull trout have been detected within the Project (i.e., 3D9.1C2C54FAE0 on July 5, 2009, 3D9.1C2C513E3F on November 21, 2009, and 3D9.1C2CCD42DD on May 24, 2012). The July 5, 2009 PIT-tag detected bull trout was tagged on the Walla Walla River (Walla Walla County, WA) on January 28, 2009. The November 21, 2009 PIT-tag detected bull trout was tagged November 16, 2008 in the Entiat River (Chelan County, WA), and the May 24, 2012 PIT-tag detected bull trout was tagged September 22, 2009 in the Entiat River.

From 2009 to 2012, two adult bull trout were incidentally collected in cod traps set by a Grant PUD contractor who was fishing for northern pikeminnow on December 5, 2010 and December 6, 2010 near Crescent Bar, River Mile 440-441. Both bull trout were quickly returned to the Columbia River to reduce harm. No other incidental collections of bull trout occurred during northern pikeminnow removal efforts, juvenile bypass activities, gateway dipping, turbine maintenance activities, fishway maintenance activities, Hanford Reach Fall Chinook Protection Program, hatchery activities, or any other activities in the Priest Rapids Project.

**Table 1 Number of Bull Trout Passing Priest Rapids Dam, Wanapum Dam, and Rock Island Dam from 2007 to 2012.**

Year	Priest Rapids Dam			Wanapum Dam			Rock Island Dam
	Left Bank	Right Bank	Total	Left Bank	Right Bank	Total	Total
2007	0	1	<b>1</b>	1	0	<b>1</b>	<b>46</b>
2008	2	3	<b>5</b>	0	0	<b>0</b>	<b>36</b>
2009	5	1	<b>6</b>	3	0	<b>3</b>	<b>60</b>
2010	5	2	<b>7</b>	5	2	<b>7</b>	<b>53</b>
2011	5	3	<b>8</b>	9	3	<b>12</b>	<b>49</b>
2012	4	1	<b>5</b>	2	1	<b>3</b>	<b>49</b>

## 2.2 Nason Creek and White River Bull Trout Observations and Handlings

Grant PUD monitors screw traps on the White River and Nason Creek through Yakama Nation contract staff as part of Grant PUD’s spring Chinook hatchery supplementation program. Bull trout are incidentally collected during the operation of the screw traps on the White River and Nason Creek. A summary of annual collection is included in the BTMEP annual reports and included in **Error! Reference source not found.**



The Yakama Nation encountered a total of 289 bull trout during the screw trap operations on the White River and Nason Creek from 2010 to 2012 (**Error! Reference source not found.**). DNA samples were also collected on fish that were PIT-tagged; however, not every bull trout that was PIT-tagged received a DNA sample due to the size and/or condition of individual fish, or the availability of DNA sample supplies. The annual numbers of juvenile/sub-adult bull trout collected at the White River and Nason Creek did not exceed the annual non-lethal take threshold of juvenile/sub-adult bull trout listed in the Biological Opinion (i.e., incidental take statement for non-lethal take of juvenile/sub-adult bull trout is 95 bull trout per year [USFWS 2007]). None of the juvenile and sub-adult PIT-tagged bull trout (from Nason Creek or White River screw trap operations) have been detected within the Project. Grant PUD will continue monitoring PIT-tag detections of juvenile and sub-adult bull trout to assess bull trout biological objectives associated with rearing and migration of bull trout of all life stages.

**Table 2 The number of bull trout PIT-tagged and encountered during the screw trap operations on the White River and Nason Creek 2009 -2012.**

Year	Nason Creek		White River		Total	
	# PIT-tagged	n	# PIT-tagged	n	# PIT-tagged	n
2009	2	2	26	61	28	63
2010	11	11	9	79	20	90
2011	5	11	6	54	11	65
2012	9	9	9	62	18	71
Total	27	33	50	256	77	289

### 2.3 Water Quality Evaluations

In accordance with the BTWQP, the hydrologic and water quality data from 2001-2003 was used as the environmental “baseline” for which future years (e.g. 2012) data would be compared. This comparison was being made due to available bull trout data collected from 2001-2003 (BioAnalysts 2002, 2003 and 2004), which demonstrated through a bull trout telemetry study that the Project, although rarely frequented by bull trout, appeared to have no measurable impact on movement or on any life stage of bull trout. Although specific hydrologic and water quality data from the Project area were not collected or analyzed as part of the BioAnalysts studies, this data from 2001-2003 were selected as the environmental “baseline” based on the assumption that hydrologic and water quality data from 2001-2003 were suitable for bull trout, based on the results of the BioAnalysts studies (2002, 2003, and 2004). Thus, in accordance with the BTWQP, if hydrologic and/or water quality data collected in a given year (e.g. 2012) were significantly different from the 2001-2003 data, additional evaluations could be assessed (if feasible) as to potential Project-related impacts upon bull trout and subsequent mitigation measures. The water quality parameters evaluated were total dissolved gas (TDG, % saturation), temperature, forebay water level elevation and total discharge or outflow. The water quality data of TDG and temperature were taken from the Priest Rapids and Wanapum dam forebays, in accordance with Grant PUD’s fixed-site water quality monitoring program (Hendrick 2009).

The comparison of the 2010-2012 water quality data to the 2001-2003 environmental baseline varied by year. In 2010, there were no significant differences between the 2001-2003 environmental baseline water quality data with the exception of the Priest Rapids forebay water

elevation data. In 2010, the Priest Rapids forebay average elevation was about 4 inches less than the environmental baseline data.

In 2011, all water quality parameters differed from the environmental baseline except for the forebay elevation of Priest Rapids Dam. In summary, the 2011 TDG values were greater than the environmental baseline conditions by ~5.4% saturation, 2011 temperatures were lower than the environmental baseline by ~0.9°C, the 2011 Wanapum forebay elevations were ~9 inches greater than the environmental baseline, and total discharges were ~68,000 cfs greater than the environmental baseline

In 2012, all water quality parameters differed from the environmental baseline except for the TDG values at Priest Rapids Dam which did not differ from the 2001-2003 environmental baseline data. The Wanapum forebay TDG values were approximately ~5.7% greater than the environmental baseline. The 2012 temperatures were ~1.2°C lower than the environmental baseline. The Wanapum forebay was ~9 inches greater than environmental baseline while the Priest Rapids forebay was ~6 inches lower than the environmental baseline. The forebay elevations of Priest Rapids and Wanapum dams experience slight fluctuations within the regulated and maintained operational zones. As a result, a negative impact to bull trout migrating through the Project due to yearly fluctuations that differs less than 12 inches appears to be unlikely.

In a review of available literature to address gas bubble disease (GBT) and supersaturated TDG levels, bull trout and other salmonids were documented to avoid GBT and TDG supersaturation by migrating to tributaries where TDG supersaturation was not present or by depth compensation. According to Henry's Law, TDG is reduced by 10% for every one meter of depth fishes occupy due to the hydrostatic pressure, and resident and migratory fishes tend to occupy depths where TDG and GBT are compensated or avoided (Gray and Haynes 1977, Weitkamp et al. 2003). Furthermore, the depths of the Columbia River greatly exceeds the 2 meters required for resident fishes to depth compensate for the TDG levels observed in 2011 and 2012 that were greater than the 2001-2003 environmental baseline TDG levels.

In summary, although TDG levels in the Wanapum forebay were significantly higher in 2011-2012 as compared to 2001-2003 TDG data, Project-related impacts to bull trout appears unlikely due to the results of GBT monitoring on Chinook salmonids and steelhead and the GBT compensatory fish behaviors documented in the literature. In addition, although Grant PUD attempted to reduce involuntary spill at Wanapum and Priest Rapids dams, high flows (above 7Q10 flows) and elevated TDG throughout the mid-Columbia River limited Grant PUD's ability to fully mitigate high TDG levels (Keeler 2011 and 2012). Therefore, limited information is available to assess the 401 WQC Appendix C biological objectives of rearing and migration relative to any impacts that water quality may or may not have on individual bull trout that may infrequently reside within or travel through the Project.

## **2.4 Monitoring and Acclimation Site Discharge**

Grant PUD has conducted annual spring Chinook acclimation activities in the White River basin during the implementation of the BTMEP. In 2010, Grant PUD did not conduct hatchery activities that qualified for acclimation facility discharge monitoring in known bull trout spawning or rearing habitat. In 2011, Grant PUD conducted short-term spring Chinook acclimation activities in tanks on the bank of the White River at Grant PUD's Bridge Site (river mile [RM] 2) and at the Tall Timber Ranch Site (RM 11) from March to May. In 2012, Grant

PUD conducted short-term spring Chinook acclimation activities at Grant PUD's Bridge Site from March to May. During acclimation, juvenile salmon were fed low-phosphorus feed per established feeding methods. Grant PUD conducted bi-monthly water quality monitoring at locations above and below the surface water intake and outfall sites because surface water withdrawal was used to acclimate fish. Parameters collected included dissolved oxygen, pH, and total phosphorus. Results of the water quality data collection efforts indicated no negative impacts to water quality. Additionally, the acclimation return flow water was discharged to the top of the water surface at locations where pools existed with sufficient water depth to avoid erosion of the stream bank and subsequent suspension of sediments. In selecting the locations for acclimation site water intakes and discharge, the areas were scanned for the presence of bull trout and evidence of any potential bull trout redds. No bull trout were observed during the setup, operation, or demobilization of the acclimation sites.

## **2.5 Bull Trout Survey**

The over-wintering bull trout monitoring period occurred annually from November 1 to March 31 to determine if juvenile and sub-adult bull trout were being stranded below Rock Island (Gravel Island) and Wanapum (Beverly Island Complex) dams as a result of flow fluctuations. Grant PUD monitored sites where stranding pools could occur in upper Wanapum reservoir (i.e., below Rock Island Dam) and in upper Priest Rapids reservoir (i.e., below Wanapum Dam) for stranded bull trout. Site evaluations were scheduled during flow fluctuations and were conducted once per month at each site, during day-light hours, when the river elevation dropped a minimum of 3 feet in a rolling 24 hour period. No bull trout have been observed to be stranded on dewatered shoreline areas of Gravel Island and the Beverly Island Complex on any of the surveys conducted.

## **3.0 U.S. Fish Wildlife Service Bull Trout Biological Opinion Requirements**

The USFWS issued a Biological Opinion, in accordance with Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.), on the effects of the Priest Rapids Hydroelectric Project Relicensing on bull trout and critical habitat on March 14, 2007. The Opinion contains Reasonable and Prudent Measures (RPM) intended to minimize the impacts of take of bull trout during the new license term for the Priest Rapids Project, including development of a Bull Trout Monitoring and Evaluation Plan (BTMEP) containing specific elements. This BTMEP has been prepared to address the plan requirement identified in the Biological Opinion. Those elements are reflected in the RPMs set out in italics below.

*RPM 1. FERC shall require Grant PUD, in coordination with the Service, to provide adequate year-round passage conditions for bull trout at Project facilities.*

*RPM 2. FERC shall require Grant PUD, in coordination with the Service, to design and implement a bull trout monitoring program that will adequately detect Project impacts, including those caused by hydrologic modifications and changes in water quality, on adult and sub-adult bull trout.*

*RPM 3. FERC shall require Grant PUD, in coordination with the Service and the PRCC, to implement the Hanford Reach Fall Chinook Protection Program Agreement within the limitations of the existing agreement in a manner that incorporates the conservation needs of the bull trout.*

RPM 4. *FERC shall require Grant PUD, in coordination with the Service, to minimize the effects of the White River Spring Chinook Supplementation Program to all life stages of bull trout.*

As described in the Biological Opinion, in order to be exempt from the prohibitions of Section 9 of the Endangered Species Act, FERC and Grant PUD must comply with specific non-discretionary terms and conditions to implement the RPMs. The USFWS has determined that these terms and condition are necessary and appropriate to minimize the impacts of take of bull trout during the term of the new Priest Rapids Project license. The Priest Rapids Project license was issued on April 17, 2008. The terms and conditions USFWS has identified as necessary are:

1. *To implement RPM 1, FERC shall require Grant PUD, in coordination with the Service, to continue operating the existing adult upstream fishways at Project dams year-round. These facilities shall be operated according to criteria agreed to in the Priest Rapids Salmon and Steelhead Settlement Agreement and/or Grant PUD's annual Fishway Operating Plans. During winter maintenance activities, only one fishway shall be closed at any one time at each Project facility to ensure that bull trout passage is possible at all times.*
2. *To implement RPMs 1 and 2, FERC shall require Grant PUD to develop and implement a bull trout monitoring plan, including the counting and reporting of all bull trout life stages moving past Wanapum and Priest Rapids dams between April 15 and November 15 of each year, for an experimental period of five years. The plan shall be develop in coordination with and shall be approved by the Service within one year of the Commission's issuance of a new operating license to Grant PUD. The monitoring plan shall include provisions for adaptive management to address changing conditions, assess on-going adverse effects, and investigate potential corrective actions. This may include evaluating the efficiency of upstream and downstream passage for all life stages of the bull trout (e.g., fishway water velocity impacts to sub-adults), development of survival standards for bull trout, development of a genetics baseline(i.e., using non-lethal means such as fin clips), and investigation of potential corrective actions for project-related water quality degradation. Annual reports regarding observations, effects, or monitoring results specific to bull trout shall be prepared and submitted by Grant PUD to the Service. In addition, FERC shall require Grant PUD, in coordination with the Service to develop or identify an appropriate forum to address the issues raised in these reports.*
3. *To implement RPM 2, FERC shall require Grant PUD, in coordination with the Service, to record and report bull trout occurrences during the following activities: fish counting at fishways; juvenile bypass activities, gatewell dipping, turbine maintenance activities, fishway maintenance activities, hatchery activities, and northern pikeminnow control activities. Bull trout detections shall be reported to the Service per the reporting requirements above under term and condition 2.*
4. *To implement RPM 2, FERC shall require Grant PUD, in coordination with the Service, to PIT tag sub-adult bull trout whenever they are incidentally captured during on-going PIT tagging efforts conducted for anadromous and other fish management activities. Bull trout detections shall be reported to the Service per the reporting requirements above under term and condition 2.*

5. *To implement RPM 2, FERC shall require Grant PUD, in coordination with the Service, to report incidental take as precisely as possible. In order to accomplish the monitoring of take, the Service suggests the use of empirically collected data including PIT-tagging, radio-telemetry, or other appropriate technology.*
6. *To implement RPM 2, FERC shall require Grant PUD, in coordination with the Service, to collect genetic samples of all bull trout over 70 mm handled as part of ordinary Project operations. This may provide valuable information on the conservation status and genetic relationships between bull trout populations in the Columbia Basin. This is consistent with the existing permit for the operation of the screw trap collection.*
7. *To implement RPM 2, FERC shall require Grant PUD, in coordination with the Service, to develop and implement a plan to collect data for evaluating the effect of hydroelectric variations and water quality impacts on all bull trout life stages within Project reservoirs. The plan shall include provisions for adaptive management to address changing conditions, assess on-going effects, and to investigate potential corrective actions. These data shall be reported annually to the Service per the reporting requirements above under term and condition 2.*
8. *To implement RPM 3, FERC shall require Grant PUD, in coordination with the Service and the PRCC, to implement the Hanford Reach Fall Chinook Protection Program Agreement within the limitations of the existing agreement in a manner that incorporates the conservation needs of the bull trout.*
9. *To implement RPM 4, FERC shall require Grant PUD to minimize impacts to bull trout redds. Disturbance of or impacts to bull trout habitat shall be minimized during all activities associated with the White River Spring Chinook Supplementation Program. Grant PUD shall take precautions so as to avoid stepping in/on areas that may be potential redd locations for resident or fluvial/adfluvial bull trout (i.e., small gravel deposits behind boulders, under overhanging vegetation, near wood debris or logs, or areas of hydraulic influence such as confluences of tributaries, springs, seeps, pool tailcrests, or edges of pools), since redds of resident and small fluvial/adfluvial bull trout at these locations may be difficult to see due to their small size.*
10. *To implement RPM 4, FERC shall require Grant PUD to avoid disturbance of spawning bull trout. Any purposeful take of bull trout that are spawning or near spawning is prohibited. Grant PUD shall minimize activities near actively-spawning bull trout as well as post-spawned bull trout that appear to be in a weakened condition.*
11. *To implement RPM 4, FERC shall require Grant PUD to monitor traps (i.e., redd caps and minnow traps) at least 1 time daily. Traps should be checked more frequently (at least 2 times a day) when any bull trout are captured or if crowding produced by an increasing catch rate results in a higher probability of injury or death to bull trout being held in the live box.*
12. *To implement RPM 4, FERC shall require Grant PUD to conduct all seining during the daylight hours, excluding the first hour after sunrise and the hour prior to sunset. This should minimize the exposure of juvenile and sub-adult bull trout to accidental capture.*
13. *To implement RPM 4, FERC shall require Grant PUD to avoid hydraulic sampling of Chinook eggs where redd superimposition is suspected (i.e., areas where individual*

*Chinook and bull trout redds directly overlap). The primary reach of concern is from the Napeequa River to Panther Creek. This should minimize the likelihood of direct removal of bull trout eggs or fry from the substrate.*

14. *To implement RPMs 2 and 4, FERC shall require Grant PUD, in coordination with the Service, to conduct water and sediment sampling related to the discharges of degrade water from acclimation facilities. This information will provide a metric to quantify effects to the bull trout and state water quality standards, and may be used to develop or refine the anticipated level of incidental take.*

#### **4.0 Monitoring and Evaluation Plan Objectives and Strategies**

Through the implementation of this plan, Grant PUD will monitor bull trout by implementing the following measures, which are intended to minimize any negative impacts or take of bull trout during the term of the Project's operating license.

- 1). Grant PUD, in coordination with the USFWS, will provide adequate year-round passage conditions for bull trout at Project facilities;
- 2). Grant PUD, in coordination with the USFWS, will design and implement a bull trout monitoring and evaluation program that will adequately detect Project impacts, including those caused by hydrologic modifications and changes in water quality, on adult and sub-adult bull trout. This plan will be re-evaluated every five years and will be amended to describe any apparent trends in bull trout abundance or frequency of occurrences in the project area and will address technological or methodological advances that may allow evaluation of project effects on bull trout;
- 3). Grant PUD, in coordination with the USFWS and the Priest Rapids Coordinating Committee (PRCC), will implement the Hanford Reach Fall Chinook Protection Program Agreement within the limitations of the existing agreement in a manner that incorporates the conservation needs of the bull trout; and
- 4). Grant PUD, in coordination with the USFWS, will minimize the effects of the White River Spring Chinook Supplementation Program to all life stages of bull trout.

Information in this section describes the objectives and strategies that Grant PUD will implement to meet the Terms and Conditions of the Opinion, through the remainder of the Priest Rapids Project FERC license to adequately monitor and minimize any incidental take of bull trout consistent with Section 7 of the ESA and the USFWS' BiOp.

#### **4.1 Objective 1**

Provide adequate year-round passage conditions for bull trout at Project facilities.

##### **4.1.1 Strategies for Objective 1**

Grant PUD, in coordination with the USFWS, will continue operating the existing adult upstream fishways at Project dams year-round. These facilities will be operated according to criteria agreed to in the 2006 Priest Rapids Salmon and Steelhead Settlement Agreement (109 FERC ¶62,216) and Grant PUD's annual Fishway Operating Plans. During winter maintenance activities, only one fishway will be closed at any one time at each Project facility to ensure that bull trout passage is possible at all times.

Grant PUD will continue the counting and reporting of all bull trout life stages moving past Wanapum and Priest Rapids dams between April 15 and November 15 of each year, for an

additional period of five years. Following the five year period, the USFWS, in coordination with the Priest Rapids Fish Forum, will discuss whether or not to continue the counting and reporting of all life stages moving past Wanapum and Priest Rapids dams beyond year five for the duration of the new license. Reporting will include queries of the PTAGIS data base for records of any bull trout moving past Priest Rapids or Wanapum dams, including date and location.

## **4.2 Objective 2**

Design and implement a bull trout monitoring and evaluation program that will adequately detect Project impacts, including those caused by hydrologic modifications and changes in water quality, on adult and sub-adult bull trout.

### **4.2.1 Strategies for Objective 2**

- 1). Grant PUD will obtain date of catch, length, and age classification of all bull trout which are collected by the screw traps located at Nason Creek and White River or collected during ordinary Project operations. If there is a significant increase in the number of bull trout collected, Grant PUD will collaborate with the USFWS to re-examine the need for PIT-tagging and DNA collection. This data will be incorporated into the BTMEP annual report.
- 2). Grant PUD will monitor and maintain water quality standards consistent with those defined in the 2006 Priest Rapids Project Salmon and Steelhead Settlement Agreement (109 FERC ¶62,216), 2004 Hanford Reach Agreement (109 FERC ¶62,216), and the State of Washington Department of Ecology 401 certification ORDER NO. 4219.
- 3). Grant PUD, in coordination with the USFWS, will record and report bull trout occurrences during the following activities: fish counting at fishways, juvenile bypass activities, gatewell dipping, turbine maintenance activities, fishway maintenance activities, hatchery activities, and northern pikeminnow control program activities. Bull trout detections shall be included in the BTMEP annual report each year.
- 4). Grant PUD, in coordination with the USFWS, will PIT-tag sub-adult bull trout whenever they are incidentally captured during on-going PIT-tagging efforts conducted for anadromous and other fish management activities. Bull trout detections will be included in the BTMEP annual report and will include queries of the PTAGIS data base for records of any bull trout moving past Priest Rapids or Wanapum dams, including date and location.
- 5). Grant PUD, in coordination with the USFWS, will report incidental take as precisely as possible through the use of empirically collected data including PIT-tagging, radio-telemetry, or other appropriate technology. Grant PUD will continue to report incidental take of bull trout passing through Wanapum and Priest Rapids dams.
- 6). If information shows that incidental take of bull trout occurs due to hydrologic variation impacts based on observations from on-going fish sampling programs (i.e., Northern Pikeminnow Removal Program set line or beach seining collection, gate-well collection, resident fish sampling, fishway maintenance), Grant PUD in coordination with the USFWS, will develop a collaborative plan to minimize the effect (where reasonable and feasible) of such incidental take. If negative water quality effects are identified, Grant PUD, in cooperation with the USFWS, will use adaptive management to address changing conditions, assess on-going effects and investigate potential corrective actions. This data will be reported annually to the USFWS.

- 7). Grant PUD, in coordination with the USFWS, will monitor water and sediment sampling related to the discharges of degraded water from acclimation facilities within the Project area or activities associated with the Hanford Reach Fall Chinook Protection Program and/or the White River Spring Chinook Supplementation Program to determine effects to the bull trout and state water quality standards, and may be used to develop or refine the anticipated level of incidental take.
- 8). Grant PUD, in coordination with the USFWS, will monitor changes in Project elevation (ft), discharge (kcfs), temperature (°C) and total dissolved gas (TDG). Daily averages of these parameters will be included in the BTMEP annual report. If the number of bull trout observations increases significantly throughout the Project; Grant PUD will coordinate with the USFWS and reassess the potential for a statistical analysis of these parameters.

### **4.3 Objective 3**

Implement the Hanford Reach Fall Chinook Protection Program Agreement within the limitations of the existing agreement in a manner that incorporates the conservation needs of the bull trout.

#### **4.3.1 Strategies for Objective 3**

Grant PUD, in coordination with the USFWS, will implement the Hanford Reach Fall Chinook Protection Program Agreement within the limitations of the existing agreement in a manner that incorporates the conservation needs of the bull trout within the Project area and at Grant PUD facilities.

### **4.4 Objective 4**

Minimize the effects of the White River Spring Chinook Supplementation Program to all life stages of bull trout.

#### **4.4.1 Strategies for Objective 4**

Grant PUD will minimize any disturbance or impacts to bull trout habitat during all activities associated the White River Spring Chinook Supplementation Program. Grant PUD will take precaution to avoid stepping in/on areas that may be potential redd locations for resident or fluvial/adfluvial bull trout (i.e., small gravel deposits behind boulders; under overhanging vegetation; near wood debris or logs; or areas of hydraulic influence such as confluences of tributaries, springs, seeps, pool tail crests, or edges of pools), since redds of resident and small fluvial/adfluvial bull trout at these locations may be difficult to see due to their small size.

Grant PUD will avoid disturbance of the White River Spring Chinook Supplementation Program and during routine Project operations. Grant PUD will minimize activities near actively-spawning bull trout as well as post-spawned bull trout that appear to be in a weakened condition.

## **5.0 Adaptive Management**

Changes or modifications to this plan will be made through an adaptive management process that will assess on-going effects and potential corrective actions. As stated in the WDOE 401 Water Quality Certification, the adaptive management process is intended to improve the management of natural resources affected by the Project in order to achieve desired objectives as effectively and efficiently as possible. Grant PUD will continue to participate in regional forums and meetings that pertain to the sustainability of bull trout throughout the Project.



## **6.0 Reporting**

In order to monitor the impacts of incidental take, Grant PUD will prepare an annual report that will meet the requirements of the BTMEP and the USFWS permit number TE02743-5. The report, which will be submitted to the Central Washington Field Office annually on or before February 1, will list and describe the work that was completed and the number of bull trout, if any, observed or incidentally taken during the course of Project operations.

Upon locating a dead, injured, or sick endangered or threatened species specimen, initial notification must be made to the nearest USFWS Law Enforcement Office (Spokane, Washington; telephone 509.928.6050). Care will be taken in handling sick or injured specimens to ensure effective treatment and care of sick or injured endangered species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

## List of Literature

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- BioAnalysts, Inc. 2003. Movement of radio-tagged bull trout within Priest Rapids and Wanapum Reservoirs, 2001-2003. Prepared for the Public Utility No. 2 of Grant County. Ephrata, Washington. July 2003.
- BioAnalysts, Inc. 2004. Movements of bull trout within the mid-Columbia River and tributaries, 2001-2004. Final Report. Prepared for the Public Utility No. 1 of Chelan County, Wenatchee, Washington. May 2004. Federal Energy Regulatory Commission, Order Issuing New License for Public Utility District No. 2 of Grant County, Docket Number P-2114-116 (April 17, 2008).
- Gray, R.H., and J.M. Haynes. 1977. Depth distribution of adult Chinook salmon (*Oncorhynchus tshawytscha*) in relation to season and gas-supersaturated water. Transactions of the American Fisheries Society 106:617-620.
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- Keeler, C. 2011 Summary of 2011 Annual Fish-Spill Season and Total Dissolved Gas Monitoring. Prepared for Public Utility District No. 2 of Grant County, Washington. November, 2011.  
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- National Marine Fisheries Service (NMFS). 2008. Endangered Species Act – Section 7 Consultation Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Consultation for the New License for the Priest Rapids Hydroelectric Project, FERC Project No. 2114. Portland, Oregon.
- United States Department of Interior Fish and Wildlife Service (USFWS). 2007. USFWS Biological Opinion on the Effects of the Priest Rapids Hydroelectric Project Relicensing on Bull Trout (FERC No. 2114). Spokane, Washington. USFWS Reference: 13260- 2006 -P-0008, 13 260-2001-F-0062.
- Weitkamp, D.E., R.D. Sullivan, T. Swant, and J. DosSantos. 2003. Gas bubble disease in resident fish of the Lower Clark Fork River. Transactions of the American Fisheries Society 132:865-

**Appendix A**  
**WDOE Letter Approving the Priest Rapids Project Bull Trout Monitoring and Evaluation Plan.**



STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

4601 N Monroe Street • Spokane, Washington 99205-1295 • (509)329-3400

March 10, 2014

Mr. Mike Clement  
Senior Biologist  
Resident Fish, Terrestrial/Water Quality Branch  
Grant County PUD  
PO Box 878  
Ephrata, WA 98823

RE: Request for Ecology Review and Comment – *Priest Rapids Project Bull Trout Monitoring and Evaluation Plan*.  
Priest Rapids Hydroelectric Project, FERC No. 2114

Dear Mr. Clement:

The Department of Ecology (Ecology) has reviewed the *Priest Rapids Project Bull Trout Monitoring and Evaluation Plan* (BTMEP) sent via email to Ecology on February 20, 2014. Appendix C, “Biological Objectives and Implementation Measures”, of the 401 Certification requires Grant County PUD to update the BTMEP in consultation with the Priest Rapids Fish Forum five years after the license is issued.

Ecology has no comment on the *Priest Rapids Project Bull Trout Monitoring and Evaluation Plan*.

Please contact me at (509) 329-3567 or [pmcg461@ecy.wa.gov](mailto:pmcg461@ecy.wa.gov) if you have any questions.

Sincerely,

Patrick McGuire  
Eastern Region FERC License Coordinator  
Water Quality Program

PDM:jb

cc: Joe LeMoine, Grant County PUD

**Appendix B**  
**Comments Received on the Draft Bull Trout Monitoring and Evaluation Plan for Priest**  
**Rapids Project**

**From:** [Debbie Firestone](#)  
**To:** [Debbie Firestone](#)  
**Subject:** FW: Priest Rapids Project Bull Trout Monitoring and Evaluation Plan Draft Report  
**Date:** Tuesday, March 18, 2014 11:32:24 AM

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**From:** Lewis, Stephen [stephen\_lewis@fws.gov]  
**Sent:** Monday, March 17, 2014 4:08 PM  
**To:** Joseph LeMoine  
**Subject:** Priest Rapids Project Bull Trout Monitoring and Evaluation Plan Draft Report

Hi Joe-

The draft report looks pretty good. I do have one request focused on the White River and Nason Creek activities. Specifically, there is no breakdown of juveniles/sub-adults for those fish encountered at these facilities. Including this life history classification would result in more useful data and be much appreciated!

S-

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Stephen T. Lewis  
Hydropower and Energy Coordinator  
US FISH AND WILDLIFE SERVICE  
CENTRAL WASHINGTON FIELD OFFICE  
215 MELODY LANE STE 103  
WENATCHEE, WA 98801-8122  
phone: (509) 665-3508 Ext. 2002  
e-mail: [Stephen.Lewis@fws.gov](mailto:Stephen.Lewis@fws.gov)

*"If a road has no obstacles, it probably doesn't lead to anywhere." S. Lewis*

### Appendix C

#### Summary of PRFF Comments on the Draft Bull Trout Monitoring and Evaluation Plan and Grant PUD Response

Submitting Entity	Date Received	Paragraph	Agency Comment	Grant PUD Response
Washington Department of Ecology	3/10/2014	1	The Department of Ecology (Ecology) has reviewed the <i>Priest Rapids Project Bull Trout Monitoring and Evaluation Plan</i> (BTMEP) sent via email to Ecology on February 20, 2014. Appendix C, “Biological Objectives and Implementation Measures”, of the 401 Certification requires Grant PUD to update the BTMEP in consultation with the Priest Rapids Fish Forum five years after the license is issued.	Grant PUD appreciates WDOE review.
Washington Department of Ecology	3/10/2014	2	Ecology has no comments on the <i>Priest Rapids Project Bull Trout Monitoring and Evaluation Plan</i> .	Grant PUD appreciates WDOE review.
Washington Department of Ecology	3/10/2014	3	Please contact me at (509) 329-3567 or <a href="mailto:pmcg461@ecy.wa.gov">pmcg461@ecy.wa.gov</a> if you have questions.	Grant PUD appreciates WDOE review.
U.S. Fish and Wildlife Service	3/17/2014	1	The draft report looks pretty good. I do have one request focused on the White River and Nason Creek activities. Specifically, there is no breakdown of juveniles; sub-adults for those fish encountered at these facilities. Including this life history classification would result in more useful data and be much appreciated!	Grant PUD has amended Section 4.2.1 to include age classification as part of the reporting requirements.