



PUBLIC UTILITY DISTRICT NO. 1 of CHELAN COUNTY

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May 23, 2011

Mr. Steve Lewis
U.S. Fish and Wildlife Service
Central Washington Field Office
215 Melody Lane, Suite 119
Wenatchee, Washington 98801

Subject: Rocky Reach Hydroelectric Project, FERC No. 2145 (Project)
Bull Trout Monitoring –2010 Annual Report revised May 16, 2011

Dear Mr. Lewis:

In accordance with Ordering Paragraph E, Article 4 of Appendix B, and the Reporting Requirements of Appendix D of the new license, the Public Utility District No. 1 of Chelan County, Washington (Chelan PUD), submitted the 2010 Bull Trout Annual Report to your office on March 23, 2011. Subsequently, on April 1, 2011, you requested Chelan PUD to include discussions regarding tagged bull trout experiencing difficulty negotiating the fishway at Tumwater.

Pursuant to your request, Chelan PUD hereby submits a revised report on incidental take of bull trout (non-lethal take) in the form of fishway passage delay for operations associated with brood stock capture, and adult a salmon and steelhead management at the Tumwater dam fishway. The supplemental information is provided under the heading, *Tumwater and Dryden Dam Fishway Broodstock Traps*, pages 2 through 5, along with additional references provided on page 7.

This report is part of the federal license requirement to implement Anadromous Fish Agreement and Habitat Conservation Plan (AFA/HCP) activities and the Bull Trout Management Plan for the Project. Included is the number of bull trout observed, or incidentally taken if any, during implementation of activities specific to the AFA/HCP activities. Additionally, the report provides the number of bull trout using the Rocky Reach adult fishway, as verified by video monitoring.

If you have any questions regarding this filing, please contact me at (509) 661-4180.

Sincerely,

Michelle Smith
Licensing and Compliance Manager

cc: Jessie Gonzales, Jim Craig and R.D. Nelle, USFWS
Keith Truscott, Chelan PUD
Steve Hemstrom, Chelan PUD

Attachment: Revised 2010 Bull Trout Monitoring Report

Observations of Bull Trout during Implementation of AFA/HCP Activities and the Bull Trout Management Plan for the Rocky Reach Project

**Annual Summary Report on 2010 Bull Trout Observations
and Incidental Take at the Rocky Reach Project**

**ROCKY REACH HYDROELECTRIC PROJECT
FERC Project No. 2145**

Revised May 16, 2011



**Public Utility District No. 1 of Chelan County
Wenatchee, Washington**

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INTRODUCTION

Under the current Rocky Reach FERC operating license, Chelan PUD prepares an annual report by April 15 each year specifying the number of bull trout observed or incidentally taken during implementation of the Anadromous Fish Agreements and Habitat Conservation Plan (collectively termed HCP) and bull trout management plan (BTMP) for the Rocky Reach Project. Additionally, Chelan PUD must report the number of bull trout using the adult fishway to pass Rocky Reach Dam, as verified by video monitoring. Information in this report satisfies license requirements for bull trout at Rocky Reach Project.

Bull Trout Management Plan

Chelan PUD completed initial requirements of the Rocky Reach Bull Trout Management Plan (BTMP) by completing radio-telemetry studies and Incidental Take monitoring of bull trout at the Project. Chelan PUD filed a 3-year summary report with the U.S. Fish and Wildlife Service (USFWS) and FERC on April 14, 2009. An additional one-year radio-telemetry study to verify Incidental Take levels at Rocky Reach will occur in 2018-2019 as required in the Bull Trout Management Plan.

Rocky Reach Juvenile Fish Bypass System

Chelan PUD operated the Juvenile Fish Bypass System (JFBS) and the Juvenile Bypass Sampling Facility (JFBS) in 2010 as specified in the Rocky Reach HCP and FERC operating license. In 2010, 11 sub-adult bull trout were captured during daily sampling for juvenile salmon/steelhead at the Rocky Reach JFBS in the period April 1 – August 31 (Table 1). No de-scale or injury was observed on any bull trout and all fish appeared to be in good condition. All bull trout were released back to the river in good condition at the JFBS outfall pipe.

None of the bull trout sampled in 2010 at the JFBS contained a PIT tag. Only one juvenile bull trout containing a PIT tag has been re-captured at the JFBS. This fish was first tagged by a USFWS crew at the Entiat River juvenile salmon screw-trap on May 22, 2009, and was recaptured in June 2009 at the JFBS).

Table 1. Bull trout observed at the Rocky Reach Juvenile Bypass Sampling Facility, 2010

Month	# Observed	Injuries	Mortalities	PIT Recaps
April	1	0	0	0
May	4	0	0	0
June	6	0	0	0
July	0	0	0	0
August	0	0	0	0
Total	11	0	0	0

Adult Fishway Video Monitoring/Fish Counts

In 2010, a total of 124 bull trout utilized the adult fishway at Rocky Reach Dam to pass upstream of the Project (Table 2), an increase of 49% from 2009 (83 fish). Of these fish, 109 were visually estimated to be greater than 305 mm (12 inches) in length and 15 fish were estimated to be less than 305 mm in length. Markers on a backboard in the fish counting window are used to estimate length as fish pass through the counting chamber (window). Bull

trout were videotaped and counted (24-hour complete counts) from April 14 – November 15, 2010 during the normal fishway operation period at the Project. No bull trout mortality or injuries were observed in the adult fishway at Rocky Reach Dam during fish counting operations or during maintenance periods on the fishway in 2010.

Table 2. Bull trout adult fishway passage counts by month at Rocky Reach Dam, 2010.

Month	< 305 mm	> 305 mm	Total	Injuries/Mortality
April	0	0	0	0
May	0	24	24	0
June	4	57	61	0
July	1	12	13	0
August	7	1	8	0
September	0	1	1	0
October	1	4	5	
November	2	10	12	0
Total	15	109	124	0

2010-11 Rocky Reach Dam Adult Fishway Maintenance

Each year, Chelan PUD performs required maintenance work on the Rocky Reach adult fishway during off-season periods. The ladder is de-watered around November 30. Maintenance work is completed between December 1 and February 28. The ladder is watered-up and back in operation by March 1. During the four-day dewatering process, November 30 - December 3, a total of four bull trout were collected from the ladder and released back into the tailrace of the dam. Approximate sizes of these fish were: 1 - 178mm, 2 – 228 mm, and 1 – 406 mm. The fisheries biologist who oversees the fishway maintenance operation reported that the bull trout were healthy and in good condition when re-released (Thad Mosey, Chelan PUD, personal communication, 2011).

Tumwater and Dryden Dam Fishway Broodstock Traps

The Tumwater Dam (Tumwater) and Dryden Dam (Dryden) anadromous broodstock traps (trapping facilities are Rocky Reach Project facilities) are located in the adult fishways of Tumwater and Dryden Dams. The traps are operated by Washington Department of Fish and Wildlife (WDFW) for a portion of the year (April - August) to implement Hatchery Genetic Management Plan (HGMP) goals, conduct research, and to collect broodstock for Chelan PUD HCP hatchery programs. The Yakama Tribe operates the trap from September – November to capture broodstock for a tribal coho program.

Tumwater Dam is a remnant diversion dam located on the Wenatchee River four miles west of Leavenworth and is owned by Chelan PUD. The dam itself and fishway are not part of the Rocky Reach Project facilities. Tumwater includes accommodations for fish passage and enumeration, as well as trapping infrastructure for brood collection and research. The Washington Department of Fish and Wildlife (WDFW) is currently the primary operator of the Tumwater fishway trap for Chelan PUD's Rocky Reach Project activities (brood stock collection and steelhead reproductive study - to be completed in fall 2011). The Confederated Tribes of the Yakama Nation (Yakama), NOAA Fisheries (NOAA), the United States Fish and Wildlife

Service (USFWS), and WDFW also conduct separate spring Chinook and coho salmon restoration activities that are not related to the Rocky Reach Project. WDFW and the NOAA Science Center utilize Tumwater to capture 100% of returning spring Chinook (June – July) for a reproductive success study that began in 2004. This study is funded by Bonneville Power Administration (BPA Project No. 2003-039-00) through CBFWA (Columbia Basin Fish and Wildlife Authority) and is expected to continue through 2012. The HCP Coordinating Committee discussed this WDFW's concept for this study in November 2003 and February 2004 (HCP Coordinating Committee meeting notes, 11/2003; 2/2004). The USFWS also utilizes the Tumwater fish trap to remove adult Spring Chinook adults that stray from its Leavenworth National Fish Hatchery Program on Icicle Creek.

Since 2004, the operations at Tumwater have precluded normal use of the ladder for spring and summer-run salmon (and perhaps bull trout) and instead diverted 100% of upstream migrants through a 15 inch-wide denil and into a trapping facility, prior to observation and release upstream. This operation was initiated to support the reproductive success study for spring Chinook (2004). The high trapping rate was necessary to create a “complete parental genotype baseline” for subsequent assignments of progeny to their parents and related estimates of fitness. Under this scenario, the fishway exit gate (SG-34) is closed and the trapping chamber gate (SG-35) is opened 100% of the time (Figure 1). The denil (trap opening aka, steep pass) is only operated when staff are present in the trapping area for research and/or brood collection. When no staff are present (e.g., overnight), upstream fish passage is not permitted at Tumwater. WDFW conducts the trapping operations as principal investigator for both reproductive success studies and to collect broodstock.

Non-lethal incidental take of bull trout in the form of passage delay may be occurring at the Tumwater fishway due to trapping operations associated with Chinook and steelhead reproductive studies (Table 3). No bull trout were physically injured and no lethal take occurred in 2010 at the Tumwater trap. Biologists from the USFWS Mid-Columbia Fishery Resource Office (Leavenworth, WA.) radio-tagged bull trout in 2008 and 2009 in lower Icicle Creek to evaluate migration patterns, stream obstacles and blockages, and locate spawning areas for Icicle River bull trout (Nelson et al. 2011). One of these bull trout, radio-tag code 20, spent 22.8 days below Tumwater Dam, entering the fishway six different times, and moving up to, but not into, the fish trap several times from June 30 through July 22, 2009. On July 22, this fish finally passed upstream through the fishway and trap in 7-hours period (Nelson et al. 2011) and migrated into Chiwaukum Creek on July 24. It reportedly spawned, exited Chiwaukum Creek and traveled 37 km downstream before it perished and was recovered in the Wenatchee River (Nelson et al. 2011).

Bull trout code-20 was first detected by the telemetry antennas at the Tumwater fishway 0.7 days after it first arrived at the dam. USFWS reports that it appears this fish did not have much difficulty in finding the entrance and ascending the ladder (Nelson et al. 20011). During the full 22-day period code-20 bull trout was detected at Tumwater Dam, an additional 27 untagged bull trout were counted passing the fishway (Nelson et al. 2011).

During trapping operations, the entire anadromous run-at-large (up to 45,000 fish in recent years) are diverted from the ladder's fishway exit and into the trapping facility

(Murauskas 2011). The average proportions of salmon species encountered at Tumwater include sockeye (65%), Chinook (26%), steelhead (5%), jack Chinook (3%), and coho salmon (1%) (DART 2010). The trapping method at Tumwater is currently being evaluated by the HCP Hatchery Committee which includes representatives from Chelan PUD, NOAA, WDFW, USFWS, Colville Tribes, and the Yakama Nation. The evaluation followed Chelan PUD's February 7, 2011 memo on potential passage delays for PIT tagged spring Chinook (Josh Murauskas, Chelan PUD, communication and technical memo to HCP HC), and subsequent Hatchery Committee discussion on February 16, 2011 of those issues. A revised methodology proposed by the HCP Hatchery Committee (includes USFWS staff) to minimize trapping delay for both salmon and bull trout is being reviewed and is expected to be completed May 2011. Proposed changes under evaluation include real-time monitoring of passage times for PIT tagged Chinook and sockeye to ensure that passage delays are not occurring and possible staffing adjustments to reduce fish processing times.

Chelan PUD is also voluntarily funding improvements at the trapping facility to improve fish processing efficiency (thereby reducing passage delays) which include adding 1) a new aesthetic mixing tank to allow use of alternative anesthesia agents for decreased processing time; 2) an additional holding tank that will allow fish to be processed while keeping the denil entrance open; and 3) installing new walkways and tank layouts for staff that will increase processing efficiencies (reduce fish holding times).

In 2010, WDFW incidentally captured 66 bull trout during the Tumwater trapping operations (Table 3) from April through September (Nate Dietrich, WDFW fisheries technician, personal communication, 2011). These fish were not retained or anesthetized to avoid handling effects so length measurements were not taken. All bull trout were released upstream of the dam and fish ladder.

The Dryden Dam trap captured 9 bull trout in 2010 (Table 4) during trapping months of July and August (Chad Herring, WDFW fisheries technician, personal communication, 2011). No bull trout were captured from September - November (Greg Robison, Yakama Nation Fisheries Personal Communication 2011). No bull trout were injured or killed during 2010 during operations at either the Tumwater or Dryden fishway traps. However, passage delay at Tumwater was experienced based on radio-telemetry data for one bull trout in 2010.

Table 3. Number of bull trout trapped at the Tumwater Dam fishway broodstock trap during anadromous trapping operations in 2010.

Month	Bull trout trapped and released	Bull trout Non-lethal Take
April	1	0
May	0	0
June	9	0
July	47	1*
August	8	0
September	1	0
Total	66	0

* Non-lethal take in the form of passage delay occurred for of one bull trout in July that was radio- tagged and tracked through the fishway by USFWS.

Table 4. Number of bull trapped in the Dryden Dam Fishway broodstock trap during anadromous trapping operations in 2010.

Month	Bull trout trapped and released	Bull trout injuries/mortalities
July	5	0
August	4	0
September	0	0
October	0	0
November	0	0
Total	9	0

Predator Control Programs

Chelan PUD removed Pikeminnow from the Rocky Reach Project using four control programs in 2010 (Table 5). No fishway trapping occurred for pikeminnow in 2010, and no bull trout were incidentally captured while carrying out the four other pikeminnow control programs in Rocky Reach Reservoir in 2010.

Table 5. Number of pikeminnow harvested and the number of bull trout captured incidentally during pikeminnow predator control programs at the Rocky Reach Project in 2010.

Program	Pikeminnow Removed	Bull trout Incidental Captures	Injuries/Mortalities
USDA Hook & Line	30,621	0	0
Columba Res Set Lining	14,885	0	0
Rotary Club Derby	2,514	0	0
Adult Fishway Traps	0	0	0
Chelan Hook & Line	956	0	0
Total	48,976	0	0

Water Quality Management Plan

No bull trout were observed, captured or handled during implementation of the Rocky Reach Water Quality Management Plan in 2010.

Pacific Lamprey Management Plan

No bull trout were observed, captured or handled during any activity associated with implementation of the Rocky Reach Pacific Lamprey Management Plan in 2010. While the Rocky Reach fishway is dewatered during its normal maintenance/pump work period December 2010 - March 1, 2011, a half-duplex PIT tag detection system was partially installed in the ladder to conduct lamprey passage studies. This installation will not affect hydraulics or structures within the fishway.

White Sturgeon Management Plan

No bull trout were observed, captured, or handled during white sturgeon brood stock capture or any other activity associated with implementation of the Rocky Reach White Sturgeon Management Plan in 2010. In early April 2011, approximately 6,500 PIT tagged juvenile white sturgeon will be planted into Rocky Reach Reservoir to comply with license implantation requirements. A subsample of 40 of these fish will be acoustic tagged and monitored April – June 2011 for downstream movement to determine if fish exit Rocky Reach Reservoir.

Resident Fish Management Plan

No field work occurred and no bull trout were observed, captured, or handled during any activity associated with implementation of the Rocky Reach Resident Fish Management Plan in 2010. Reservoir fish sampling conducted by WDFW at Rocky Reach will take place in 2011 for the Resident Fish Management Plan study. WDFW Large Lakes Research Team possesses all the necessary state and federal permits necessary to conduct this work.

HCP Juvenile Salmon/Steelhead Survival Studies

No bull trout were observed, captured, or handled during activities associated with the juvenile yearling Chinook salmon survival study at Rocky Reach in 2010. A second yearling Chinook survival study using methods identical with 2010 will take place in April-May, 2011 at the Rocky Reach Project.

References Cited

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- Muaraskas, J. Passage delays and take of adult spring Chinook at Tumwater Dam observed under 100% trapping operations, 2004-2010. 2011. Unpublished Technical Memo. Public Utility District No. 1 of Chelan County.
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