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Ms. Jessica Gonzales
Wenatchee Office Lead
Central Washington Field Office
U. S. Fish and Wildlife Service
215 Melody Lane, Suite 119
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March 14, 2014

Subject: **Wells Hydroelectric Project – FERC Project No. 2149**
2013 Bull Trout Management Plan and Incidental Take Report

Dear Ms. Gonzales:

Public Utility District No. 1 of Douglas County, Washington (Douglas PUD), licensee for the Wells Hydroelectric Project No. 2149 (Wells Project) respectfully submits the attached Annual Bull Trout Management Plan and Incidental Take Report for Calendar Year 2013. This report is being filed in compliance with the reporting requirements found in the *Biological Opinion for the Proposed Relicensing of the Wells Hydroelectric Project* issued by the United States Fish and Wildlife Service (USFWS) on March 16, 2012 and as found in Appendix E of the new Federal Energy Regulatory Commission (FERC) license for the Wells Project.

The Biological Opinion, as adopted by the FERC license order for Wells Dam, requires Douglas PUD to submit its annual report to the USFWS, Central Washington Field Office on or before April 15th during each year of the license. The report is required to describe the work completed and the number of bull trout, if any, observed and /or incidentally taken during the course of implementing the license. Because the measures required by the FERC license are largely consistent with the measures found in the Aquatic Settlement Agreement's Bull Trout Management Plan (BTMP) and because the reporting requirements for the BTMP, biological opinion, Clean Water Act section 401 Water Quality Certification, and Federal Power Act section 18 Fishway Prescription are largely consistent, the 2013 Bull Trout Monitoring and Take Annual Report (this report) will be used to demonstrate compliance with all five of Douglas PUDs Wells Project bull trout obligations.

If you have any questions or require further information related to the *2013 Annual Bull Trout Management Plan and Incidental Take Report*, please feel free to contact Andrew Gingerich at (509) 881-2323 or andrewg@dcpud.org.

Sincerely,

Shane Bickford
Natural Resources Supervisor

Attachments:
(1) 2013 Bull Trout Management Plan and Incidental Take Report

Cc: Aquatic Settlement Work Group
Steve Lewis – USFWS, Wenatchee
Jeff Krupka – USFWS, Wenatchee
Judy Neibauer – USFWS, Wenatchee
Andrew Gingerich – Douglas PUD
Chas Kyger – Douglas PUD

2013 BULL TROUT MANAGEMENT PLAN AND INCIDENTAL TAKE ANNUAL REPORT

WELLS HYDROELECTRIC PROJECT

FERC PROJECT NO. 2149

March 14, 2014

Prepared by:
Public Utility District No. 1 of Douglas County
East Wenatchee, Washington

Prepared for:
United States Fish and Wildlife Service and
Aquatic Settlement Work Group

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EXECUTIVE SUMMARY

The annual Bull Trout Management Plan (BTMP) and Incidental Take Report includes a summary of all of the existing bull trout measures required by the Federal Energy Regulatory Commission (FERC) including Article 406 of the license for the Wells Project, the requirements found within Appendix A (Clean Water Act section 401 Water Quality Certification), Appendix C (U.S. Department of Interior's Federal Power Act section 18 Fishway Prescriptions for the Wells Project), and Appendix E (2012 Endangered Species Act (ESA) section 7 bull trout consultation for the relicensing of the Wells Project). The 2012 bull trout ESA section 7 consultation requires Douglas PUD to submit an annual take report to the Central Regional Office of the USFWS on or before April 15th each year. Article 406 of the license requires Douglas PUD to submit an annual report of management plan activities by May 31st of each year.

Because the measures required by the FERC license are largely consistent with the measures found in the Aquatic Settlement Agreement's BTMP and because the reporting requirements for the BTMP, biological opinion, Clean Water Act section 401 Water Quality Certification, and Federal Power Act section 18 Fishway Prescription are largely consistent, the 2013 Bull Trout Monitoring and Take Annual Report (this report) will be used to demonstrate compliance with all five of Douglas PUDs Wells Project bull trout obligations.

The goal of the BTMP is to identify, monitor, and address impacts, if any, on bull trout (*Salvelinus confluentus*) resulting from the Project in a manner consistent with the United States Fish and Wildlife Service (USFWS) Bull Trout Recovery Plan and the terms of the Section 7 Incidental Take Statement (ITS). The BTMP is intended to continue the implementation of management activities to protect bull trout during the new license term in a manner consistent with the original Wells Bull Trout Monitoring and Management Plan (WBTMMP) (Douglas 2004). The 2004 WBTMMP was developed in coordination with the USFWS, as required by the USFWS Bull Trout Section 7 Biological Opinion (BO) in association with the Federal Energy Regulatory Commission's (FERC) approval of the HCP. The PMEs presented within the BTMP are designed to meet the following objectives:

Objective 1: Operate the upstream fishways and downstream bypass systems in a manner consistent with the HCP. In 2013 Public Utility District No. 1 of Douglas County (Douglas PUD) maintained safe, efficient and timely passage through the downstream juvenile fish bypass system and upstream adult fishway passage structures for bull trout and conducted video monitoring of the Wells Dam fishway viewing windows during fish passage season. Douglas PUD continued to operate the juvenile fish bypass system at Wells Dam in accordance with criteria outlined in the Wells HCP.

Objective 2: Identify any adverse Project-related impacts on adult and sub-adult bull trout passage. Douglas PUD will implement the year 5 Passage Evaluation Study in 2017 or earlier if the 5-year average adult bull trout count of 60 fish increases more than two times (120 or more bull trout counted in a single year). No significant changes in the operation of the fish ladders or hydrocombine have been implemented or are proposed that would trigger the implementation of bull trout passage evaluation. During 2013 Douglas PUD, in consultation with the Aquatic

Settlement Work Group (Aquatic SWG), filed a letter with the FERC recommending that Douglas PUD should postpone the Off-Project Passage Evaluation until year five (2017) of the new license when the Bull Trout Passage and Enumeration Study is scheduled to take place at Wells Dam (Appendix A). In addition, the United States Fish and Wildlife Service submitted a letter requesting deferral of the study. FERC approved the deferral of the Twisp Weir Bull Trout Radio Telemetry Study on October 15, 2013 (Appendix B).

During 2013, one sub-adult bull trout was collected during winter maintenance related fish salvage activities in one of the adult fishways. No new sub-adult related monitoring activities were implemented or are proposed; fewer than 10 sub-adult bull trout have been observed at Wells Dam in a single calendar year.

Objective 3: Implement reasonable and appropriate options to modify upstream fishway, downstream bypass, or operations if adverse impacts on bull trout are identified and evaluate the effectiveness of these measures. No new adverse impacts to bull trout were identified in 2013.

Objective 4: Periodically monitor for bull trout entrapment or stranding during low Wells Reservoir elevations. Stranding surveys were not conducted in 2013 becuase reservoir elevation did not fall below 773' Mean Sea Level (MSL). In consultation with the Aquatic SWG, Douglas PUD developed the Bull Trout Stranding, Entrapement and Take Study plan (BTSET Plan) pursuant to license Article 402 requiring this plan to be developed within one year of license issuance. The BTSET Plan was filed with the FERC on September 24, 2013 (Appendix C). On October 29, 2013 the FERC approved the BTSET Plan (Appendix D). The plan provides details on how Douglas PUD will conduct stranding surveys in the future when reservoir elevation drops to 773' MSL or lower.

Objective 5: Participate in the development and implementation of the USFWS Bull Trout Recovery Plan including information exchange and genetic analysis. Should bull trout be delisted, the Aquatic SWG will re-evaluate the needs and objectives of the BTMP. Genetic samples were collected for all of the bull trout captured at the Twisp Weir in 2013. Samples will be analyzed if requested by the Aquatic SWG. Genetic samples will be taken at Wells Dam in year ten of the new license.

Objective 6: Identify any adverse impacts of Project-related hatchery operations on adult and sub-adult bull trout. In 2013, the number of bull trout encountered during hatchery operation activities was comparable to previous years. Hatchery actions in 2013 were very similar to other years where broodstock was collected at Wells Dam and the Twisp Weir traps. In consultation with the Aquatic SWG, Douglas PUD developed the BTSET Plan pursuant to license Article 402 requiring this plan to be developed within one year of license issuance. The BTSET Plan was filed with the FERC on September 24, 2013. On October 29, 2013 the FERC approved the BTSET Plan. The plan provides details on how Douglas PUD will monitor bull trout take during hatchery actions and operations required by the Wells HCP for anadromous salmonids. The incidental capture of bull trout in 2013, that occurred during the implementation of HCP related action, was summarized in a Methow Basin Bull Trout Behavior Report. The report was distributed to the Aquatic SWG on Jan 22nd, 2014 with no comment received following a 30 day

review. The final Methow Basin Bull trout Behavior Report isattached to this report in Appendix E.

1.0 INTRODUCTION

To ensure active stakeholder participation and support, the Public Utility District No. 1 of Douglas County (Douglas PUD) developed all of the resource management plans found in the Aquatic Settlement Agreement in close coordination with agency and tribal natural resource managers (Aquatic Settlement Work Group or Aquatic SWG). During the development of this plan, the Aquatic SWG focused on developing management priorities for resources potentially impacted by Project operations. Entities invited to participate in the Aquatic SWG include the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), Bureau of Land Management (BLM), Bureau of Indian Affairs (BIA), Washington Department of Ecology (Ecology), Washington State Department of Fish and Wildlife (WDFW), the Confederated Tribes of the Colville Reservation (Colville), the Confederated Tribes and Bands of the Yakama Nation (Yakama Nation), and Douglas PUD.

The BTMP directs the implementation of measures to mitigate project impacts, if any, on bull trout (*Salvelinus confluentus*) and to monitor incidental take of bull trout at the Wells Project. To ensure active stakeholder participation and support, Douglas PUD developed this plan, along with the other aquatic management plans, in close coordination with the members of the Aquatic SWG.

The Aquatic SWG agreed on the need to develop a plan to direct the long-term management of bull trout in the Project. This management plan summarizes the relevant resource issues and background (Section 2), identifies goals and objectives of the plan (Section 3), and defines the relevant PMEs (Section 4) for bull trout during the term of the new license.

Additionally, is the BTMP is intended to continue implementation activities aimed at protecting bull trout in a manner consistent with measures specified in the original Wells Bull Trout Monitoring and Management Plan (WBTMMP) (Douglas 2004). The 2004 WBTMMP was developed in consultation with the USFWS, as required by the USFWS Bull Trout Biological Opinion (BO) in association with the implementation of the HCP.

In addition to the requirements found within the BTMP, the Endangered Species Act (ESA) Section 7 consultation for the relicensing of the Wells Project, the Clean Water Act section 401 Water Quality Certification, Federal Power Act section 18 Fishway Prescription, and the new Federal Energy Regulatory Commission (FERC) license have added several additional bull trout related requirements associated with the continued operation of the Wells Project.

Because the measures required by the BO are entirely consistent with the measures found in the Aquatic Settlement Agreement's BTMP and because the reporting requirements for the BTMP, bull trout BO and Article 406 are consistent, the 2013 BTMP Annual Report (this report) will be used to satisfy all three of the bull trout annual reporting requirements.

2.0 BACKGROUND

2.1 Bull Trout Biology

Bull trout are native to northwestern North America, historically occupying a large geographic range extending from California north into the Yukon and Northwest Territories of Canada, and east to western Montana and Alberta (Cavender 1978). They are generally found in interior drainages, but also occur on the Pacific Coast in Puget Sound and in the large drainages of British Columbia.

Bull trout currently occur in lakes, rivers and tributaries in Washington, Montana, Idaho, Oregon (including the Klamath River basin), Nevada, two Canadian Provinces (British Columbia and Alberta), and several cross-boundary drainages in extreme southeast Alaska. East of the Continental Divide, bull trout are found in the headwaters of the Saskatchewan River in Alberta, and the McKenzie River system in Alberta and British Columbia (Cavender 1978; McPhail and Baxter 1996; Brewin and Brewin 1997). The remaining distribution of bull trout is highly fragmented.

Bull trout are a member of the char group within the family Salmonidae. Bull trout closely resemble Dolly Varden (*Salvelinus malma*), a related species. Genetic analyses indicate, however, that bull trout are more closely related to an Asian char (*Salvelinus leucomaenis*) than to Dolly Varden (Pleyte et al. 1992). Bull trout are sympatric with Dolly Varden over part of their range, most notably in British Columbia and the Coastal-Puget Sound region of Washington State.

Bull trout are believed to have more specific habitat requirements than other salmonids (Rieman and McIntyre 1993). Growth, survival, and long-term persistence are dependent upon habitat characteristics such as clean, cold, connected, and complex instream habitat, a stable substrate with a low percentage of fine sediments, high channel stability, and stream/population connectivity (USFWS et al. 2000). Stream temperature and substrate type, in particular, are critical factors for the sustained long-term persistence of bull trout. Spawning is often associated with the coldest, cleanest, and most complex stream reaches within basins. However, bull trout may exhibit a patchy distribution, even in pristine habitats, and should not be expected to occupy all available habitats at the same time (Rieman and McIntyre 1995; Rieman et al. 1997).

Bull trout exhibit four distinct life history types: resident, fluvial, adfluvial, and anadromous. The fluvial, adfluvial, and resident forms exist throughout the range of the bull trout (Rieman and McIntyre 1993). These forms spend their entire life in freshwater. The anadromous life history form is currently known only to occur in the Coastal-Puget Sound region within the coterminous United States (Volk 2000; Kraemer 1994; Mongillo 1993). Multiple life history types may be expressed in the same population, and this diversity of life history types is considered important to the stability and viability of bull trout populations (Rieman and McIntyre 1993).

The majority of growth and maturation for anadromous bull trout occurs in estuarine and marine waters, adfluvial bull trout in lakes or reservoirs, and fluvial bull trout in large river systems.

Resident bull trout populations are generally found in small headwater streams where fish remain their entire lives.

For migratory life history types, juveniles tend to rear in tributary streams for 1 to 4 years before migrating downstream into a larger river, lake, or estuary and/or nearshore marine area to mature (Rieman and McIntyre 1993). In some lake systems, age 0+ fish (less than 1 year old) may migrate directly to lakes (Riehle et al. 1997). Juvenile and adult bull trout in streams frequently inhabit side channels, stream margins and pools with suitable cover and areas with cold hyporheic zones or groundwater upwellings (Sexauer and James 1993; Baxter and Hauer 2000).

2.2 Species Status

On June 10, 1998, the USFWS listed bull trout within the Columbia River basin as threatened under the Endangered Species Act (ESA) (FR 63(111)). Later (November 1, 1999), the USFWS listed bull trout within the coterminous United States as threatened under the ESA (FR 64(210)). The USFWS identified habitat degradation, fragmentation, and alterations associated with dewatering, road construction and maintenance, mining, and grazing; blockage of migratory corridors by dams or other diversion structures; poor water quality; incidental angler harvest; entrainment into diversion channels; and introduced non-native species as major factors affecting the distribution and abundance of bull trout. They noted that dams (and natural barriers) have isolated population segments resulting in a loss of genetic exchange among these segments (FR 63(111)). The USFWS believes many populations are now isolated and disjunct. In October 2002, the USFWS completed the first draft of a bull trout recovery plan intended to provide information and guidance that will lead to recovery of the species, including its habitat (USFWS 2002). Threatened bull trout population segments are widely distributed over a large area and because population segments were subject to listing at different times, the USFWS adopted a two-tiered approach to develop the draft recovery plan for bull trout (USFWS 2002). In November 2002, the USFWS published in the federal register a proposed rule for the designation of critical habitat for the Klamath River and Columbia River distinct population segments of bull trout (67 FR 71235). In October 2004 the USFWS published a final rule in the Federal Register designating critical habitat for the Klamath River and Columbia River populations of bull trout (69 FR 59995).

In April 2008, the USFWS completed the 5-year status review for Columbia River bull trout with two recommendations: maintain "threatened" status for the species, and determine if multiple distinct population segments exist within the Columbia River and merit protection under the ESA. The recommendations intend to facilitate analysis of project effects over more specific and biologically appropriate areas, ultimately allowing a greater focus of regulatory protection and recovery resources (USFWS 2008a). The review also identified specific issues that limit the overall ability to accurately and quantitatively evaluate the current status of bull trout. Seven recommendations were made to improve future evaluation and management decisions, all of which are largely based on improvement and standardization of monitoring and evaluation techniques, better delineation and agreement of core areas and Recovery Units, and multi-agency cooperation and management (USFWS 2008b).

The Wells Project is situated within the Upper Columbia River Recovery Unit and the USFWS has identified the Wenatchee, Entiat, and Methow Rivers as its core areas. A core area represents the closest approximation of a biologically functioning unit for bull trout. A core area functions as a metapopulation for bull trout. Not all core areas are equal and each has specific functions that are unique. For example, the Entiat Core Area depends heavily on the mainstem Columbia River to provide overwinter, migration, and forage habitats. The Wenatchee Core Area has populations using lake and riverine (both the Wenatchee and Columbia Rivers) habitat for overwintering, migration, and foraging. Within a core area, many local populations may exist. A local population is assumed to be the smallest group of fish that is known to represent an interacting reproductive unit. Nineteen local populations have been identified in the Wenatchee (7), Entiat (2) and Methow (10) core areas (USFWS 2002).

2.3 Project Bull Trout Studies

2.3.1 2001-2003 Project Bull Trout Study

Listed Columbia River bull trout have been observed and counted at Wells Dam since 1998. In 2000, due to the potential for operations at mid-Columbia dams to affect the movement and survival of bull trout, the USFWS requested that the three mid-Columbia PUDs (Douglas, Chelan, and Grant PUDs) evaluate the movement and status of bull trout in their respective project areas. At that time, little was known about the life-history characteristics (e.g., movements, distribution, habitat use, etc.) of bull trout in the mid-Columbia River. Therefore, in order to assess the operational effects of hydroelectric projects on bull trout within the mid-Columbia, a three PUD coordinated radio-telemetry study was implemented beginning in 2001. The goal of the study was to monitor the movements and migration patterns of adult bull trout in the mid-Columbia River using radio-telemetry (Figure 2.3-1). The number of trout to be collected and tagged at each dam (Rock Island, Rocky Reach, and Wells) was based on the proportion of fish that migrated past those dams in 2000.

From 2001-2003, bull trout were collected from the Wells, Rocky Reach, and Rock Island dams and radio-tagged. Multiple-telemetry techniques were used to assess the movement of tagged bull trout within the study area. At Wells Dam, a combination of aerial and underwater antennas was deployed. The primary purpose for this system was to document the presence of bull trout at the Project, identify passage times and determine their direction of travel (upstream/downstream). In addition to these systems, a number of telemetry systems were deployed to address specific questions posed by the USFWS and Douglas PUD. At Wells Dam, several additional systems were installed to identify tagged bull trout that could enter, ascend, and exit specific gates and fish ladders. All possible access points to the adult fish ladders and the exits were monitored individually in 2001, 2002, and 2003, allowing the route of passage to be determined as well as the ability to establish the exact time of entrance and exit from the ladder system. English et al. (1998; 2001) provides a detailed description of the telemetry systems at each of the dams and within the tributaries.

To assess bull trout movements into and out of the Wells Reservoir, fixed-telemetry monitoring sites were established at the mouth of the Methow and Okanogan rivers and periodic aerial surveys were conducted on the reservoir and throughout both watersheds (English et al. 1998, 2001). Key findings of the multi-year study are as follows:

- Total upstream fishway counts (May 1st to November 15th) at Wells Dam from 2000 to 2003 were 90, 107, 76, and 53 bull trout, respectively.
- Adult bull trout migrate upstream through Wells Dam from May through November. Peak movement occurs in May and June with 94, 95, 92, and 89 percent of adult bull trout being detected during these months at Wells Dam for years 2000-2003, respectively.
- Tagged migratory adult bull trout successfully move both upstream and downstream past the Project (radio-telemetry). From the 79 bull trout radio-tagged in 2001 and 2002 at Rock Island, Rocky Reach, and Wells, five bull trout passed downstream through Wells Dam with no documented mortality. Twelve downstream passage events occurred at Rocky Reach (4) and Rock Island (8) through turbines from 2001 to 2003. None of the 17 (5 Wells, 4 Rocky Reach and 8 Rock Island) observed downstream passage events resulted in observed mortality of bull trout.
- Between 2001 and 2003, a total of 10 (2 tagged at Rock Island, 4 Rocky Reach, 4 Wells), 11 (4 Wells, 5 Rocky Reach, 2 from 2001), and 1 (1 Wells) tagged bull trout were detected moving upstream of the Project, respectively.
- Median tailrace times (tailrace detection to ladder entrance detection) during the telemetry study at Wells in 2001-2003 were 1.53, 7.84, and 1.00 days, respectively. Median travel times (tailrace detection to ladder exit detection) during the telemetry study at Wells in 2001-2003 were 8.87, 7.60, and 1.16 days, respectively. Median ladder passage times (entrance detection to ladder exit detection) during the telemetry study at Wells in 2001-2003 were 5.70, 0.23, and 0.16 days, respectively.
- Adult bull trout migrating upstream of Wells Dam appear to be destined for the Methow River. Between 2001 and 2003, no bull trout selected the Okanogan system (one trout moved into the Okanogan, but left shortly thereafter and moved into the Methow system).
- Median travel time from Wells Dam (detection at ladder exit) to first detection in the Methow River in 2001-2003 was 0.40, 2.78, and 1.09 days, respectively.
- All tributary entrance events (fixed station detections) into the Methow River by bull trout (28 total events, 2001-2003) occurred before June 27. An additional two bull trout, not detected by the tributary fixed station systems, were detected in the Methow River via 2002 aerial surveys. Bull trout in the Methow system selected two primary areas, the mainstem Methow River and the Twisp River.
- 30% (9/30) of bull trout that entered the Methow River have been detected leaving the system. Tributary exit dates were recorded for 78% (7/9) of these emigrating bull trout and 86% (6/7) of bull trout with a recorded exit date left the Methow River system between October and December.
- Bull trout migrating upstream through Wells Dam in 2001 were 5 year old (n=2, mean fork length=55.6cm) and 6 year old (n=6, mean fork length= 54.6cm) fish as determined by scales.

- 92% (11/12) and 53% (8/15) of tagged bull trout detected in the vicinity of Wells Dam entered the Wells Hatchery Outfall in 2001 and 2002, respectively. It is possible that the bull trout frequented the outfall in search of prey. Typical operation at the hatchery is to volitionally release yearling chinook smolts between April 15 and 30, and subyearling chinook smolts in early June. Given that bull trout feed opportunistically (Goetz 1989), it is likely that the tagged bull trout were taking advantage of the large concentration of juvenile salmonids within the hatchery outfall system.

2.3.2 2005-2008 Project Bull Trout Study

On December 10, 2003, the USFWS received a request from the FERC for formal consultation to determine whether the proposed incorporation of the HCP into the FERC license for operation of the Project was likely to jeopardize the continued existence of the Columbia River distinct population segment (DPS) of ESA-listed bull trout, or destroy or adversely modify proposed bull trout critical habitat. In response to the FERC request and based upon the results of the 2001-2003 study, which suggested that continued operations are not likely to jeopardize bull trout, the USFWS filed the BO and Incidental Take Statement (ITS) with FERC. On June 21, 2004, FERC issued an order incorporating the HCP and the terms and conditions of the ITS into the FERC license for the Project.

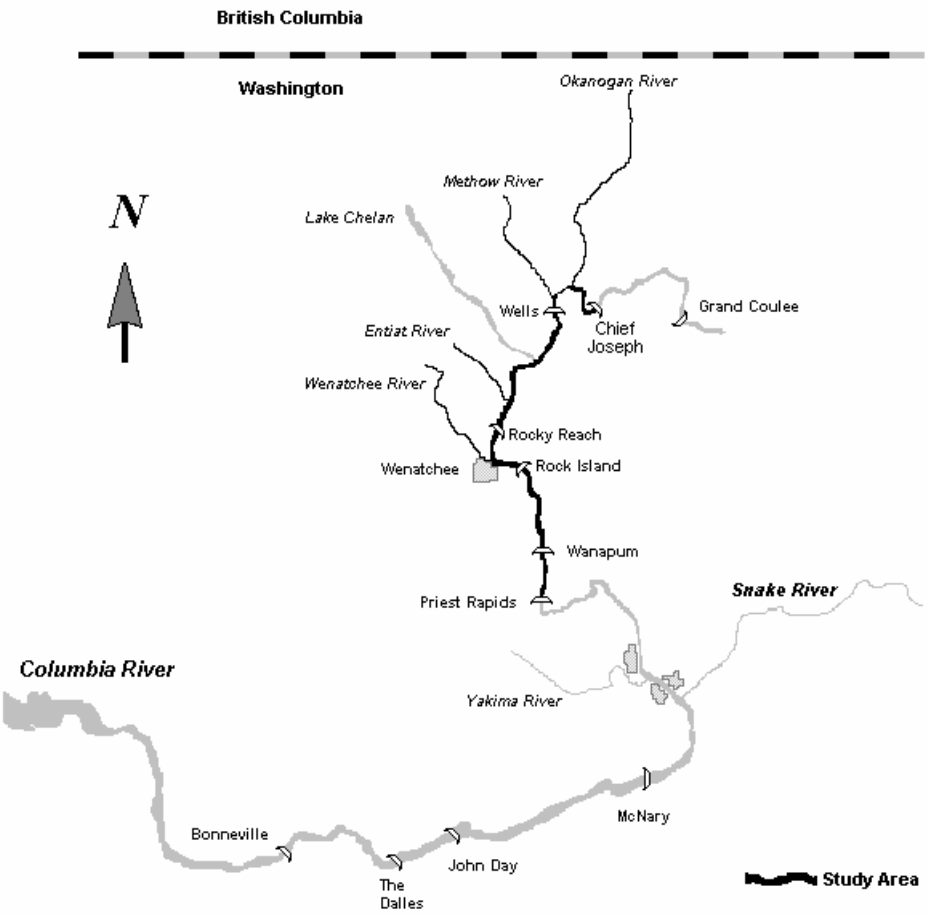

Figure 2.3-1 Study area for assessing migration patterns of bull trout in the mid-Columbia River (2001-2003). Fixed radio-telemetry sites monitored the movement of bull trout near Priest Rapids, Wanapum, Rock Island, Rocky Reach and Wells dams. Fixed sites placed in the Wenatchee, Entiat, Methow and Okanogan rivers monitored time of entry and exodus of bull trout in large tributaries of the mid-Columbia River.

In 2004, Douglas in consultation with the USFWS and as required under the HCP BO, developed the WBTMMP. The goal of the WBTMMP is to continue monitoring and evaluating bull trout in the Project to quantify and address, to the extent feasible, potential Project impacts on bull trout. Implementation of WBTMMP measures specifically include: (1) address ongoing Project impacts through the life of the existing operating license; (2) provide consistency with recovery actions as outlined in the USFWS bull trout recovery plan; and (3) monitor and minimize the extent of incidental take of bull trout, if any, consistent with Section 7 of the ESA. WBTMMP implementation started in 2005 and continued through the spring of 2008. Objectives of the plan include identifying Project impacts, if any, on upstream and downstream passage of adult and sub-adult bull trout through Wells Dam, investigating the potential for sub-adult entrapment or stranding in off-channel or backwater areas of Wells Reservoir, and identifying the Core Areas and Local Populations, as defined in the USFWS Bull Trout Recovery Plan, of bull trout that utilize the Project.

To address Project impacts, if any, on upstream and downstream passage of adult bull trout, Douglas PUD captured and radio-tagged 6, 10, and 10 adult bull trout at Wells Dam in 2005, 2006, and 2007, respectively (LGL and Douglas PUD, 2008). In 2005, all six fish traveled upstream into the Methow River and no downstream passage events were recorded. Travel time from release (after tagging) until entrance into the Methow River ranged from 7 hours to 12 days. In 2006, in addition to the 10 adult bull trout radio-tagged at Wells Dam, the USFWS radio-tagged 13 bull trout in the Methow River Core Area and Public Utility District No.1 of Chelan County (Chelan PUD) released 29 tagged bull trout from Rocky Reach and Rock Island dams. In total, 13 downstream passage events and 8 upstream passage events were recorded at Wells Dam in 2006. There were no observed instances of bull trout mortality resulting from these passage events. In 2007, 10 bull trout were tagged at Wells Dam, the USFWS tagged 5 bull trout in the Methow River Core Area, and Chelan PUD released 19 tagged bull trout from Rocky Reach and Rock Island dams. In total, 1 downstream passage event and 3 upstream passage events were recorded at Wells Dam in 2007. Similar to 2006, no instances of bull trout mortality were observed resulting from these passage events. From 2005 to 2008 (all radio-tagged fish combined), 25 downstream passage events and 52 upstream passage events by 40 individual bull trout were recorded at Wells Dam with no observances of bull trout injury or mortality (LGL and Douglas PUD, 2008). From 2005-2007, no adult or sub-adult bull trout were observed utilizing Wells Dam fishways during the winter monitoring period (typically November 16 to April 30). Monitoring of radio-tagged adult bull trout ended in June 2008.

To address potential project-related impacts on sub-adult bull trout, fish were opportunistically tagged with passive integrated transponder (PIT) tags when encountered during standard fish sampling operations at Wells Dam or during off-Project tributary smolt trapping activities. In 2005, 2006, 2007, and 2008 a total of 16, 20, 14, and 17 sub-adult bull trout were PIT-tagged during tributary smolt sampling activities, respectively. No sub-adult bull trout were observed during Wells Dam fish sampling operations or by the adult PIT-tag detection system in the fishways. Over the 2005-2008 period, no sub-adult bull trout were observed utilizing Wells Dam fishways during the winter period.

In 2005, Douglas PUD collected high resolution bathymetric information of Project waters to address the potential for entrapment or stranding of bull trout in off-channel or backwater areas of the Wells Reservoir. This data combined with Wells inflow patterns, reservoir elevations, and backwater curves would allow Douglas PUD to begin identifying entrapment or stranding areas. In 2006, a field survey of potential bull trout stranding sites using bathymetric and operations information was conducted during a period of low reservoir elevation associated with the Methow River flood control program. Following a complete survey of the project, no stranded bull trout (sub-adult or adult) were found during the 2006 low water event. In 2007, reservoir conditions were not sufficiently low to warranted further field investigations.

In support of identifying the local populations and core areas of bull trout utilizing the Project area, Douglas PUD funded the collection of genetic samples from 22, 20, and 24 bull trout in 2005, 2006 and 2007, respectively. In 2005, 6 samples were collected at Wells Dam and 16 were collected at off-Project operations (Methow and Twisp river screw traps). In 2006, 10 samples were collected at Wells Dam and 10 samples were collected at off-Project operations. In 2007, 10 samples were collected at Wells Dam and 14 samples were collected at off-Project operations. All genetic samples were provided to the USFWS.

3.0 GOALS AND OBJECTIVES

The goal of this report is to identify, monitor and address impacts, if any, on bull trout resulting from the Project in a manner consistent with the USFWS Bull Trout Recovery Plan and the terms of the Section 7 ITS (See Section 4.7). This report, whose measures can be found within the BTMP, provides a summary of all the management activities implemented during calendar year 2013 to protect bull trout during the first full year of the new FERC license for the Project. The PMEs presented within the BTMP are designed to meet the following objectives:

Objective 1: Operate the upstream fishways and downstream bypass systems in a manner consistent with the HCP;

Objective 2: Identify any adverse Project-related impacts on adult and sub-adult bull trout passage;

Objective 3: Implement reasonable and appropriate options to modify upstream fishway, downstream bypass, or operations if adverse impacts on bull trout are identified and evaluate effectiveness of these measures;

Objective 4: Periodically monitor for bull trout entrapment or stranding during low Wells Reservoir elevations (similar to WBTMMP);

Objective 5: Participate in the development and implementation of the USFWS Bull Trout Recovery Plan, including information exchange and genetic analysis. Should bull trout be delisted, the Aquatic SWG will re-evaluate the needs and objectives of the BTMP;

Objective 6: Identify any adverse impacts of Project-related hatchery operations on adult and sub-adult bull trout.

This BTMP was designed to be compatible with other bull trout management plans and the Upper Columbia Salmon Recovery Plan (UCSRP) in the Columbia River mainstem. Furthermore, the BTMP was designed to not be inconsistent with other management strategies of federal, state and tribal natural resource management agencies and supportive of designated uses for aquatic life under WAC 173-201A, the Washington state water quality standards.

4.0 PROTECTION, MITIGATION AND ENHANCEMENT MEASURES

In order to fulfill the goals and objectives described in Section 3.0 of the BTMP, Douglas PUD, in consultation with the Aquatic SWG, has initiated the implementation of the following measures.

4.1 Operate the Upstream Fishways and Downstream Bypass Systems in a Manner Consistent with the HCP (Objective 1)

4.1.1 Provide Upstream and Downstream Passage for Adult and Sub-adult Bull Trout

Douglas PUD will continue to provide upstream passage for adult bull trout through the existing upstream fishways and downstream passage of adult and sub-adult bull trout through the existing downstream bypass system. Both upstream fishway facilities (located on the west and east shores) are operational year around with maintenance occurring on each fishway at different times during the winter to ensure that one upstream fishway is always operational. Maintenance activities on Wells fishways occur during the winter when bull trout have not been observed passing Wells Dam. Operation of the downstream passage facilities for bull trout will be consistent with bypass operations for Plan Species identified in the Wells HCP. Currently the bypass system is operated from April 12 through August 26 of each year. This operating period is consistent with the period of high bull trout and anadromous fish presence at the Project.

4.1.1.1 Progress Towards Meeting Objective 1 in 2013 - Provide Upstream and Downstream Passage for Adult and Sub-adult Bull Trout

Consistent with the requirements of the FERC license for the Wells Project and the Wells HCP, Douglas PUD maintained safe, efficient and timely passage through the downstream juvenile fish bypass system and upstream adult fishway passage structures for bull trout. Winter maintenance occurred in the adult fishway structures in January 2013 and December 2013. At least one of the adult fishways was in operation at all times during the winter maintenance period (December – February) and both adult fishways were in operation for the remainder of the year (March – November).

Juvenile Fish Bypass operations were implemented consistent with the HCP Coordinating Committee approved Bypass Operations Plan for 2013. The dates of operation included initiation on April 9th at 000 hours with the bypass system operated continuously until midnight on August 19th. The 2013 dates of operation for the juvenile fish bypass system were developed in consultation with the Wells HCP Coordinating Committee and are the result of species run-timing estimates developed by the University of Washington and Columbia Basin Research that were reviewed, approved and adopted by the Wells HCP Coordinating Committee and implemented by Douglas PUD prior to the beginning of the 2013 bypass season.

4.1.2 Upstream Fishway Counts

Douglas PUD shall continue to conduct video monitoring in the Wells Dam fishways from May 1st through November 15th to count and provide information on the population size of upstream moving bull trout.

4.1.2.1 Progress Towards Meeting Objective 1 in 2013 - Upstream Fishway Counts

One hundred and thirteen bull trout were counted at Wells Dam fish ladder viewing windows in 2013. Counts at Wells in 2013 were more than twice the five year average from 2008-2012. Ninty eight percent of the passage occurred during the months of May and July, which is consistent with historic peak passage at Wells Dam. This passage is often associated with upstream movement towards natal streams in the Methow basin where fall spawning occurs.

4.1.3 Upstream Fishway Operations Criteria

Douglas PUD shall continue to operate the upstream fishway at Wells Dam in accordance with criteria outlined in the HCP.

4.1.3.1 Progress Towards Meeting Objective 1 in 2013 - Upstream Fishway Operations Criteria

Consistent with the license and the Wells HCP, Douglas PUD continued to operate the two upstream fishways at Wells Dam in accordance with upstream fishway criteria found in the HCP and as approved by the Wells HCP Coordinating Committee.

4.1.4 Bypass Operations Criteria

Douglas PUD shall continue to operate the bypass system at Wells Dam in accordance with criteria outlined in the Wells HCP.

4.1.4.1 Progress Towards Meeting Objective 1 in 2013 - Bypass Operations Criteria

Consistent with the license and the Wells HCP, Douglas PUD continued to operate the juvenile fish bypass system at Wells Dam in accordance with criteria outlined in the Wells HCP and as approved by the HCP Coordinating Committee.

4.2 Identify Any Adverse Project-related Impacts on Adult and Sub-adult Bull Trout Passage (Objective 2)

4.2.1 Adult Bull Trout Upstream and Downstream Passage Evaluation

Douglas PUD shall continue to monitor upstream and downstream passage and incidental take of adult bull trout through Wells Dam and in the Wells Reservoir through the implementation of a radio-telemetry study. Specifically, in years 5 and 10 of the new license, and continuing every ten years thereafter during the new license term, Douglas PUD will conduct a one-year monitoring program to determine whether Douglas PUD remains in compliance with the ITS.

The same study protocols used during past radio-telemetry assessments at Wells Dam (LGL and Douglas PUD 2007) will be employed for these monitoring studies.

If the adult bull trout counts at Wells Dam increases more than two times the existing 5-year average or if there is a significant change in the operation of the fish ladders or hydrocombine, then the Aquatic SWG will determine whether additional years of take monitoring are needed beyond those identified in this section of the BTMP. If the authorized incidental take level is exceeded during any one-year period, Douglas PUD will conduct another monitoring study in the succeeding year. If the authorized incidental take level is exceeded in this second year, Douglas PUD will develop a plan, in consultation with the Aquatic SWG, to address the identified factors contributing to exceedance of the allowable level of incidental take.

4.2.1.1 Progress Towards Meeting Objective 2 in 2013 - Adult Bull Trout Upstream and Downstream Passage Evaluation

Douglas PUD will implement the year 5 Passage Evaluation Study in 2017 or earlier if the 5-year average adult bull trout count of 60 fish increases more than two times (120 or more bull trout counted in a single year). At the time that the Aquatic Settlement Agreement was signed the five year average count of bull trout at Wells Dam was 60 fish. In 2013 the five year average increased to 68 fish per year, representing a 13% increase.

No significant changes in the operation of the fish ladders or hydrocombine have been implemented or are proposed that would trigger the early implementation of bull trout passage evaluation.

4.2.2 Adult Bull Trout Passage Evaluation at Off-Project Collection Facilities

Douglas PUD shall assess upstream and downstream passage and incidental take of adult, migratory bull trout at off-Project (outside of the Project boundary) adult salmon and steelhead broodstock collection facilities associated with the Wells HCP. Specifically, beginning in year one of the new license, Douglas PUD will conduct a one-year radio-telemetry study to assess passage and incidental take at off-Project adult collection facilities (i.e., Twisp weir). Douglas PUD will capture and tag up to 10 adult, migratory bull trout (>400mm) at adult collection facilities and use fixed receiver stations upstream and downstream of collection facilities to examine upstream and downstream passage characteristics and incidental take. Study protocols that have been used during past radio-telemetry assessments at Wells Dam (LGL and Douglas PUD 2008) will be employed for this assessment.

If negative impacts to passage associated with Off-Project collection facilities are observed or the authorized incidental take level is exceeded during any one-year period, Douglas PUD will conduct another monitoring study in the succeeding year. If negative impacts to passage continue to be observed or the authorized incidental take level is exceeded in this second year, Douglas PUD will develop a plan, in consultation with the Aquatic SWG, to address the identified factors contributing to passage impacts or the exceedance of the allowable level of incidental take.

After year one of the new license, the implementation of this sub-objective will be integrated into the one-year telemetry monitoring program that is to be conducted every ten years (beginning in year 10 of the new license) at Wells Dam as identified in Section 4.2.1. In year 10 of the new license and every 10 years thereafter, bull trout will be captured and tagged only at Wells Dam (Section 4.2.1) since data show that bull trout passing Wells Dam are migrating back into the Methow River watershed (LGL and Douglas PUD 2008). Through the continued deployment of fixed station monitoring at off-Project adult salmon and steelhead broodstock collection facilities, these tagged bull trout will continue to provide passage and take information in support of this sub-objective throughout the term of the new license.

4.2.2.1 Progress Towards Meeting Objective 2 in 2013 - Adult Bull Trout Passage Evaluation at Off-Project Collection Facilities

During 2012 Douglas PUD in consultation with the Aquatic SWG developed a study plan to assess incidental take of bull trout at the Twisp River Weir broodstock collection facility. After discussions with the Aquatic SWG and specifically with the USFWS, the parties including the USFWS signatories agreed that Douglas PUD should postpone the Off-Project Passage Evaluation until year five (2017) of the new license when the Bull Trout Passage and Enumeration Study is scheduled to take place at Wells Dam. Combining the studies would provide a more comprehensive study and potentially require less study fish than two independent studies, thereby limiting the overall impact or take associated with these studies on the bull trout population in the Methow basin.

During 2013 Douglas PUD in consultation with the Aquatic SWG filed a letter with the FERC stating that Douglas PUD should postpone the Off-Project Passage Evaluation until year five (2017) of the new license when the Bull Trout Passage and Enumeration Study is scheduled to take place at Wells Dam (Appendix A). FERC approved the deferral of the Twisp Weir Radio Telemetry Study on October 15, 2013 (Appendix B).

In 2013, Douglas PUD agreed to summarize bull trout behavior in the Methow basin, specifically behavior around the Twisp Weir using bull trout that have been PIT tagged in the Methow basin and at Wells Dam during hatchery and HCP actions. Douglas PUD provided this behavior summary to the Aquatic SWG on January 22, 2014, which summarizes all movements of bull trout during 2013 and previous years since bull trout have been incidentally captured and PIT tagged. Results suggest that bull trout move in a predictable manner that is associated with spawning migrations and finding over wintering locations at given times of the year. In addition the report demonstrates wide spectrum of detection probabilities associated with PIT tagged bull trout in the Methow basin. The report is included in Appendix E.

4.2.3 Sub-adult Bull Trout Monitoring

While an objective of the BTMP is to identify potential Project impacts on upstream and downstream passage of sub-adult bull trout, Aquatic SWG members (including the USFWS) agree that it is not feasible to assess sub-adult passage because sub-adult bull trout have not been observed at Wells Dam. During the previous six years of bull trout data collection at Wells Dam (BioAnalyst Inc. 2004; LGL and Douglas PUD 2008), sub-adult bull trout have not been documented passing Wells Dam (based upon fishway video counts and bull trout trapping for

radio-telemetry). However, it is expected that through the increased monitoring associated with the implementation of the BTMP that there may be additional encounters with sub-adult bull trout. If at any time during the new license term, sub-adult bull trout are observed passing Wells Dam in significant numbers (>10 per calendar year), the Aquatic SWG will recommend reasonable and appropriate methods for monitoring sub-adult bull trout. Specifically, Douglas PUD may modify counting activities, continue to provide PIT tags and equipment, and facilitate training to enable fish sampling entities to PIT tag sub-adult bull trout when these fish are collected incidentally during certain fish sampling operations. This activity will occur the following year of first observation of sub-adult bull trout (>10 per calendar year) and subsequently as recommended by the Aquatic SWG.

4.2.3.1 Progress Towards Meeting Objective 2 in 2013 - Sub-adult Bull Trout Monitoring

No sub-adult bull trout were observed at Wells Dam in 2013. The smallest bull trout was estimated to be 350 mm (14 inches) and passed the right fish ladder (west ladder) on June 18, 2013.

4.3 Implement Reasonable and Appropriate Measures to Modify the Upstream Fishway and Downstream Bypass if Adverse Impacts on Bull Trout are Identified (Objective 3)

Douglas PUD shall continue to operate the upstream fishway and downstream bypass at Wells Dam in accordance with the Wells HCP. However, if upstream or downstream passage problems for bull trout are identified (as agreed to by the USFWS and Douglas PUD), Douglas PUD will identify and implement, in consultation with the Aquatic SWG and Wells HCP Coordinating Committee, reasonable and appropriate options to modify the upstream fishway, downstream bypass, or operations to reduce the identified impacts to bull trout passage.

4.3.1 Progress Towards Meeting Objective 3 in 2013 - Implement Reasonable and Appropriate Measures to Modify the Upstream Fishway and Downstream Bypass if Adverse Impacts on Bull trout are Identified

No new adverse impacts to bull trout were identified in 2013. As a result, Douglas PUD is not proposing to implement any new upstream fishway or downstream bypass measures to reduce new impacts to bull trout.

4.4 Investigate Entrapment or Stranding of Bull Trout during Periods of Low Reservoir Elevation (Objective 4)

During the implementation of the WBTMMP from 2004-2008, Douglas PUD, through the use of high resolution bathymetric information, hydraulic and elevation data, and backwater curves, identified potential bull trout entrapment and stranding areas in the Wells Reservoir. Although no stranded bull trout were observed in these areas during the implementation of the WBTMMP, Douglas PUD will continue to investigate potential entrapment or stranding areas for bull trout through periodic monitoring when periods of low reservoir elevation expose identified sites. During the first five years of the new license, Douglas PUD will implement up to five bull trout

entrapment/stranding assessments during periods of low reservoir elevation (below 773' MSL). If no incidences of bull trout stranding are observed during the first five years of study, additional assessment will take place every fifth year during the remainder of the license term, unless waived by the Aquatic SWG. If bull trout entrapment and stranding result in take in exceedance of the authorized incidental take level, then reasonable and appropriate measures will be implemented by Douglas PUD, in consultation with the Aquatic SWG, to address the impact.

4.4.1 Progress Towards Meeting Objective 4 in 2013 - Implement Reasonable and Appropriate Measures to Modify the Upstream Fishway and Downstream Bypass if Adverse Impacts on Bull trout are Identified

Stranding surveys were not conducted in 2013 since reservoir elevation did not fall below 773' MSL. In consultation with the Aquatic SWG, Douglas PUD developed the Bull Trout Stranding, Entrapement and Take Study plan (BTSET Plan) pursuant to license Article 402 requiring this plan to be developed within one year of license issuance. The BTSET Plan was filed with the FERC on September 24, 2013 (Appendix C). On October 29, 2013 the FERC approved the BTSET Plan (Appendix D). The plan provides details on how Douglas PUD will conduct stranding surveys in the future when reservoir elevation drops to 773' MSL or lower.

4.5 Participate in the Development and Implementation of the USFWS Bull Trout Recovery Plan (Objective 5)

4.5.1 Monitoring Other Aquatic Resource Management Plan Activities and Predator Control Program for Incidental Capture and Take of Bull Trout

Douglas PUD will monitor activities associated with the implementation of other Aquatic Resource Management Plans (white sturgeon, Pacific lamprey, resident fish, aquatic nuisance species, and water quality) and Predator Control Program that may result in the incidental capture and take of bull trout. If the incidental take of bull trout is exceeded due to the implementation of other Aquatic Resource Management Plan activities, then Douglas PUD will develop a plan, in consultation with the Aquatic SWG, to address the identified factors contributing to the exceedance of the allowable level of incidental take. If the incidental take of bull trout is exceeded due to the implementation of the Predator Control Program, then Douglas PUD will develop a plan, in consultation with the Wells HCP Coordinating Committee and the Aquatic SWG, to address the identified factors contributing to the exceedance of the allowable level of incidental take.

4.5.1.1 Progress Towards Meeting Objective 5 in 2013 - Monitoring Other Aquatic Resource Management Plan Activities and Predator Control Program for Incidental Capture and Take of Bull Trout

Two activities had the potential to encounter bull trout in 2013, the subyearling life history study and pikeminnow removal. The subyearling life history study is an HCP study focused on the life history and behavior of juvenile Chinook salmon in the Upper Columbia River and principally within the Wells Project. Juvenile subyearling Chinook were collected with beach seines in June and July of 2013 within the Wells Project. Although many non-target taxa were collected, no bull trout were encountered.

The Wells HCP required predator control program, principally Douglas PUD's pikeminnow control program, did not encounter any bull trout in 2013. The pikeminnow control program used setlines to capture pikeminnow in deep water areas of the Wells Project and over the programs existence (more than fifteen years) no bull trout have been encountered.

In consultation with the Aquatic SWG, Douglas PUD developed the BTSET Plan pursuant to license Article 402 requiring this plan to be developed within one year of license issuance. The BTSET Plan was filed with the FERC on September 24, 2013 (Appendix C). On October 29, 2013 the FERC approved the BTSET Plan (Appendix D). The plan provides details on how Douglas PUD will handle incidentally captured bull trout while implementing studies required by the Wells Dam Operating License.

4.5.2 Funding Collection of Tissue Samples and Genetic Analysis

Beginning in year 10 of the new license, and continuing every 10 years thereafter for the term of the new license, Douglas PUD will, if recommended by the Aquatic SWG, collect up to 10 adult bull trout tissue samples in the Wells Dam fishway facilities over a period of one year and fund their genetic analysis. Genetic tissue collection will take place concurrent with the implementation of the bull trout radio-telemetry monitoring study. Samples will be submitted to the USFWS Central Washington Field Office in Wenatchee, Washington. Any sub-adult bull trout collected during these activities will also be incorporated into the bull trout genetic analysis.

Beginning in year one of the new license, Douglas PUD will collect up to 10 adult bull trout tissue samples from the Twisp River broodstock collection facility over a period of one year and will fund their genetic analysis. Genetic tissue collection will take place concurrent with the implementation of the off-Project bull trout radio-telemetry monitoring study.

4.5.2.1 Progress Towards Meeting Objective 5 in 2013 - Funding Collection of Tissue Samples and Genetic Analysis

Genetic samples were collected for all of the bull trout captured at the Twisp Weir in 2013. Samples will be analyzed if requested by the Aquatic SWG. Genetic samples will be collected at Wells Dam in year ten of the new license.

4.5.3 Information Exchange and Regional Monitoring Efforts

Douglas PUD will continue to participate in information exchanges with other entities conducting bull trout research and regional efforts to explore availability of new monitoring methods and coordination of radio-tag frequencies for bull trout monitoring studies in the Project.

Douglas PUD will make available an informational and educational display at the Wells Dam Overlook to promote the conservation and recovery of bull trout in the Upper Columbia River and associated tributary streams.

4.5.3.1 Progress Towards Meeting Objective 5 in 2013 - Information Exchange and Regional Monitoring Efforts

Douglas PUD participated in bull trout recovery planning meetings held by the USFWS in 2013. These meetings focused on recovery planning and genetic assignment development in the Methow, Entiat and Wenatchee river basins. In addition, information was shared with regional partners via PTAGIS, a regional PIT tag database. All PIT tag data was made publicly available through this website. PIT tag data was also summarized in the report attached in Appendix E.

4.6 Identify Any Adverse Impacts of Project-related Hatchery Operations on Adult and Sub-adult Bull Trout (Objective 6)

4.6.1 Bull Trout Monitoring During Hatchery Activities

During the term of the new license, Douglas PUD shall monitor hatchery actions (e.g., salmon trapping, sturgeon brood stocking and capture activities) that may encounter adult and sub-adult bull trout for incidental capture and take. Actions to be monitored shall be associated with the Wells Hatchery, the Methow Hatchery, and any future facilities directly funded by Douglas PUD.

If the incidental take of bull trout is exceeded due to Douglas PUD's hatchery actions then Douglas PUD will develop a plan, in consultation with the Aquatic SWG, to address the identified factors contributing to the exceedance of the allowable level of incidental take.

4.6.1.1 Progress Towards Meeting Objective 6 in 2013 - Bull Trout Monitoring During Hatchery Activities

In 2013, the number of bull trout encountered during hatchery operation activities was comparable to previous years. Hatchery actions in 2013 were very similar to other years where broodstock was collected at Wells Dam and the Twisp Weir traps. In addition, the Twisp Weir was used to control the ratio of natural origin and hatchery steelhead and spring Chinook spawning in the upper reaches of the Twisp River. Screw traps used during HCP related smolt monitoring and evaluation activities in the Methow River basin often encounter juvenile bull trout. All of these trapping activities are conducted by Douglas PUD's lead hatchery contractor the Washington State Department of Fish and Wildlife.

In total 169 bull trout were incidentally captured in the Methow basin by Douglas PUD contractors conducting hatchery and HCP related activities in 2013. Capture methods included electro-shocking, hook and line, screw trapping, and trapping at the Twisp River Weir. During trapping activities in 2013, 97 adult bull trout were incidentally captured at the Twisp Weir (Table 1). All of these bull trout were given a PIT tag if they did not carry an existing tag. All captured fish were released in good condition, with no lethal take observed. Captured bull trout at both facilities were within allowable take limits.

Table 1. Summary of bull trout captured and PIT tagged during hatchery and HCP related activities in 2013.

Location and method of capture		Count of each capture method
METHR - Methow River	**Subtotal**	**22**
Electro-Shock		19
Hook and Line		3
METTRP - Methow Smolt Trap at McFarland Creek Road Bridge		**6**
Screw Trap		6
TWISPR - Twisp River	**Subtotal**	**44**
Electro-Shock		17
Hook and Line		16
Screw Trap		11
TWISPW - Twisp River Weir (WDFW)	**Subtotal**	**97**
Weir Trap		97
	Grand total	**169**

72 sub-adult bull trout were captured by electro-shocking, screw trap or hook and line by Douglas PUD consultants in 2013. All sub-adult bull trout captured were given PIT tags and released in good condition. No lethal take was observed. Take limits at screw trap facilities operated by Douglas PUD and its contractors were within allowable limits in 2013.

Article 402 of the FERC license for the Wells Project requires Douglas PUD to develop, in consultation with the Aquatic SWG and the NMFS, a study plan to monitor incidental take associated with the implementation of activities at the Wells Hatchery.

In consultation with the Aquatic SWG, Douglas PUD developed the BTSET Plan pursuant to license Article 402 requiring this plan to be developed within one year of license issuance. The BTSET Plan was filed with the FERC on September 24, 2013 (Appendix C). On October 29, 2013 the FERC approved the BTSET Plan (Appendix D). The plan provides details on how Douglas PUD will handle incidentally captured bull trout while implementing hatchery action required by the Wells HCP and the Wells Dam Operating License.

4.7 USFWS Section 7 Consultation

The PMEs contained within the BTMP were specifically developed, in consultation with the USFWS, to address potential Reasonable and Prudent Measures (RPMs) for the Project relicensing and associated section 7 consultation. All of the USFWS's potential RPMs for the Wells Project can be found in Appendix F. Each of these RPMs has been cross referenced with the specific supporting objective and PME (Sections 4.1 - 4.6) found within the BTMP. The purpose of Appendix F is to provide consistency with Douglas PUD's Aquatic Settlement Agreement and the USFWS' subsequent section 7 consultation on the relicensing of the Wells Project.

4.7.1.1 Progress Towards Meeting Objective 5 in 2012 - USFWS Section 7 Consultation

On March 16, 2012, the USFWS issued a bull trout BO related to the relicensing of the Wells Project. The BO contained various RPMs and the terms and conditions (T&Cs). These RPMs and T&Cs can be found within Appendix E of the FERC license for the Wells Project and they

are entirely consistent and cross referenced with the measures found in the BTMP, and more specifically with the measures reported within this report.

4.8 Reporting

Douglas PUD will provide a draft annual report to the Aquatic SWG summarizing the previous year's activities undertaken in accordance with the BTMP. The report will document all bull trout activities conducted within the Project and describe activities proposed for the following year. Furthermore, any decisions, statements of agreement, evaluations, or changes made pursuant to this BTMP will be included in the annual report. If significant activity was not conducted in a given year, Douglas PUD will prepare a memorandum providing an explanation of the circumstances in lieu of the annual report.

4.8.1.1 Progress Towards Meeting Annual Reporting Requirements

In addition to the reporting requirements found within the Aquatic Settlement Agreement requiring the submission of annual reports for all six of the management plans including the BTMP, Article 406 of the FERC license for the Wells Project also requires Douglas PUD to submit annual reports detailing the implementation of each of the six Aquatic Settlement Agreement management plans.

One additional bull trout reporting requirement can be found in the bull trout BO (Appendix E of the FERC license). The bull trout BO requires Douglas PUD to submit an annual take report to the Central Regional Office of the USFWS on or before April 15th each year.

Because the measures required by the BO are entirely consistent with the measures found in the Aquatic Settlement Agreement's BTMP and because the reporting requirements for the BTMP, bull trout BO and Article 406 are consistent, the 2013 BTMP Annual Report (this report) will be used to satisfy all three of the bull trout annual reporting requirements.

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APPENDIX A

LETTER TO FERC REQUESTING DEFERRAL OF THE TWISP WEIR BULL TROUT STUDY

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Commissioners:
T. JAMES DAVIS
LYNN M. HEMINGER
RONALD E. SKAGEN

General Manager:
WILLIAM C. DOBBINS

Public Utility District No. 1 of Douglas County

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Via Electronic Filing

Honorable Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 1st Street N.E.
Washington, D.C. 20426

September 5, 2013

Subject: **Wells Hydroelectric Project – FERC Project No. 2149**
Extension of Time Request - Bull Trout Passage Evaluations Study

Dear Secretary Bose:

Public Utility District No. 1 of Douglas County, Washington (Douglas PUD), licensee for the Wells Hydroelectric Project No. 2149, respectfully request that the FERC approve an extension of time to conduct the adult bull trout passage evaluation study at off-project hatchery collection facilities (Twisp Weir Bull Trout Study). This extension of time is being jointly requested by all of the parties to the Aquatic Settlement Agreement including the United States Fish and Wildlife Service (USFWS), Washington State Department of Ecology (Ecology), and Douglas PUD.[1]

The FERC license for the Wells Project requires Douglas PUD to implement the Twisp Weir Bull Trout Study within one year of issuance of the new license. The requirement to conduct this study can be found in various locations throughout the license including: 1) section 6.5 of the Washington State Department of Ecology's Clean Water Act Section 401(a)(1) Water Quality Certification for the Wells Project (Appendix A of the license); 2) section 4.7 of the USFWS's Federal Power Act section 18 Fishway Prescription (Appendix B of the license); and 3) Term and Condition No. 11 in the USFWS's Endangered Species Act section 7 consultation for bull trout (Appendix E of the license).

[1] The parties to the Aquatic Settlement Agreement include the USFWS, U.S. Bureau of Land Management (BLM), Washington State Department of Fish and Wildlife (WDFW), Ecology, the Confederated Tribes of the Colville Reservation (CCT), the Confederated Tribes and the Bands of the Yakama Nation (YN), and Douglas PUD.

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The goals and objectives of the Twisp Weir Bull Trout Study, referenced by all three of the mandatory conditions cited above, can found in section 4.2.2 of the Aquatic Settlement Agreement's Bull Trout Management Plan (BTMP). The proposed Bull Trout Study, as described in the BTMP, was originally intended to consist of a radio telemetry study at Douglas PUD's only off-project hatchery collection facility, the Twisp River Weir. The study is intended to assess adult bull trout behavior and passage success in relation to the operation of this regionally important hatchery and stock assessment facility.[2]

Per the requirements of the license, the bull trout study was originally scheduled to be completed in year one of the new license. However, during the development of the study plan the USFWS requested that Douglas PUD postpone the study from year one to year five of the license. In support of the USFWS's request, representatives from the USFWS and Douglas PUD jointly submitted a study deferral request to all of the signatory parties to the Wells Aquatic Settlement Agreement (Exhibit A). The parties to the agreement approved this request as detailed in Exhibit B. In support of this decision, the USFWS submitted a letter to the FERC on June 27, 2013 requesting that the FERC postpone the Twisp Weir Bull Trout Study until year 5 of the license (Exhibit C).

The deferral of this study is intended to combine the Twisp Weir Bull Trout Study with a bull trout passage study scheduled to take place at Wells Dam in year five of the license. During past studies at Wells Dam, many of the fish tagged at the dam migrated into the Twisp River and over the Twisp Weir. The USFWS is a major proponent of the deferral and consolidation of these two studies because it will reduce the total number of bull trout tagged and because it will provide a more cumulative assessment of bull trout passage in the Upper Columbia Region.

At the request of the USFWS and following approval by all of the signatory parties to the Aquatic Settlement Agreement, Douglas respectfully requests that the FERC grant an extension of time in order to combine the Twisp Weir Bull Trout Study with the passage assessment at Wells Dam in year five of the license.

If you have any questions or require further information, please feel free to contact me at (509) 881-2208 or sbickford@dcpud.org.

Sincerely,

Shane Bickford
Natural Resources Supervisor

[2] The Twisp Weir is an off-Project salmon and steelhead broodstock collection, adult management, reproductive success, and stock assessment facility of regional importance. It is used to monitor, protect and restore ESA listed salmon and steelhead and to monitor bull trout populations within the Twisp River. The facility is owned by Douglas PUD and operated by WDFW. Funding for the actions taking place at the Twisp Weir are provided by the Bonneville Power Administration, Public Utility District No. 2 of Grant County, WDFW, and Douglas PUD.

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Enclosure: 1) Exhibit A – Request to the Aquatic Settlement Work Group to postpone the Bull Trout Study.
2) Exhibit B – Aquatic Settlement Work Group Meeting minutes approving and recommending postponement of the Bull Trout Study.
3) Exhibit C – Letter from USFWS to the FERC requesting that the Bull Trout Study at the Twisp Weir be postponed until year five of the license.

Cc: Mr. Douglas Johnson – FERC, Portland
Mr. Erich Gaedeke – FERC, Portland
Wells Aquatic Settlement Work Group
Mr. Andrew Gingerich – Douglas PUD

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Exhibit A

Request to the Aquatic Settlement Work Group to postpone the Bull Trout Study

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From: Lewis, Stephen <stephen_lewis@fws.gov>
Sent: Friday, May 10, 2013 11:07 AM
To: Emily Pizzichemi
Cc: Andrew Gingerich; Bao Le; Beau Patterson; Bill Towey (bill.towey@colvilletribes.com); Bob Jateff (jatefrjj@dfw.wa.gov); Bob Rose; Brad James; Bret Nine; Chad Jackson; Charlie McKinney (cmck461@ecy.wa.gov); Chas Kyger; Chris Sheridan; Donella Miller; Jason McLellan; Jeff Korth (korthjwk@dfw.wa.gov); Jessi Gonzales; Joe Peone (joe.peone@colvilletribes.com); Keith Kirkendall (Keith.Kirkendall@noaa.gov); kirk.truscott@colvilletribes.com; Kristi Geris; Mary Mayo; Mike Schiewe; Pat Irle (pirl461@ecy.wa.gov); Patrick Luke; Patrick Verhey (Patrick.Verhey@dfw.wa.gov); Paul Ward (ward@yakama.com); Shane Bickford; Steve Parker (parker@yakama.com); Steve Rainey
Subject: Re: 5/8 conference call Action Items
Attachments: [2013-05-08]TwispWeirBullTroutPassageAssessmentDeferral.docx

Hi Emily, Inc.-

Per our conference call on 5/8/2013, please feel free to provide your comments on the attached letter concerning the Twisp Weir and pending assessment of bull trout at this facility. For convenience and clarity, I would suggest using the "Final Mark-Up" and "Draft" options on your tool-bar in Word to see the "clean" document without the track changes. Feel free to give me a call if you have questions!

S

On Thu, May 9, 2013 at 2:03 PM, Emily Pizzichemi <epizzichemi@anchorqea.com> wrote:

Hi Aquatic SWG: Attached are the final Action Items from yesterday's conference call. Thanks!

Emily Pizzichemi ☺

ANCHOR QEA, LLC
epizzichemi@anchorqea.com
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Stephen T. Lewis
Hydropower and Energy Coordinator
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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

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

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Exhibit B

Aquatic Settlement Work Group Meeting minutes approving and recommending postponement of the Bull Trout Study

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Final Conference Call Minutes

Aquatic Settlement Work Group

To: Aquatic SWG Parties **Date**: July 10, 2013

From: Kristi Geris (Anchor QEA, LLC)

Re: Final Minutes of the June 12, 2013 Aquatic SWG Conference Call

The Aquatic Settlement Work Group (SWG) met by conference call on Wednesday, June 12, 2013, from 10:00 a.m. to 12:00 p.m. Attendees are listed in Attachment A of these meeting minutes.

I. Summary of Action Items

1. Steve Lewis will distribute the final revised letter requesting deferral of the Bull Trout Radio Telemetry Study at the Twisp Weir, as approved at today's conference call, to the Aquatic SWG prior to the Aquatic SWG conference call on July 10, 2013 (Item V-2).
2. Andrew Gingerich will confirm the acreage to be treated during Douglas PUD's 2013 aquatic herbicide application, and will provide this information to the Aquatic SWG (Item V-3).
3. Andrew Gingerich will contact the Chelan County Noxious Weed Control Board to discuss their 2013 aquatic herbicide application, and to also compare methods with Douglas PUD's planned application. Gingerich will provide a summary of the discussions to the Aquatic SWG (Item V-3).
4. Douglas PUD will review the Joint Fisheries Parties' (JFP's) Lamprey Proposal for the Upper Columbia prior to the Aquatic SWG conference call on July 10, 2013 (Item V-8).

II. Summary of Decisions

1. There were no Statements of Agreement (SOAs) approved at today's meeting.

III. Agreements

1. Aquatic SWG representatives present approved Douglas PUD's letter to the Federal Energy Regulatory Commission (FERC) requesting rescheduling the Bull Trout Radio Telemetry Study at the Twisp Weir to occur in 2016 (Item VI-2).

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IV. Reports Finalized

1. The Douglas PUD Aquatic Settlement Work Group 2012 Annual Report that was approved by the Aquatic SWG on May 9, 2013, was submitted to FERC on May 31, 2013.

V. Summary of Discussions

1. **Welcome, Agenda Review, and Meeting Minutes Review** (Kristi Geris): Kristi Geris welcomed the Aquatic SWG members (attendees are listed in Attachment A) and opened the meeting. Geris reviewed the agenda and asked for additions or other changes to the agenda. Bob Rose added a discussion on a Lamprey Proposal for the Upper Columbia.

   Emily Pizzichemi reported that all comments and revisions received on the draft May 8, 2013 meeting minutes had been incorporated. The Aquatic SWG members present approved the May 8, 2013 meeting minutes, as revised. Bob Rose approved the draft May 8, 2013 meeting minutes via telephone directly following the meeting, and Jason McClellan approved the minutes via email on June 13, 2013.

2. **DECISION: Bull Trout Letter Deferring Twisp Weir Study** (Andrew Gingerich): Andrew Gingerich asked if the Aquatic SWG had additional input on Douglas PUD's letter to FERC requesting deferment of the Bull Trout Radio Telemetry Study at the Twisp Weir. The draft letter was distributed to the Aquatic SWG in an email from Steve Lewis on May 10, 2013, with comments due to Gingerich and Lewis prior to today's Aquatic SWG meeting. Patrick Verhey asked when the final deadline is for a deferral request from FERC and Gingerich replied that everything needs to be submitted to FERC by the end of October 2013. Aquatic SWG representatives present approved Douglas PUD's letter to FERC requesting rescheduling the Bull Trout Radio Telemetry Study at the Twisp Weir to occur in 2016. Lewis will distribute the final revised letter, as approved at today's conference call, to the Aquatic SWG prior to the Aquatic SWG conference call on July 10, 2013.

3. **Aquatic Herbicide Application Methods** (Andrew Gingerich): Andrew Gingerich met with Scott Kreiter (Douglas PUD Lands Department) to discuss details regarding Douglas PUD's 2013 aquatic herbicide application in public swimming areas. Gingerich said that Douglas PUD hired Woodland Resource Services from Ellensburg, Washington, to perform the application. The herbicidal chemical is diquat dibromide, applied in liquid form. The contractors use a boat with a submerged trail bar with multiple weighted hoses for direct herbicidal application to plant. This method of application broadcasts the chemical less than other methods and does not require people applying the herbicide to be in the water. Patrick Verhey asked how many acres Douglas PUD plans to treat during 2013 and Gingerich said that he would confirm the exact acreage and provide the information to the Aquatic SWG at the meeting on July 10, 2013. Gingerich said that Douglas PUD plans to treat three swimming areas within city parks with water

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access recreation areas—one each in Pateros, Brewster, and Bridgeport, Washington. Verhey asked if Douglas PUD considered using the same herbicide that Chelan PUD used near the Entiat River and suggested that Douglas PUD compare the two chemicals and application methods. Pat Irle said that, according to an herbicide application plan produced by the Chelan County Noxious Weed Control Board, Chelan County is using a chemical called Triclopyr because it is the most cost-effective herbicide with minimal impacts on local listed fish species. Gingerich said that he will contact the Chelan County Noxious Weed Control Board to discuss their 2013 aquatic herbicide application process and compare methods with Douglas PUD's planned application; and then he will provide a summary of the discussions to the Aquatic SWG. Gingerich said that the first application is scheduled for just after July 15, 2013, which will account for bull trout movement in the area.

4. **Lamprey Entrance Efficiency Plan** (Andrew Gingerich): Andrew Gingerich said that, as required by conditions in their FERC license, Douglas PUD is developing a Lamprey Entrance Efficiency Plan (LEE Plan). This plan is being developed in coordination with Bao Le from HDR Engineering, Inc., and will be presented to the Aquatic SWG for comments and approval. Gingerich said that even though it is not explicitly stated in a FERC license article, Douglas PUD is also required to construct an operations study plan to assess potential changes in fish-way operations to improve overall passage if and when problems are identified. He said that the 2013 Adult Lamprey Passage and Enumeration Study Plan already includes this type of information and also contains potential improvement options. However, Douglas PUD would try and combine the LEE Plan and the Operations Plan into one document or plan. Pat Irle asked when Douglas PUD expects to have the draft document available for review, and Chas Kyger replied that they hope to distribute the plan to the Aquatic SWG before the Aquatic SWG conference call on July 10, 2013. Gingerich added that he is targeting August 2013, or at the latest, September 2013 as the approval deadline for the Aquatic SWG in order to meet the FERC submittal deadline of October 2013. Gingerich noted that Douglas PUD needs time after the completion of the approval process to develop the consultation record for the approved plan; which gets filed with FERC along with the approved plan.

   Bob Rose asked what data Douglas PUD plans to evaluate, and Kyger responded that they will rely heavily on the 2013 Adult Lamprey Passage and Enumeration Study Plan and will also consult outside study data. Rose said that he hopes Douglas PUD coordinates with the U.S. Army Corps of Engineers (Corps) to discuss the potential use of acoustic tags for gathering three-dimensional baseline data. Gingerich noted that acoustic data have some pros and cons and that one of the difficulties with developing this plan is that there is currently no standard entrance efficiency for lamprey or passage standards and much of the baseline information is missing. Rose said, for example, that if there were data on lamprey approaching the entrance of the dam but not fully entering the fish passage, assumptions could be made regarding causes for fish

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rejecting the fish passage. However, since those data have not been documented, assumptions cannot be developed. Rose said that this is fundamental information about the interaction between lamprey and dams that should be addressed in study objectives. Le explained that the plan will be sufficiently robust in utilizing currently available data tools, and that the analyses will be as conservative as possible. Rose acknowledged that this plan is just a starting point and it will take several years to determine the best plan for maximizing lamprey entrance efficiency. Irle asked if the past Dual-Frequency Identification Sonar (DIDSON) lamprey passage studies are being used to guide Douglas PUD's plan, and Le replied that, due to small sample sizes and the subsequent lack of statistical significance, those studies did not contribute much useable data to the 2013 study plan; however, results of those studies have informed current operations in Wells fishways to lower entrance velocities to support lamprey migration at appropriate times of the year. Le also said that the lack of information about lamprey should be kept in mind and that the mistake of comparing lamprey to salmonids should be avoided. He said that the implication dams have for the population dynamics and ecology of the species is not yet fully understood. Rose said that he thinks lamprey and salmon are not so fundamentally different as to write off the possibility that no passage means rejections, as it does in salmonids. Rose asked if salmon are being considered in the formulation of the efficiency plan, and Gingerich confirmed that the document will also address impacts to salmonids. Gingerich noted that changes to the fishway for the benefit of lamprey need HCP approval because impacts to passage of Endangered Species Act (ESA) listed salmonids must be considered.

5. **2013 Lamprey Study: Release Location below Wells Dam** (Chas Kyger): Chas Kyger said that, as the Aquatic SWG approved in the 2013 Adult Lamprey Passage and Enumeration Study Plan, lamprey will be released 1.5 miles below Wells Dam and a subset of each release group will be placed directly into the fish ladder. Kyger asked for further thoughts or comments, and Bob Rose reminded the Aquatic SWG of his previous recommendation of releasing some fish further downstream near the Entiat River. He recalled that the lamprey for this study are being transported from Bonneville Dam, and that, typically, it takes lamprey 3 to 6 weeks to travel from Bonneville Dam to Wells Dam. Rose said that drastically reducing this natural timeline could bias the data. Gingerich said that the shortened timeline may be considered a positive bias; however, carrying a radio tag may be considered a negative bias since asking a fish to behave normally while carrying the burden of a tag and the stress associated with the transport and tagging experience is unqualified, but undoubtedly negative. So ultimately, each scientific study is with some bias and assumptions. Gingerich noted that the study has been designed to address the objectives, and that it is up to the Aquatic SWG to be aware of the assumptions and biases and discuss the results of the study within this context.

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Kyger said that he had previously discussed with Rose releasing PIT-tagged lamprey at different locations downstream from Wells Dam to gather data about movement patterns. These PIT-tagged lamprey would be in addition to the 125 individuals already planned for the study. Aquatic SWG representatives present agreed that releasing additional PIT-tagged lamprey in various locations would be beneficial. Kyger added that the extra lamprey can either be bulk-released in one location or spread over several locations, and would only be released if the Yakama Nation (YN) could provide the additional fish. Kyger also noted that since the release location would be in the Rocky Reach reservoir that Douglas PUD would need to consult Chelan PUD. Gingerich said that the 25 additional lamprey will only carry PIT-tags while the other 125 study fish will carry both PIT-tags and acoustic tags. Gingerich said that he suggested using full duplex (FD) array tags on the additional 25 lamprey, since tributary arrays are wired for FD detection. Bao Le agreed that FD array tags are best for data collection purposes. Pat Irle asked if Douglas PUD would be interested in lamprey interaction with the Methow River instead of the Entiat River, and Gingerich replied that the objective of the study is to evaluate how fish interact with Wells Dam, and releasing fish into the Methow River would compromise that objective. He added, however, that fish traveling through Wells and into the Methow River would have a good chance of being detected on PIT tag arrays currently installed in that tributary, provided flows were reasonable; since, detection efficiency of those arrays is dependent on flow. Rose asked if aerial antenna arrays were still planned to be deployed at the entrances to the Methow and Okanogan rivers, and Kyger replied that these elements are still in the 2013 study plan.

6. **White Sturgeon Egg Arrival Update** (Andrew Gingerich): Andrew Gingerich said that Douglas PUD was able to bring white sturgeon eggs to the Wells Hatchery Facility thanks largely due to efforts by Chelan PUD collecting broodstock and spawning efforts by the YN. Gingerich said that delivered eggs were a result of a three-by-three (3x3) matrix, consisting of three females and three males, and is hoping to bring in additional fish in the near future since additional broodstock may be available as a result of Grant PUD and the YN collection efforts. Gingerich said that the egg program has been successful so far and that one of the maternal families in the hatchery hatched a few days ago. Pat Irle asked if Douglas PUD is keeping adults on site at Wells Hatchery, and Gingerich replied that they are not and stated that Douglas PUD has a larvae program and a broodstock program, and that spawning takes place at Marion Drain. He said that the eggs from one female are incubated together as a lot, regardless of paternity (i.e., families are grouped by maternal family unit). Jason McLellan suggested that, in the future, eggs be kept separate based on both maternity and paternity until they begin to feed. He explained that there can be differential success during incubation and that over-representation of one genetic cross over another could occur if the eggs are combined too early. Gingerich said that next year they will keep the different genetic crosses in separate jars to mitigate for this concern. Rose said that it is important that

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additional discussions occur within the next few weeks regarding future needs and expectations for the programs.

7. **Wells Dam Water Quality Update** (Andrew Gingerich): A Total Dissolved Gas (TDG) Update for Wells Dam (Attachment B) was distributed to the Aquatic SWG by Kristi Geris on June 12, 2013 [today], prior to the start of the meeting. Andrew Gingerich explained that there were two 125 percent exceedences at Wells Dam in early April 2013 due to a coordination issue between Douglas PUD operators and the Central Control at Grant PUD. He noted that they have not seen 7Q10 flows this season and explained that a 7Q10 flow is the probability of a certain extreme flow lasting 7 days and occurring every 10 years. The 7Q10 flow at Wells Dam is 246,000 cubic feet per second (246 kcfs) and the mean hourly flow this month has been approximately 155 kcfs. He added that there was also one 115 percent exceedence at the Rocky Reach forebay. Gingerich encouraged the Aquatic SWG to read the document more thoroughly and contact him with any questions or concerns. Pat Irle asked about the 115 percent 12-C high exceedance in the Rocky Reach forebay. Gingerich explained that on the day before the exceedance, there was a short, intense flow as a result of poor hourly coordination communication with Central at Grant PUD, which resulted in the Rocky Reach Forebay exceedance.

   Irle asked if the Corps has accepted the fact that their responsibility is 110 percent. Gingerich replied that they should, based on State water quality regulations; however, he said that he did not think they have formally adopted this standard. Gingerich added, however, that they have been running above the 110 percent standard since June 1, 2013, based on measurements in the Wells Forebay.

8. **Lamprey Proposal for Upper Columbia** (Bob Rose): The Lamprey Proposal for the Upper Columbia (Attachment C) was distributed to the Aquatic SWG by Kristi Geris on June 12, 2013 [today], prior to the meeting. Bob Rose said that the proposal has been in development for some time and that the Joint Fisheries Parties (JFP) are now bringing it to the work group forum for comments. Rose said that he will refrain from using the term No Net Impact (NNI) because Douglas PUD does not have a NNI clause in its documents. Rose went on to say that the JFP is only looking at primary objectives to set the stage for collecting more long-term status and trend data. They want to develop critical research questions for a large-scale Columbia lamprey study and then proceed to obtain tools, experts and professionals, and other data collection needs. Rose said that this discussion is meant to provide an overview of objectives and data gaps and that this conversation will guide the development of a cleaner document with more specific goals and methods for the study. Rose said that he hopes the JFP have clearer resolution on the issue by October or November 2013. He said that the primary objective is to maximize the value of every fish put into the river by obtaining as much data as possible in just 2 to 3 years. After this time period, he thinks that the data will indicate whether

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or not lamprey are viable candidates for movement tracking studies. Rose proposed using radio telemetry tags to track movements more carefully. He further explained that if the JFP are considering translocation as a possible tool for repopulation, it needs to be known if translocated fish produce viable offspring. Rose said that once tagged adults spawn, he hopes that biologists can observe where the tags end up and draw conclusions from there. From the spawning grounds, biologists can move downstream and pinpoint index sites with potential spawning and rearing habitat. Rose suggested that, based on these data, it may be feasible to make connections between juveniles and their parents to determine if offspring are coming from tagged or untagged adults. Rose said this proposal is a good approach to figuring out what is going on with lamprey in the Mid- to Upper Columbia River in a relatively short period of time with low expenses, so they can more quickly develop management plans for the species.

Andrew Gingerich requested additional time to review the document prior to discussing it. He added that Douglas PUD will review the proposal prior to the Aquatic SWG conference call on July 10, 2013. Rose said that the JFP agrees that the document is not perfect and needs refinement. Pat Irle asked about the release location of half-duplex PIT-tagged individuals as depicted on a diagram on page 18 of the proposal (Attachment C), and Rose clarified that the fish would be released in the general vicinity, up to a few miles away. Gingerich said that Douglas PUD is committed to studying lamprey in a way that is consistent with the existing Douglas PUD Pacific Lamprey Management Plan (PLMP) and the Aquatic Settlement Agreement (ASA).

Lastly, Rose provided a brief overview of the objectives for juveniles. He said that juvenile lamprey are vulnerable and highly susceptible to predation at dams. He suggested taking actions to reduce piscivorous fish around dams to increase juvenile survival. He said that irrigation diversions are another concern for juvenile survival. He wondered if juveniles could get entrained in these irrigation features in rivers such as the Wenatchee where they are common. Rose said that much can be learned about life history from propagating juveniles of a known size, age, and location, and that this could be a cost-effective way to supplement populations in the Upper Columbia.

VI. Next Meetings

1. Upcoming meetings: ***July 10, 2013 (conference call); August 14, 2013 (conference call); September 11, 2013 (conference call)***

List of Attachments

Attachment A – List of Attendees

Attachment B – TDG Compliance Update for Wells Dam

Attachment C – Lamprey Proposal for the Upper Columbia

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Attachment A
List of Attendees

Name	Role	Organization
Kristi Geris	Administration/Technical Support	Anchor QEA, LLC
Emily Pizzichemi	Administration/Technical Support	Anchor QEA, LLC
Andrew Gingerich	SWG Technical Representative	Douglas PUD
Chas Kyger	Technical Support	Douglas PUD
Pat Irle	SWG Technical Representative	Washington State Department of Ecology
Steve Lewis	SWG Technical Representative	U.S. Fish and Wildlife Service
Patrick Verhey	SWG Technical Representative	Washington Department of Fish and Wildlife
Chad Jackson	Technical Support	Washington Department of Fish and Wildlife
Bob Rose	SWG Technical Representative	Yakama Nation
Jason McLellan	SWG Technical Representative	Colville Confederated Tribes
Bao Le	Technical Support	HDR Engineering, Inc.

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Exhibit C

Letter from USFWS to the FERC requesting that the Bull Trout Study at the Twisp Weir be postponed until year five of the license

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United States Department of the Interior

FISH AND WILDLIFE SERVICE

Washington Fish and Wildlife Office
Central Washington Field Office
215 Melody Lane, Suite 103
Wenatchee, WA 98801-8122

IN REPLY REFER TO: June 27, 2013
USFWS Reference: 13410-2013-CPA-0006
Hydrologic Unit Code: 17-02-00-08-05
Re: Off-Project Hatchery Collection Facilities Adult Bull Trout Upstream Passage Assessment (Wells Hydroelectric Project – FERC Project No. 2149)

Honorable Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First St., NE
Washington, DC 20426

Dear Secretary Bose:

The Federal Energy Regulatory Commision (Commission) issued a new license for the Wells Hydroelectric Project (FERC No. 2149) on November 11, 2012. As part of this effort, the U.S. Fish and Wildlife Service (Service) filed its Prescription for Fishways with the Commission in July 2010, which included provisions for the safe and timely passage of bull trout at the Project's facilities. On March 16, 2012, the Service also issued its *Biological Opinion for the Proposed Relicensing of the Wells Hydroelectric Project* to the Commission. This biological opinion stipulates that the Commission shall require the Public Utility District No. 1 of Douglas County (Douglas PUD) to implement an adult bull trout passage evaluation at off-project hatchery collection facilities such as Douglas PUD's Twisp River Weir in year one of the new license. This requirement is found in Term and Condition No. 11 of the Service's biological opinion, and item 4.7 in the Service's Prescription for Fishways. This mandated study requirement is also consistent with the Bull Trout Management Plan (section 4.2.2) found within the *Wells Aquatic Settlement Agreement* filed with the Commission on May 27, 2010, and within the Washington State Department of Ecology (Ecology) Chelan Water Act section 401 water quality certification (401 Certification) for the Project.

The Service has determined, in collaboration with all signatories to the Wells Aquatic Settlement Agreement, to defer the mandated year one passage study in favor of a study in year five of the new Wells license, when an 'at project evaluation' is scheduled to take place. The rationale for this deferral rests on the premise that combining these evaluations will provide a more comprehensive analysis of project impacts and will also require the use of fewer study fish than two independent evaluations, thus reducing handling impacts on bull trout which are listed under the Endangered Species Act.

This deferral has been discussed extensively within the confines of the Wells Aquatic Settlement Work Group. As such, all signatories approve of the Service's deferral of this evaluation. In light of these considerations, it is the Service's position that the year one bull trout passage study at hatchery brood collection traps (i.e., Twisp Weir) be deferred to year five of the license rather

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than conducted during year one of the license.If you have any questions, please do not hesitate to contact me at (509) 665-3508 ext. 2002.

Sincerely,

Jessica L Gonzales for

Ken S. Berg, Manager
Washington Fish and Wildlife Office

CC:
Patrick Verhey - Washington Department of Fish and Wildlife
Pat Irle - Washington Department of Ecology
Bob Rose - Yakama Nations
Jason McLellan- Colville Confederated Tribes
Chris Sheridan – Bureau of Land Management
Shane Bickford- Douglas County PUD
Brad Hawkins – Douglas County PUD
Scott Kreiter- Douglas County PUD

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Document Content(s)

Transmittal to FERC bull trout deferral.PDF.....1-18

APPENDIX B

FERC APPROVAL OF THE TWISP WEIR BULL TROUT STUDY DEFERRAL

20131015-3021 FERC PDF (Unofficial) 10/15/2013

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Public Utility District No. 1 of Douglas County, Washington — Project No. 2149-152

ORDER GRANTING EXTENSION OF TIME

(Issued October 15, 2013)

1. On September 6, 2013, Public Utility District No. 1 of Douglas County, Washington, licensee for the Wells Hydroelectric Project, FERC No. 2149, filed an extension of time request to conduct its adult bull trout passage evaluation study (study) pursuant to various mandatory conditions of the Order Issuing New License.[1] The project is located on the Columbia River in Chelan, Douglas, and Okanogan counties, Washington.

LICENSE REQUIREMENTS

2. Various mandatory conditions of the project license require the licensee to conduct an adult bull trout passage evaluation study at off-project hatchery collection facilities, also referred to as the Twisp Weir adult bull trout study. These mandatory conditions include section 6.5 of the Washington State Department of Ecology's Water Quality Certification (Appendix A of the license), section 4.7 of the U.S. Fish and Wildlife Service's (FWS) Federal Power Act section 18 Fishway Prescription (Appendix B of the license), and term and condition number 11 of the FWS' Incidental Take Statement under section 7 of the Endangered Species Act (Appendix C of the license), and are incorporated into the license by ordering paragraphs D, F, and H, respectively.

3. The study is intended to assess adult bull trout behavior and passage success in relation to the operation of the Twisp Weir facility. Specifically, the licensee must conduct a one-year radio telemetry study with 10 adult, migratory bull trout and utilize fixed receiver stations location upstream and downstream of the collection facilities to evaluate passage and determine whether bull trout passage performance standards are being met. If the study data indicate that performance standards were not met in year one of the study, the licensee must repeat the study a second year. Should the performance standards not be met after year two of the study, the licensee must develop, implement

[1] Order Issuing New License, 141 FERC ¶ 62,104 (issued November 9, 2012).

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and evaluate additional measures in consultation with the FWS, Wells Habitat Conservation Plan Coordinating Committee, and the Aquatic Settlement Work Group,[2] until the FWS determines that the fish passage performance standard has been achieved. The study must be conducted within one year of the license issuance, or November 8, 2013.

LICENSEE'S REQUEST

4. The licensee is requesting, on behalf of the FWS, that the deadline for conducting the study be postponed until year five of the license term, or, November 8, 2017. The licensee states that deferring the study for four years, as recommended by the FWS, would allow it to combine the study with a bull trout passage study that is scheduled to take place at Wells Dam during year five of the license term. According to the licensee, consolidating both studies would provide a more comprehensive analysis of project impacts to bull trout in the upper Columbia River region, and would also require the use of fewer study fish than two independent studies, thus reducing handling impacts on federally-protected bull trout.

AGENCY CONSULTATION

5. The licensee included its consultation record with the FWS and the Aquatic Settlement Work Group in its filing with the Commission. Meeting minutes from the Aquatic Settlement Work Group meeting dated July 10, 2013 indicate that all members of the work group approve the licensee's request. Additionally, the FWS requested that the study be deferred by letter dated June 27, 2013 and filed with the Commission on July 22, 2013. In the same letter, the FWS reiterated the Aquatic Settlement Work Group's concurrence with the request. This letter was also included as part of the licensee's filing.

DISCUSSION

6. The licensee's request to defer its adult bull trout passage evaluation study at off-project hatchery collection facilities from year one of the license term to year five of the license term is reasonable, and will streamline efforts to assess project impacts to bull trout in the upper Columbia River region. The licensee has completed the necessary

[2] The Aquatic Settlement Work Group includes representatives from the FWS, National Marine Fisheries Service, U.S. Bureau of Land Management, Washington Department of Fish and Wildlife, Washington State Department of Ecology, the Confederated Tribes of the Colville Reservation, the Confederated Tribes and Bands of the Yakima Nation, and the licensee.

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consultation with the resource agencies, including those whose mandatory conditions require the study. The licensee's request should be approved.

The Director orders:

(A) The deadline to complete the adult bull trout passage evaluation study at off-project hatchery collection facilities, as required in part by ordering paragraphs D, F, and H of the license for the Wells Hydroelectric Project, is extended until November 8, 2017.

(B) This order constitutes final agency action. Any party may file a request for rehearing of this order within 30 days from the date of its issuance, as provided in section 313(a) of the FPA, 16 U.S.C. § 825*l* (2012), and the Commission's regulations at 18 C.F.R. § 385.713 (2013). The filing of a request for rehearing does not operate as a stay of the effective date of this order, or of any other date specified in this order. The licensee's failure to file a request for rehearing shall constitute acceptance of this order.

Thomas J. LoVullo
Chief, Aquatic Resources Branch
Division of Hydropower Administration
and Compliance

Document Content(s)

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APPENDIX C

DOUGLAS PUD FILING OF THE BULL TROUT STRANDING, ENTRAPMENT AND TAKE STUDY PLAN

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Commissioners:
T. JAMES DAVIS
LYNN M. HEMINGER
RONALD E. SKAGEN

General Manager:
WILLIAM C. DOBBINS

Public Utility District No. 1 of Douglas County

1151 Valley Mall Parkway • East Wenatchee, Washington 98802-4497 • 509/884-7191 • FAX 509/884-0553 • www.douglaspud.org

Via Electronic Filing

Honorable Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington DC 20426

September 23, 2013

Subject: Wells Hydroelectric Project No. 2149
Bull Trout Stranding, Entrapment and Take Study Plan-License Article 402

Dear Secretary:

Pursuant to Article 402 of the new license for the Wells Hydroelectric Project (Wells Project), the Public Utility District No. 1 of Douglas County (Douglas PUD) hereby submits for approval the attached Bull Trout Stranding, Entrapment and Take Study Plan (Plan).

Article 402 requires Douglas PUD to file a Bull Trout Stranding, Entrapment and Take Study Plan with the Federal Energy Regulatory Commission (FERC) within one year of issuance of the license following consultation with the parties to the Aquatic Settlement Agreement (ASA), as well as following consultation with the National Marine Fisheries Service (NMFS) and the Bureau of Indian Affairs (BIA). The final Plan is attached as Exhibit A and was developed in consultation with the parties to the ASA including the United States Fish and Wildlife Service (USFWS), U.S. Bureau of Land Management (BLM), Washington State Department of Fish and Wildlife (WDFW), Washington State Department of Ecology (Ecology), the Confederated Tribes of the Colville Reservation (CCT) and the Confederated Tribes and the Bands of the Yakama Nation (YN). The BIA and the NMFS were also provided an opportunity to review and comment on the Plan during the 30-day ASA comment period.

The only comments received on the Plan were provided by the USFWS. Douglas PUD revised the Plan to address all of the comments received from the USFWS. The revised Plan (Exhibit A) was approved by the Aquatic Settlement Work Group following the close of the 30 day comment period during a conference call on Wednesday September 11, 2013.

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The proposed Plan is intended to provide a strategy and schedule for conducting the following actions: a) bull trout stranding evaluations as described in section 4.4 of the ASA's Bull Trout Management Plan (BTMP); b) bull trout incidental take monitoring studies described in section 4.5.1 of the BTMP; and c) bull trout incidental take monitoring studies to be implemented at the Wells Hatchery as described in section 4.6.1 of the BTMP.

Douglas PUD respectfully requests that the FERC approve the enclosed Bull Trout Stranding, Entrapment and Take Study Plan prior to December 31, 2013. Several of the actions proposed in the plan require implementation starting in early January 2014. The pre-filing consultation record supporting the approval of the plan is attached as Exhibit B.

If you have any questions related to the Bull Trout Stranding, Entrapment and Take Study Plan, please feel free to contact me at (509) 881-2208 or sbickford@dcpud.org.

Sincerely,

Shane Bickford
Supervisor of Natural Resources

Enclosure:

Exhibit A – Bull Trout Stranding, Entrapment and Take Study Plan.
Exhibit B – Pre-filing consultation record for Bull Trout Stranding, Entrapment and Take Study Plan.

Copy: Steve Lewis, USFWS
Wells HCP Coordinating Committee – Members List
Wells Aquatic Settlement Work Group – Members List
Andrew Gingerich, Douglas PUD
Brad Hawkins, Douglas PUD

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Exhibit A

Bull Trout Stranding, Entrapment and Take Study Plan

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BULL TROUT STRANDING, ENTRAPMENT AND TAKE STUDY PLAN LICENSE ARTICLE 402

WELLS HYDROELECTRIC PROJECT

FERC PROJECT NO. 2149

Prepared by:

Public Utility No. 1 Utility of Douglas County
East Wenatchee, WA
98802

September 2013

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For copies of this plan, contact:

Public Utility District No. 1 of Douglas County
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EXECUTIVE SUMMARY

The Bull Trout Evaluations Study Plan (Plan) is intended to satisfy Article 402 of the Wells Hydroelectric Project (Wells Project) Federal Energy Regulatory Commission (FERC) Operating License, which requires Public Utility District No. 1 of Douglas County (Douglas PUD) to file a bull trout study plan with the FERC for approval that addresses the requirements found in sections 4.4, 4.5.1, and 4.6.1 of the Bull Trout Management Plan (BTMP). The BTMP is one of six aquatic resource management plans contained within Douglas PUD's Aquatic Settlement Agreement. Specifically, within one year of license issuance (by October 31, 2013), Douglas PUD is required to file a study plan and schedule for FERC approval to conducting the following:

(a) the bull trout stranding evaluations described in section 4.4 of the Aquatic Settlement Agreement's BTMP, filed May 27, 2010;

(b) the bull trout incidental take monitoring studies described in section 4.5.1 of the Aquatic Settlement Agreement's BTMP, filed May 27, 2010; and

(c) the bull trout incidental take monitoring studies to be implemented at the Wells Hatchery as described in section 4.6.1 of the Aquatic Settlement Agreement's BTMP, filed May 27, 2010.

Along with the Plan, Douglas PUD is required to provide documentation of consultation with the National Marine Fisheries Service, U.S. Fish and Wildlife Service, Washington Department of Fish and Wildlife, Washington Department of Ecology, Confederated Tribes of the Colville Reservation, Confederated Tribes and Bands of the Yakama Nation, U.S. Bureau of Indian Affairs, and U.S. Bureau of Land Management.

The Plan has been written to include an introduction, brief summary of the biology of bull trout, their current status, previous Wells Project bull trout research and monitoring implemented by Douglas PUD, the goal, objectives and the proposed measures pertaining to this Plan, and reporting.

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1.0 INTRODUCTION

On May 27th, 2010 Public Utility District No. 1 of Douglas County (Douglas PUD) filed with the Federal Energy Regulatory Commission (FERC) an Aquatic Settlement Agreement (ASA), which was signed by state, federal and tribal stakeholders. The ASA was intended to meet all other fish and aquatic resource obligations outside of Douglas PUD's Anadromous Salmonid Habitat Conservation Plan (HCP). The ASA contains six management plans, one of which is the Bull Trout Management Plan (BTMP). The goal of the BTMP is to identify, monitor and address impacts, if any, on bull trout resulting from the Wells Hydroelectric Project (Wells Project or Project) in a manner consistent with the U.S. Fish and Wildlife Service's (USFWS) Bull Trout Recovery Plan, and the terms of the Section 7 Incidental Take Statement (ITS) and the Federal Power Act section 18 fishway prescriptions associated with the relicensing of the Wells Project. The BTMP includes a suite of Protection, Mitigation and Enhancement measures (PMEs) to address plan objectives that include protecting adult and sub-adult bull trout through fishway operations; identification of adverse impacts on passage; implementation and evaluation of fishway modifications to address impacts, as needed; monitoring entrapment and stranding during low reservoir operations; participation in recovery planning; and identification of adverse impacts of Project-related hatchery operations.

On November 9th, 2012 the FERC issued a new Operating License (License) for the Wells Project. As part of the license issuance, FERC determined that three proposed BTMP PMEs lacked sufficient detail to enable administration and enforcement as license conditions. License Article 402 requires Douglas PUD to file a bull trout study plan to address sections 4.4, 4.5.1, and 4.6.1 of the BTMP. The FERC license requires that Douglas PUD file a study plan and schedule (herein called the Bull Trout Evaluations Study Plan [Plan]) with the FERC for approval by October 31, 2013. The Bull Trout Evaluations Study Plan was developed to address the following requirements of the BTMP:

(a) the bull trout stranding evaluations described in section 4.4 of the Aquatic Settlement Agreement's BTMP, filed May 27, 2010;
(b) the bull trout incidental take monitoring studies described in section 4.5.1 of the Aquatic Settlement Agreement's BTMP, filed May 27, 2010; and
(c) the bull trout incidental take monitoring studies to be implemented at the Wells Hatchery as described in section 4.6.1 of the Aquatic Settlement Agreement's BTMP, filed May 27, 2010.

2.0 BULL TROUT BIOLOGY

Bull trout (*Salvelinus confluentus*) are native to northwestern North America, historically occupying a large geographic range extending from California north into the Yukon and Northwest Territories of Canada, and East to Western Montana and Alberta (Cavender 1978). Bull trout occupy lakes, rivers and tributaries in Washington, Montana, Idaho, Oregon, Nevada, two Canadian Provinces (British Columbia and Alberta), and several cross-boundary drainages in extreme southeast Alaska. They are a member of the char group within the family Salmonidae and closely resemble Dolly Varden (*Salvelinus malma*), a related species. Genetic analyses

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indicate, however, that bull trout are more closely related to an Asian char (*Salvelinus leucomaenis*) than to Dolly Varden (Pleyte et al. 1992).

Bull trout are believed to have more specific habitat requirements than other salmonids (Rieman and McIntyre 1993). Growth, survival, and long-term persistence are dependent upon habitat characteristics that include clean, cold, connected, and complex instream habitat (USFWS et al. 2000), and stream/population connectivity.

Bull trout exhibit four distinct life history types: resident, fluvial, adfluvial, and anadromous. The fluvial, adfluvial, and resident forms exist throughout the range of the bull trout (Rieman and McIntyre 1993), although each form is not present everywhere. The majority of growth and maturation for anadromous bull trout occurs in estuarine and marine waters, adfluvial bull trout in lakes or reservoirs, and fluvial bull trout in large river systems. Resident bull trout populations are generally found in small headwater streams where fish remain their entire lives. Sexually mature resident bull trout are often much smaller at maturation than sexually mature adults of other life histories (McPhail and Baxter 1996).

For migratory life history types, juveniles tend to rear in tributary streams for 1 to 4 years before migrating downstream into a larger river, lake, or estuary and/or nearshore marine area to mature (Rieman and McIntyre 1993). In some lake systems, age 0+ fish (less than 1 year old) may migrate directly to lakes, but it is unknown if this emigration is a result of density dependent effects from limited stream rearing habitat, or if these young-of-the-year actually survive in the lake environment (Riehle et al. 1997). Juvenile bull trout in streams frequently inhabit side channels, stream margins and pools with suitable cover (Sexauer and James 1993) with maximum summer water temperatures generally less than 16ºC (Dunham et al. 2003) and areas with cold hyporheic zones or groundwater upwellings (Baxter and Hauer 2000).

For more detailed information on bull trout biology, refer to the Biological Opinion (BO) for the Proposed Relicensing of the Wells Hydroelectric Project (USFWS 2012a).

2.1 Status

On June 10, 1998, the USFWS listed bull trout within the Columbia River basin as threatened under the Endangered Species Act (ESA; FR 63(111)). Later (November 1, 1999), the USFWS listed bull trout within the coterminous United States as threatened under the ESA (FR 64(210)). In April, 2004, the USFWS initiated a 5-year review on the status of bull trout which was released in 2008 and recommended no change to the current "threatened" listing status. The USFWS has cited habitat degradation, fragmentation, and alterations associated with dewatering, road construction and maintenance, mining, and grazing; blockage of migratory corridors by dams or other diversion structures; poor water quality; incidental angler harvest; entrainment into diversion channels; and introduced non-native species as major factors affecting the distribution and abundance of bull trout. They noted that dams (and natural barriers) have isolated population segments resulting in a loss of genetic exchange among these segments (FR 63(111)). The USFWS believes many populations are now isolated and disjunct.

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In 2002, the USFWS released draft bull trout recovery plans for all recovery units in the Columbia River Distinct Population Segment (DPS) including the Upper Columbia River Recovery Unit[1] (USFWS 2002). The USFWS also designated critical habitat for bull trout, which was finalized on September 30, 2010. Since the issuance of a final critical habitat designation, the USFWS has turned its attention to recovery planning intended to provide information and guidance that will lead to recovery of the species, including its habitat. No time frame has been given for the release of a final recovery plan.

The Wells Project is situated within the Upper Columbia River Recovery Unit which includes three core areas; the Wenatchee, Entiat, and Methow rivers. A core area represents the closest approximation of a biologically functioning unit for bull trout and may function as a metapopulation for bull trout. Not all core areas are equal and each has specific functions that are unique. For example, the Entiat Core Area depends heavily on the mainstem Columbia River to provide overwintering, migration, and foraging habitats. The Wenatchee Core Area has populations using lake and riverine habitat (both the Wenatchee and Columbia rivers) for overwintering, migration, and foraging. Within a core area, many local populations may exist. A local population is assumed to be the smallest group of fish that is known to represent a regularly interacting reproductive unit. Sixteen local populations have been identified in the Wenatchee (6), Entiat (2), and Methow (8) core areas (USFWS 2002). Recently, genetic baselines have been established for these local populations (DeHaan and Neibauer 2012).

2.2 Wells Project Research and Monitoring Activities

Listed Columbia River bull trout have been observed and counted at Wells Dam since 1998. In 2000, due to the potential for operations at mid-Columbia dams to affect the movement and survival of bull trout, the USFWS requested that the three mid-Columbia PUDs (Douglas, Chelan, and Grant PUDs) evaluate the movement and status of bull trout in their respective project areas. At that time, little was known about the life-history characteristics (e.g., movements, distribution, habitat use, etc.) of bull trout in the mid-Columbia River. Therefore, in order to assess the operational effects of hydroelectric projects on bull trout within the mid-Columbia, Douglas PUD has supported and carried out a series of research tasks.

From 2001 to 2003, bull trout were collected from the Wells, Rocky Reach, and Rock Island dams, radio-tagged, and monitored through 2004. The primary purpose of the study was to document the presence of bull trout at the project, identify passage times, determine their direction of travel (i.e., upstream/downstream), and assess bull trout movements into and out of the Wells Reservoir. Multiple-telemetry techniques over a broad spatial area were used for the assessment. Successful upstream and downstream passage was observed at the Wells Project. In addition, no bull trout injury or mortality was observed associated with the Wells Project. Radio-tagged bull trout that migrated upstream past Wells Dam used the Methow River subbasin during the bull trout spawning period (for more detailed information refer to BioAnalyst, Inc. 2004).

[1] Note that while the USFWS refers to the area encompassing the Wells Project as the Upper Columbia Recovery Unit for bull trout, the section of the Columbia River from Chief Joseph Dam to the confluence of the Yakima and Columbia rivers is often termed the "mid-Columbia" for other purposes, and is the term used in this document when referring to the reach.

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In 2004, Douglas in consultation with the USFWS and as required under the HCP BO developed the Wells Project Bull Trout Monitoring and Management Plan (WBTMMP). The goal of the WBTMMP is to continue monitoring and evaluating bull trout in the Project to quantify and address, to the extent feasible, potential Project impacts on bull trout. To address Project impacts on bull trout, Douglas captured, radio-tagged, and monitored adult bull trout in the Wells Project area (2005-2007); PIT-tagged sub-adult bull trout during tributary smolt sampling activities (2005-2007); conducted reservoir entrapment and stranding surveys (2005); and collected genetic samples to support identification of local populations and core area origins of bull trout utilizing the Project area (2005-2007). Results of the study were consistent with the previous 3-year study showing successful upstream and downstream passage, similar migration timing, and no documented impacts to bull trout from the Wells Project (for more detailed information refer to LGL 2007, LGL 2008).

Between 2008 and 2012, Douglas PUD continued to operate under the WBTMMP conducting year round Project fishway counts, PIT-tagging bull trout during off-site hatchery related activities, and conducting several entrapment and stranding surveys when normal reservoir surface elevation operations were at or below 773 feet mean sea level (MSL; Douglas PUD 2004).

Bull trout fishway counts up to 2012 indicate that an average of 62 fish are counted moving through Wells fishways each year. Ninety percent of this movement occurs within the May-June timeframe and is almost exclusively composed of adult fish.

Each year, Douglas PUD (via Washington Department of Fish and Wildlife [WDFW]) has PIT-tagged and collected biological data on all bull trout captured in tributary, hatchery-related smolt outmigrant (rotary-screw traps) and brood stock collection (weirs) activities in the Methow River watershed. Information from these activities is available on PTAGIS (www.ptagis.org).

Entrapment and stranding surveys were conducted in 2008 and 2011. Locations were selected based upon an analysis of detailed bathymetric maps produced in 2005 combined with Wells Reservoir hydraulic information. Six total potential stranding locations were identified; the Methow River mouth, the Okanogan River mouth, the Kirk Islands, the shallow water habitat in the Columbia River directly across from the mouth of the Okanogan River, Schluneger Flats and the off-channel areas of the Bridgeport Bar Islands. Boat and foot surveys were conducted and included a combination of shoreline transects and inspection of isolated sanctuary pools. Similar to the 2005 bull trout stranding surveys, no bull trout were observed during the 2008 or 2011 surveys which suggest that bull trout are able to avoid stranding and entrapment areas when the Wells Reservoir fluctuates to elevations below 773 MSL (Douglas PUD, 2012).

3.0 GOALS AND OBJECTIVES

The goal of the Plan is to satisfy Article 402 of the Wells Project FERC license, which requires Douglas PUD to file a bull trout study plan to address sections 4.4, 4.5.1, and 4.6.1 of the BTMP. The Plan must provide sufficient detail to enable administration and enforcement as license conditions of the following activities:

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(a) the bull trout stranding evaluations described in section 4.4 of the Aquatic Settlement Agreement's BTMP, filed May 27, 2010;
(b) the bull trout incidental take monitoring studies described in section 4.5.1 of the Aquatic Settlement Agreement's BTMP, filed May 27, 2010; and
(c) the bull trout incidental take monitoring studies to be implemented at the Wells Hatchery as described in section 4.6.1 of the Aquatic Settlement Agreement's BTMP, filed May 27, 2010.

4.0 STUDY MEASURES

4.1 Bull Trout Entrapment or Stranding Surveys

The Wells Project is a run-of-river project meaning that average daily inflow equals daily outflow. As a result, the limited active storage capacity is only sufficient to regulate flow on a daily basis. Alterations in water volume or reservoir fluctuations are minimal and largely driven by the discharge of water from Chief Joseph Dam and Grand Coulee Dam. Typical operational fluctuations of the Wells Project are gradual, repetitive changes in reservoir stage that occur on a daily basis and generally result in reservoir elevation fluctuations of one to two ft. (Douglas PUD 2010). Infrequent reservoir operations necessitated by unusual circumstances, such as extreme runoff from the Methow or Okanogan rivers can result in reservoir elevation of 773-771 (Devine Tarbell & Associates 2006). From January 1998 to July 2013, the reservoir has typically operated within the upper four ft. (781 to 777 ft. MSL in elevation) 96.7 percent of the time (average daily reservoir elevation). Reservoir operations below 774 ft. occur infrequently (generally no more than one a year) but do have a limited potential to entrap and strand bull trout.

As proposed in the BTMP, during the first five years of the new license, Douglas PUD will implement up to five bull trout entrapment/stranding assessments during periods of low reservoir elevation (below 773' MSL). Assessments will be implemented on an opportunistic basis (i.e., low reservoir elevations will not be manufactured for the purposes of an assessment). If no incidences of bull trout stranding are observed during the first five years of study, additional assessment will take place every fifth year, when reservoir conditions are appropriate, during the remainder of the license term, unless waived by the Aquatic Settlement Work Group (Aquatic SWG). If bull trout entrapment and stranding result in an observed take in exceedance of the authorized incidental take level (see USFWS Biological Opinion), then reasonable and appropriate measures will be implemented by Douglas PUD, in consultation with the Aquatic SWG, to address the impact.

During reservoir elevations below 773' MSL, Douglas PUD shall visit the six locations identified as potential reservoir stranding locations identified in 2005 based upon an analysis of detailed bathymetric maps combined with Wells Reservoir hydraulic information. These six locations include and are featured in Figure 1:

1. Methow River mouth;
2. Okanogan River mouth;

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3. Kirk Islands;
4. shallow water habitat in the Columbia River directly across from the mouth of the Okanogan River;
5. Schluneger Flats; and
6. off-channel areas of the Bridgeport Bar Islands.

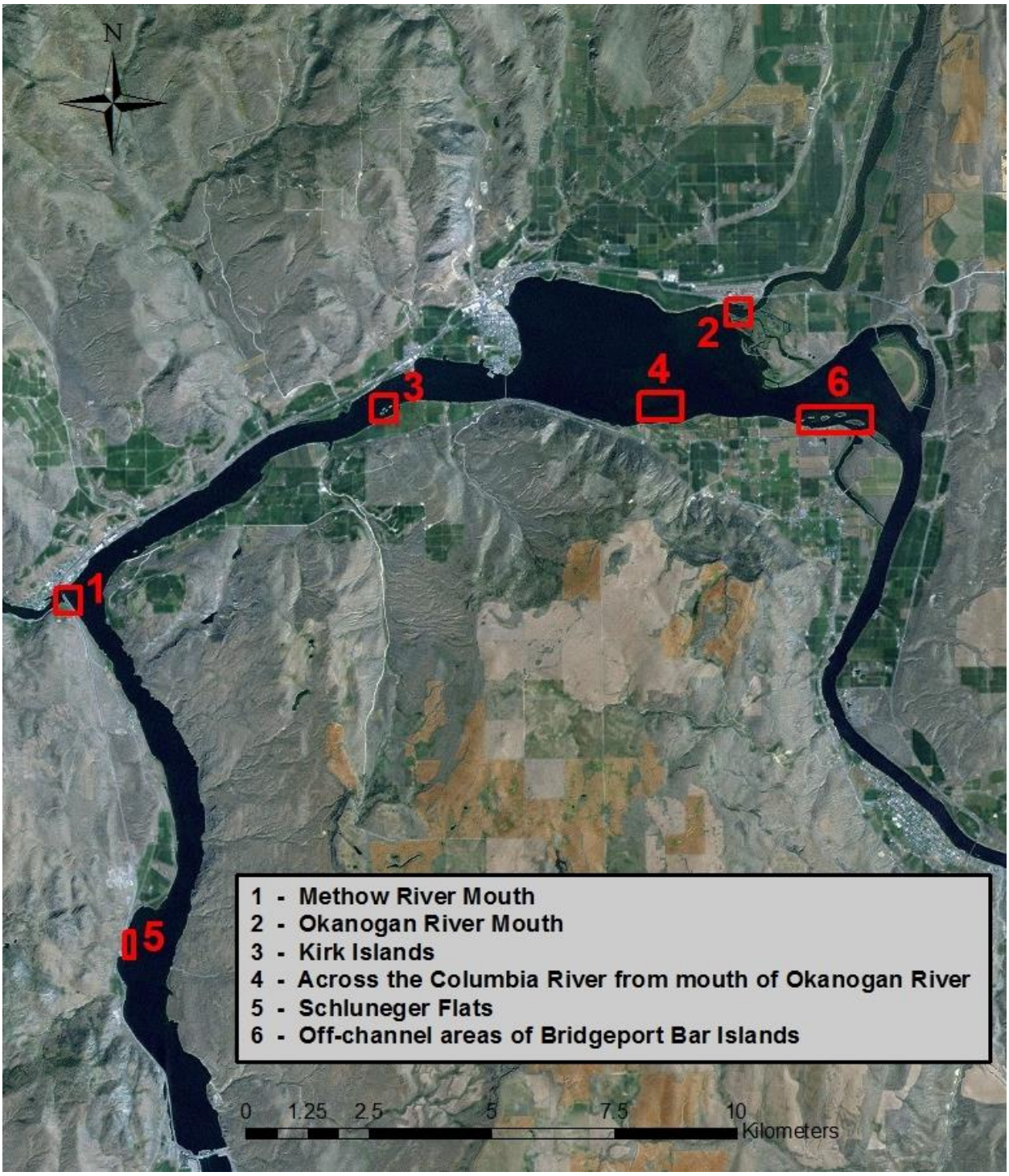

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Figure 1. Well Project bull trout stranding survey locations.

Once Wells Project operations staff has confirmed that reservoir elevations are 773 msl or lower and that elevation is expected to be maintained for at least 24-hours, Douglas PUD shall notify the USFWS of its intention to conduct a stranding survey within 24 hours of the low reservoir condition. Surveys will be conducted by boat and/or foot, as appropriate, at each of the six sites identified above in the following order 3, 4, 6, 2, 1, and 5 (prioritized based on expected size and depth of stranding pools). Sampling will include visual inspections through a combination of shoreline transects and inspection of isolated sanctuary pools. Any locations too deep for visual inspections may be seined. Any bull trout that are observed will be captured, removed, and placed back into the main channel of the river. Procedures for capture and removal will follow USFWS guidance (2012b). Seines of the appropriate mesh size will be used to capture bull trout (typically 3/16 – 1/4 inch mesh size) and composed of soft (non-abrasive) nylon material. Seines, once pursed, will remain partially in the water while fish are removed with dip nets. Seining will be conducted until all bull trout have been removed from a stranding location. In deeper stranding areas with less than 100% visibility to the bottom, two consecutive passes with the seine without capture will indicate that the sampling area is free of bull trout. All bull trout removed will be transferred from stranding area to dark-colored, aerated containers and immediately transported to the main river channel for release. Bull trout will be enumerated and estimates of size and condition will be made prior to release. No anesthetics shall be used. All other fish captured during seining operations will be removed by dip net, and transported to the main channel (i.e., non-stranding location with river connectivity) for release. Incidentally captured species will be identified to species and enumerated up to the first 25 of each species. Additional counts beyond 25 will be estimated (e.g. approximately 100 stickle back). Non-target taxa will also be identified as adult or subadult. Any bull trout mortality will have a tissue sample taken (for genetic analysis in support of BTMP section 4.5.2), be placed in a zip lock bag and refrigerated as soon as possible. All mortalities will be provided to the USFWS. Finally, water temperatures will be taken in each pool when fish of any species are present.

After each stranding survey, a brief email summary of the results will be provided to the USFWS, the Aquatic SWG, and the FERC. The ASWG will may choose to discontinue stranding surveys consistent with the language found in the BTMP. A more detailed presentation of information will be included as a part of Douglas PUD's incidental take report due April 15th of each year and the annual report of activities accomplished related to the implementation of the BTMP. If after three consecutive stranding surveys bull trout are not observed the Aquatic SWG may choose to revisit the stranding survey approach and submit a revised plan with the FERC.

4.2 Bull Trout Incidental Take Monitoring of Other Aquatic Resource Management Plan Activities

The implementation of activities associated with other Aquatic Resource Management Plans (white sturgeon, Pacific lamprey, resident fish, aquatic nuisance species, and water quality) and Predator Control Program may result in the incidental capture and take of bull trout. If the incidental take of bull trout is exceeded due to the implementation of other Aquatic Resource Management Plan activities, then Douglas PUD will develop a plan, in consultation with the

Aquatic SWG, to address the identified factors contributing to the exceedance of the allowable level of incidental take. If the incidental take of bull trout is exceeded due to the implementation of the Predator Control Program, then Douglas PUD will develop a plan, in consultation with the HCP Coordinating Committee and the Aquatic SWG, to address the identified factors contributing to the exceedance of the allowable level of incidental take.

In the past, Douglas PUD has implemented a variety of aquatic resources sampling activities in support of license compliance, relicensing, and prior to new license issuance. Many of these activities employ sampling gear and approaches specific to the species or parameters of interest (e.g., longline fishing for the northern pikeminnow, overflow weir traps for lamprey, water quality sampling, plankton tows for zebra/quagga mussels, etc.) and as such, don't generally encounter bull trout. However, bull trout are present within the Wells Project at specific times of the year and the potential for capture and incidental take of bull trout associated with aquatic sampling activities exists.

For all fish sampling activities (Table 1) implemented in support of the plans and program described above, Douglas PUD shall ensure that implementation staff (Douglas PUD or contractor) are aware of and trained in proper handling, release and communication protocols required when encountering bull trout. All bull trout incidentally captured will be released immediately after estimates of size and general condition are recorded. No anesthetics shall be used. Any fish that need to be held shall be placed in an aerated, dark-colored container consistent with USFWS guidance (2012b) and released near the point of capture as soon as possible. Douglas PUD will notify the USFWS of any bull trout encounters. Any mortality will have a tissue sample taken (for genetic analysis in support of BTMP section 4.5.2), be placed in a zip lock bag and refrigerated as soon as possible. All mortalities will be provided to the USFWS.

Table 1. Wells Project implementation activities where bull trout incidental take monitoring protocols will be employed including the schedule of these activities over the term of the license.

Implementation Activity	Schedule
ANSMP - Monitoring for quagga/zebra mussels using plankton tows and other methods	Annually during summer months.
Predator Control Program – longline sets to remove northern pikeminnow from Wells Project waters.	Annually during spring/summer months
WQMP – Gas bubble trauma monitoring at Rocky Reach Dam	As needed, when hourly TDG values in the Wells Project tailrace exceed 125%.
PLMP – Salvage activities during ladder maintenance dewatering	Annually during winter ladder maintenance period (typically December and January).
PLMP – sampling in support of upstream passage evaluation	As needed, within one year of lamprey passage improvement measures.
PLMP – periodic monitoring	Every ten years after upstream passage rates are similar to other mid-Columbia River dams.
PLMP – juvenile lamprey habitat evaluation	Within three years of license issuance (one year study).
RFMP – resident fish community assessment	In year 2 and every 10 years thereafter during

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	license term.
RFMP – monitoring in response to proposed changes in Project operations	As needed, if operational changes requiring FERC approval are proposed.
WSMP – brood stock and larval collection activities	Annually until collection activities determined unnecessary by the Aquatic SWG.
WSMP – Phase I index monitoring program	Years 3-5 of license, two additional years prior to year 9, in year 12, and then for a year every 3-5 years (as determined by Aquatic SWG) for license term.

Acronyms in the table above are ANSMP; Aquatic Nuisance Species Management Plan, WQMP; Water Quality Management Plan, PLMP; Pacific Lamprey Management Plan, RFMP; Resident Fish Management Plan, and WSMP; White Sturgeon Management Plan. All Management Plans are found within Douglas PUD's Aquatic Settlement Agreement.

4.3 Bull Trout Monitoring During Hatchery Activities

The Wells and Methow hatcheries implement brood stock collection activities and Douglas PUD conducts spring Chinook and steelhead stock assessment activities at the Wells Dam fishway traps. Brood stock collection and stock assessment activities take place each year during May and June for spring Chinook, July and August for summer Chinook and August through October for steelhead. On the west fishway, trap operators may re-direct upstream migrating anadromous salmonids into a transport pipe that terminates at an adult holding pond at the adjacent Wells Hatchery. On the east fishway, trap operators re-direct potential hatchery brood stock into an aerated live well for processing and transport fish by truck across Wells Dam to the Wells Hatchery and other appropriate facilities. The Wells Fish Hatchery volunteer channel is also used to collect brood stock for the Wells Hatchery. Adult summer/fall Chinook, steelhead and coho readily volunteer into the hatchery collection trap and are manually handled and either retained for brood stock or released back into the Columbia River downstream of Wells Dam via a water/fish transport pipe. Unlike, incidental encounters at other hatchery locations, bull trout incidentally encountered in the Wells Hatchery volunteer trap are immediately returned to the Columbia River below Wells Dam and are not anesthetized or sampled.

The Wells Hatchery activities described above are expected to continue annually throughout the term of the license. All three of these activities have the potential to incidentally re-direct upstream migrating adult bull trout resulting in lethal or non-lethal incidental take.

Any bull trout encountered during trapping in the ladders at Wells Dam for either the Wells or Methow Hatchery brood collection activities will be anesthetized using MS-222, measured, general condition recorded, a tissue sample will be taken for genetic analysis, and given a Passive Integrated Transponder (PIT) tag. If a PIT tag exists, the PIT tag identification code will be recorded and the information will be uploaded to PTAGIS. After processing, all bull trout will be placed in an aerated, dark-colored container until recovery from anesthesia is achieved. On the east ladder, sampled fish will be placed in a semi-volitional recovery trough with fresh flow. Bull trout captured at the west ladder facility will be handled using the same protocols and released in the forebay of Wells Dam (Starr boat launch). All handling and release protocols will be consistent with USFWS guidance (2012b). Douglas PUD will notify the USFWS of any

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lethal take of bull trout during the described sampling (over the last decade of hatchery actions no lethal take has been observed). Any mortality will have a tissue sample taken (for genetic analysis in support of BTMP section 4.5.2), be placed in a zip lock bag and refrigerated as soon as possible. All mortalities will be provided to the USFWS.

License Article 402 states requirements for incidental monitoring activities at the Wells Hatchery however, section 4.6.1 of the BTMP explicitly states that such activities will be implemented for all facilities including the Wells Hatchery, the Methow Hatchery, and any future facilities directly funded by Douglas PUD. Currently, hatchery activities in addition to the three sites described above include operation of the Twisp weir (Methow Hatchery), Methow Hatchery outfall trap, Methow and Twisp river rotary screw trap operations, and Hatchery Genetic Management Plan implementation activities. For all of these hatchery activities, handling, anesthetic and sampling methods as described above will be employed. All handling and release protocols will be consistent with USFWS guidance (2012b). Douglas PUD will notify the USFWS of any lethal take of bull trout during the described sampling (over the last decade of hatchery actions no lethal take has been observed). Any mortality will have a tissue sample taken (for genetic analysis in support of BTMP section 4.5.2), be placed in a zip lock bag and refrigerated as soon as possible. All mortalities will be provided to the USFWS.

During the course of the Wells Operating License, new hatchery related activities may be developed that are currently unforeseen. New hatchery actions that are implemented during HGMP activities may have the potential to encounter bull trout. In this event of new HGMP actions (e.g. development and operation of a new weir or trapping facility) Douglas PUD, along with the ASWG may elect to adopt similar measures for bull trout monitoring as explained above.

5.0 REPORTING

Douglas PUD will provide the annual results of the Bull Trout Evaluations Study Plan activities as a part of the annual Bull Trout Incidental Take Report filed with the USFWS on April 15th of each year (see BO) and Douglas PUD will incorporate that same information into the annual Bull Trout Management Plan report that is developed by, and then approved by, the Aquatic SWG each year following a 30 day review. Starting in 2014, the annual Bull Trout Management Plan Report will be incorporated into the comprehensive Aquatic Settlement Agreement annual report, which is required to be filed with the FERC by May 30th of each year. As part of reporting, a PIT tag summary (primarily associated with activities in Section 4.3) will be provided at the request of the Aquatic SWG. If significant bull trout activities were not conducted in a given year, Douglas retains the option to instead prepare a technical memorandum providing an overview of all bull trout related sampling activities and an explanation of the circumstances in lieu of the annual report.

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6.0 REFERENCES

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Exhibit B

Pre-filing consultation record for Bull Trout Stranding, Entrapment and Take Study Plan

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EMAIL TO THE AQUATIC SWG AND THE NMFS PROVIDING A REVIEW AND COMMENT PERIOD FOR THE BULL TROUT STRANDING, ENTRAPMENT AND TAKE STUDY PLAN

Andrew Gingerich

From: Kristi Geris <kgeris@anchorqea.com>
Sent: Monday, July 29, 2013 1:56 PM
To: Andrew Gingerich; Bao Le; Beau Patterson; Bill Towey (bill.towey@colvilletribes.com); Bob Jateff (jatefrjj@dfw.wa.gov); Bob Rose; 'Brad James'; 'Bret Nine'; 'Chad Jackson'; Charlie McKinney (cmck461@ecy.wa.gov); Chas Kyger; Chris Sheridan; 'Donella Miller'; Jason McLellan; Jeff Korth (korthjwk@dfw.wa.gov); 'Jessi Gonzales'; Joe Peone (joe.peone@colvilletribes.com); Keith Kirkendall (Keith.Kirkendall@noaa.gov); kirk.truscott@colvilletribes.com; Kristi Geris; Mary Mayo; Mike Schiewe; Pat Irle (pirl461 @ecy.wa.gov); 'Patrick Luke'; Patrick Verhey (Patrick.Verhey@dfw.wa.gov); Paul Ward (ward@yakama.com); Shane Bickford; 'Steve Lewis'; 'Steve Parker (parker@yakama.com)'; Steve Rainey
Subject: FW: Bull Trout Stranding and Take Study Plan License Article 402 (7-29-13)
Attachments: 2013_07_29 Douglas - Bull Trout Stranding and Take Study Plan License Article 402 (7-29-13).pdf

Hi Aquatic SWG: please see the email below from Andrew and the attached draft Bull Trout Stranding and Take Study Plan. This draft plan is out for a 30-day review period with comments due to Andrew no later than Wednesday, August 28, 2013. Please note Andrew's **additional comments below** regarding review and approval of the attached plan.

Thanks!
Kristi ☺

Kristi Geris

ANCHOR QEA, LLC
kgeris@anchorqea.com
T 509.491.3151 x104
C 360.220.3988

From: Andrew Gingerich [mailto:andrewg@dcpud.org]
Sent: Monday, July 29, 2013 1:43 PM
To: Kristi Geris
Cc: Chas Kyger
Subject: Bull Trout Stranding and Take Study Plan License Article 402 (7-29-13)

Kristi,

Please distribute the attached Bull Trout Stranding and Take Study Plan to the ASWG. This Plan was developed to specifically address License Article 402 in the new Well Operating License. The Plan describes the proposed methods, schedule and reporting that will be used to address requirements in the Bull Trout Management Plan (BTMP). Here are the specific areas in the BTMP that are addressed:

(a) the bull trout stranding evaluations described in section 4.4 of the Aquatic Settlement Agreement's BTMP;

(b) the bull trout incidental take monitoring studies described in section 4.5.1 of the Aquatic Settlement Agreement's BTMP; and

(c) the bull trout incidental take monitoring studies to be implemented at the Wells Hatchery as described in section 4.6.1 of the Aquatic Settlement Agreement's BTMP.

Douglas PUD is asking the Aquatic SWG for a 30 day review, with all comments to be submitted to Douglas PUD by August 28th. At the September 11th conference call Douglas PUD will ask for formal approval from the ASWG, once any revisions have been made. For those signatories unable to make the call in September, please submit your approval to Mike prior to the meeting.

Please let me know if you have questions and submit edits or comments to me.

Thanks
Andrew

Andrew Gingerich
Sr. Aquatic Resource Biologist
Douglas County Public Utility District
1151 Valley Mall Parkway, East Wenatchee, WA 98802
Office Phone: (509) 881-2323
Email: andrewg@dcpud.org

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EMAIL TO BIA PROVIDING A REVIEW AND COMMENT PERIOD FOR THE BULL TROUT STRANDING, ENTRAPMENT AND TAKE STUDY PLAN

Andrew Gingerich

From: Kristi Geris <kgeris@anchorqea.com>
Sent: Wednesday, July 31, 2013 8:54 AM
To: Keith Hatch (Keith.Hatch@bia.gov)
Cc: Andrew Gingerich; Shane Bickford; Mike Schiewe
Subject: FW: Bull Trout Stranding and Take Study Plan License Article 402 (7-29-13)
Attachments: 2013_07_29 Douglas - Bull Trout Stranding and Take Study Plan License Article 402 (7-29-13).pdf

Follow Up Flag: Follow up
Flag Status: Completed

Hi Keith,

Please see the emails below regarding review of the attached Bull Trout Stranding and Take Study Plan. Thanks! –kristi ☺

Kristi Geris

ANCHOR QEA, LLC
kgeris@anchorqea.com
T 509.491.3151 x104
C 360.220.3988

From: Kristi Geris
Sent: Monday, July 29, 2013 1:56 PM
To: Andrew Gingerich (andrewg@dcpud.org); Bao Le; Beau Patterson (bpatterson@dcpud.org); Bill Towey (bill.towey@colvilletribes.com); Bob Jateff (jatefrjj@dfw.wa.gov); Bob Rose; 'Brad James'; 'Bret Nine'; 'Chad Jackson'; Charlie McKinney (cmck461@ecy.wa.gov); Chas Kyger; Chris Sheridan; 'Donella Miller'; Jason McLellan; Jeff Korth (korthjwk@dfw.wa.gov); 'Jessi Gonzales'; Joe Peone (joe.peone@colvilletribes.com); Keith Kirkendall (Keith.Kirkendall@noaa.gov); kirk.truscott@colvilletribes.com; Kristi Geris; 'Mary Mayo'; Mike Schiewe; Pat Irle (pirl461@ecy.wa.gov); 'Patrick Luke'; Patrick Verhey (Patrick.Verhey@dfw.wa.gov); Paul Ward (ward@yakama.com); Shane Bickford (sbickford@dcpud.org); 'Steve Lewis'; 'Steve Parker (parker@yakama.com)'; Steve Rainey
Subject: FW: Bull Trout Stranding and Take Study Plan License Article 402 (7-29-13)

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Thanks!
Kristi ☺

Kristi Geris

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T 509.491.3151 x104
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From: Andrew Gingerich [mailto:andrewg@dcpud.org]
Sent: Monday, July 29, 2013 1:43 PM

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To: Kristi Geris
Cc: Chas Kyger
Subject: Bull Trout Stranding and Take Study Plan License Article 402 (7-29-13)

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(b) the bull trout incidental take monitoring studies described in section 4.5.1 of the Aquatic Settlement Agreement's BTMP; and

(c) the bull trout incidental take monitoring studies to be implemented at the Wells Hatchery as described in section 4.6.1 of the Aquatic Settlement Agreement's BTMP.

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Please let me know if you have questions and submit edits or comments to me.

Thanks
Andrew

Andrew Gingerich
Sr. Aquatic Resource Biologist
Douglas County Public Utility District
1151 Valley Mall Parkway, East Wenatchee, WA 98802
Office Phone: (509) 881-2323
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REMINDER TO THE ASWG TO REVIEW AND COMMENT ON THE BULL TROUT STRANDING, ENTRAPMENT AND TAKE STUDY PLAN

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Andrew Gingerich

From: Kristi Geris <kgeris@anchorqea.com>
Sent: Tuesday, August 27, 2013 6:12 PM
To: 'Steve Parker (parker@yakama. com)'; Chris Sheridan; Paul Ward (ward@yakama. com); Bob Jateff (jatefrjj@dfw. wa. gov); Shane Bickford; 'Jessi Gonzales'; Pat Irle (pirl461 @ecy. wa. gov); Bill Towey (bill. towey@colvilletribes. com); Mike Schiewe; Beau Patterson; 'Donella Miller'; Charlie McKinney (cmck461@ecy. wa. gov); 'Steve Lewis'; kirk.truscott@colvilletribes.com; korthjwk@dfw.wa.gov; 'Chad Jackson'; Mary Mayo; Bob Rose; 'Bret Nine'; Andrew Gingerich; 'Bryan Nordlund (bryan.nordlund@noaa.gov)'; Bao Le; 'Patrick Luke'; 'Brad James'; Keith Hatch (Keith.Hatch@bia.gov)
Subject: FW: Bull Trout Stranding and Take Study Plan License Article 402 (7-29-13)
Attachments: 2013_07_29 Douglas - Bull Trout Stranding and Take Study Plan License Article 402 (7-29-13).pdf

Follow Up Flag: Follow up
Flag Status: Completed

Hi Aquatic SWG: please remember to submit comments on the attached draft Bull Trout Stranding and Take Study Plan to Andrew no later than EOD TOMORROW.

Thanks! -kristi :)

Sent from my Verizon Wireless 4G LTE smartphone

-------- Original message --------
From: Kristi Geris <kgeris@anchorqea.com>
Date: 07/29/2013 1:56 PM (GMT-08:00)
To: "Andrew Gingerich (andrewg@dcpud.org)" <andrewg@dcpud.org>,Bao Le <Bao.Le@hdrinc.com>,"Beau Patterson (bpatterson@dcpud.org)" <bpatterson@dcpud.org>,"Bill Towey (bill.towey@colvilletribes.com)" <bill.towey@colvilletribes.com>,"Bob Jateff (jatefrjj@dfw.wa.gov)" <jatefrjj@dfw.wa.gov>,Bob Rose <rosb@yakamafish-nsn.gov>,'Brad James' <jamesbwj@dfw.wa.gov>,'Bret Nine' <bret.nine@colvilletribes.com>,'Chad Jackson' <chad.jackson@dfw.wa.gov>,"Charlie McKinney (cmck461@ecy.wa.gov)" <cmck461@ecy.wa.gov>,Chas Kyger <chask@dcpud.org>,Chris Sheridan <csherida@blm.gov>,'Donella Miller' <donella@yakama.com>,Jason McLellan <Jason.McLellan@colvilletribes.com>,"Jeff Korth (korthjwk@dfw.wa.gov)" <korthjwk@dfw.wa.gov>,'Jessi Gonzales' <jessica_gonzales@fws.gov>,"Joe Peone (joe.peone@colvilletribes.com)" <joe.peone@colvilletribes.com>,"Keith Kirkendall (Keith.Kirkendall@noaa.gov)" <Keith.Kirkendall@noaa.gov>,kirk.truscott@colvilletribes.com,Kristi Geris <kgeris@anchorqea.com>,'Mary Mayo' <marym@dcpud.org>,Mike Schiewe <mschiewe@anchorqea.com>,"Pat Irle (pirl461@ecy.wa.gov)" <pirl461@ecy.wa.gov>,'Patrick Luke' <pluke@ykfp.org>,"Patrick Verhey (Patrick.Verhey@dfw.wa.gov)" <Patrick.Verhey@dfw.wa.gov>,"Paul Ward (ward@yakama.com)" <ward@yakama.com>,"Shane Bickford (sbickford@dcpud.org)" <sbickford@dcpud.org>,'Steve Lewis' <stephen_lewis@fws.gov>,"'Steve Parker (parker@yakama.com)'" <parker@yakama.com>,Steve Rainey <WSteveRainey@aol.com>
Subject: FW: Bull Trout Stranding and Take Study Plan License Article 402 (7-29-13)

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USFWS COMMENTS ON THE BULL TROUT STRANDING, ENTRAPMENT AND TAKE STUDY PLAN

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Andrew Gingerich

From: Lewis, Stephen <stephen_lewis@fws.gov>
Sent: Wednesday, August 28, 2013 11:42 AM
To: Andrew Gingerich
Subject: Fwd: FW: Bull Trout Stranding and Take Study Plan License Article 402 (7-29-13)
Attachments: 2013_07_29 Douglas - Bull Trout Stranding and Take Study Plan License Article 402 (7-29-13).pdf; DevineTarbellAssociates2006EffectofWaterLevelFluctuations.pdf

Follow Up Flag: Follow up
Flag Status: Completed

Hi Andrew-

Thanks for the opportunity to review this document. In general the document looks pretty good, but I offer some helpful suggestions for your consideration:

1.) The word "stranding" doesn't necessarily encapsulate all the aspects of reservoir fluctuation effects. "Entrapment" into a specific area of the reservoir periphery is also important. I suggest incorporating this concept into the study plan as well and modifying the title accordingly. In instances where a documented "stranding" or "entrapment" event has occurred, please not the respective water temperature during those instances.

2.) Devine Tarbell & Associates 2006 (attached below) provides a good summary of effects resulting from potential reservoir fluctuations in the Wells Pool. I suggest inserting this reference into the document to strengthen the rationale for these actions contained in the study plan.

3.) I always think its important to multi-task during these types of studies to the extent possible and reasonable. So I suggest reporting any incidental aquatic species that might be surveyed during the implementation of this study.

4.) Bull Trout Monitoring During Hatchery Activities (page 10): Please insert a placeholder into this section which takes into account other unforeseen hatchery activities which may occur during the course of the new license. I think that's what you intended through the HGMP caveat, but further clarification would be useful.

5.) Figure 1 (page 7): This figure identifies six locations under consideration for these surveys. However, do you have a sense of how these sites will be prioritized once a reservoir fluctuation event has been identified. Based on the reservoir bathymetry, I'm sure some locations rise to the top in terms of importance? Clarification of this point in the document would be very useful.

Hopefully these suggestions help! Give me a call if you would like to discuss!

S-

---------- Forwarded message ----------
From: **Kristi Geris** <kgeris@anchorqea.com>
Date: Tue, Aug 27, 2013 at 6:12 PM

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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

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

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EMAIL TO THE AQUATIC SETTLEMENT WORK GROUP WITH THE REVISED BULL TROUT STRANDING, ENTRAPMENT AND TAKE STUDY PLAN

Andrew Gingerich

From: Kristi Geris <kgeris@anchorqea.com>
Sent: Monday, September 09, 2013 9:40 AM
To: Andrew Gingerich; Bao Le; Beau Patterson; Bill Towey (bill.towey@colvilletribes.com); Bob Jateff (jatefrjj@dfw.wa.gov); Bob Rose; 'Brad James'; 'Bret Nine'; 'Bryan Nordlund (bryan.nordlund@noaa.gov)'; 'Chad Jackson'; Charlie McKinney (cmck461@ecy.wa.gov); Chas Kyger; Chris Sheridan; 'Donella Miller'; Jason McLellan; Jeff Korth (korthjwk@dfw.wa.gov); 'Jessi Gonzales'; Keith Kirkendall (Keith.Kirkendall@noaa.gov); kirk.truscott@colvilletribes.com; Kristi Geris; Mary Mayo; Mike Schiewe; Pat Irle (pirl461 @ecy.wa.gov); 'Patrick Luke'; Patrick Verhey (Patrick.Verhey@dfw.wa.gov); Paul Ward (ward@yakama.com); Shane Bickford; 'Steve Lewis'; 'Steve Parker (parker@yakama.com)'
Cc: Keith Hatch (Keith.Hatch@bia.gov)
Subject: FW: Revised Bull Trout Stranding and Take Study Plan License Article 402
Attachments: 2013_09_09 Douglas - Bull Trout Stranding and Take Study Plan License Article 402 (9-5-13).doc

Hi Aquatic SWG: please see the email below from Andrew and the attached revised Bull Trout Stranding and Take Study Plan that will be up for approval at this week's Aquatic SWG conference call.

Thanks!
Kristi ☺

Kristi Geris

ANCHOR QEA, LLC
kgeris@anchorqea.com
T 509.491.3151 x104
C 360.220.3988

From: Andrew Gingerich [mailto:andrewg@dcpud.org]
Sent: Monday, September 09, 2013 9:32 AM
To: Kristi Geris
Cc: Stephen T. Lewis (Stephen_Lewis@fws.gov) (Stephen_Lewis@fws.gov); Shane Bickford; Chas Kyger
Subject: Revised Bull Trout Stranding and Take Study Plan License Article 402

Kristi, please distribute this email and the attached document to the ASWG.

The comment period for the Bull Trout Stranding and Take Study Plan closed 8/28/2013. Douglas PUD received comments from the USFWS on this plan. The comments were very good and helped improve the document. Douglas PUD's responses to the comments are included below. In addition, I have attached the revised document with the changes that were made in response to the USFWS' comments (I kept the changes in track changes for ease of review). Once the document is approved by the ASWG we will turn off track changes and circulate a final version.

The revised plan, with tracked changes, is up for approval this Wed. Sept. 11 during our ASWG call.

Thanks
Andrew
509-881-2323

From: Lewis, Stephen [mailto:stephen_lewis@fws.gov]
Sent: Wednesday, August 28, 2013 11:42 AM
To: Andrew Gingerich
Subject: Fwd: FW: Bull Trout Stranding and Take Study Plan License Article 402 (7-29-13)

Hi Andrew-

Thanks for the opportunity to review this document. In general the document looks pretty good, but I offer some helpful suggestions for your consideration:

1.) The word "stranding" doesn't necessarily encapsulate all the aspects of reservoir fluctuation effects. "Entrapment" into a specific area of the reservoir periphery is also important. I suggest incorporating this concept into the study plan as well and modifying the title accordingly. In instances where a documented "stranding" or "entrapment" event has occurred, please not the respective water temperature during those instances.
I have updated the title to be, “Bull Trout Stranding, Entrapment and Take Study Plan” and added a section to note water temperature in the entrapment and stranding survey section that reads, “Finally, water temperatures will be taken in each pool when fish of any species are present.”

2.) Devine Tarbell & Associates 2006 (attached below) provides a good summary of effects resulting from potential reservoir fluctuations in the Wells Pool. I suggest inserting this reference into the document to strengthen the rationale for these actions contained in the study plan.
Agree. As such, I have added to the stranding justification section and added the reference to the reference list at the end of the document, “Infrequent reservoir operations necessitated by unusual circumstances, such as extreme runoff from the Methow or Okanogan rivers can result in reservoir elevation of 773-771 (Devine Tarbell & Associates 2006).”

3.) I always think its important to multi-task during these types of studies to the extent possible and reasonable. So I suggest reporting any incidental aquatic species that might be surveyed during the implementation of this study.
Sounds good. I added this to the pool surveys, “ Incidentally captured species will be identified to species and enumerated up to the first 25 of each species. Additional counts beyond 25 will be estimated (e.g. approximately 100 stickle back). Non-target taxa will also be identified as adult or subadult.”

4.) Bull Trout Monitoring During Hatchery Activities (page 10): Please insert a placeholder into this section which takes into account other unforeseen hatchery activities which may occur during the course of the new license. I think that's what you intended through the HGMP caveat, but further clarification would be useful.
Good point. I added this to the section, “During the course of the Wells Operating License, new hatchery related activities may be developed that are currently unforeseen. New hatchery actions that are implemented during HGMP activities may have the potential to encounter bull trout. In the event of new HGMP actions (e.g. development and operation of a new weir or trapping facility) Douglas PUD, along with the ASWG may elect to adopt similar measures for bull trout monitoring as explained above.”

5.) Figure 1 (page 7): This figure identifies six locations under consideration for these surveys. However, do you have a sense of how these sites will be prioritized once a reservoir fluctuation event has been identified. Based on the reservoir bathymetry, I'm sure some locations rise to the top in terms of importance? Clarification of this point in the document would be very useful.
Yes. Good point the upper area of the Project has the potential to have more smaller and more numerous stranding locations. As such, I added, “Surveys will be conducted by boat and/or foot, as appropriate, at each of

the six sites identified above in the following order 3, 4, 6, 2, 1, and 5 (prioritized based on expected size and depth of stranding pools).”

Hopefully these suggestions help! Give me a call if you would like to discuss!

S-

---------- Forwarded message ----------
From: **Kristi Geris** <kgeris@anchorqea.com>
Date: Tue, Aug 27, 2013 at 6:12 PM
Subject: FW: Bull Trout Stranding and Take Study Plan License Article 402 (7-29-13)
To: "Steve Parker (parker@yakama. com)" <parker@yakama.com>, Chris Sheridan <csherida@blm.gov>, "Paul Ward (ward@yakama. com)" <ward@yakama.com>, "Bob Jateff (jatefrjj@dfw. wa. gov)" <jatefrjj@dfw.wa.gov>, "Shane Bickford (sbickford@dcpud.org)" <sbickford@dcpud.org>, Jessi Gonzales <jessica_gonzales@fws.gov>, "Pat Irle (pirl461@ecy. wa. gov)" <pirl461@ecy.wa.gov>, "Bill Towey (bill. towey@colvilletribes. com)" <bill.towey@colvilletribes.com>, Mike Schiewe <mschiewe@anchorqea.com>, "Beau Patterson (bpatterson@dcpud. org)" <bpatterson@dcpud.org>, Donella Miller <donella@yakama.com>, "Charlie McKinney (cmck461@ecy. wa. gov)" <cmck461@ecy.wa.gov>, Steve Lewis <stephen_lewis@fws.gov>, "kirk.truscott@colvilletribes.com" <kirk.truscott@colvilletribes.com>, "korthjwk@dfw.wa.gov" <korthjwk@dfw.wa.gov>, Chad Jackson <chad.jackson@dfw.wa.gov>, Mary Mayo <marym@dcpud.org>, Bob Rose <rosb@yakamafish-nsn.gov>, Bret Nine <bret.nine@colvilletribes.com>, "Andrew Gingerich (andrewg@dcpud.org)" <andrewg@dcpud.org>, "Bryan Nordlund (bryan.nordlund@noaa.gov)" <bryan.nordlund@noaa.gov>, Bao Le <Bao.Le@hdrinc.com>, Patrick Luke <pluke@ykfp.org>, Brad James <jamesbwj@dfw.wa.gov>, "Keith Hatch (Keith.Hatch@bia.gov)" <Keith.Hatch@bia.gov>

Hi Aquatic SWG: please remember to submit comments on the attached draft Bull Trout Stranding and Take Study Plan to Andrew no later than EOD TOMORROW.

Thanks! -kristi :)

Sent from my Verizon Wireless 4G LTE smartphone

-------- Original message --------
From: Kristi Geris <kgeris@anchorqea.com>
Date: 07/29/2013 1:56 PM (GMT-08:00)
To: "Andrew Gingerich (andrewg@dcpud.org)" <andrewg@dcpud.org>,Bao Le <Bao.Le@hdrinc.com>,"Beau Patterson (bpatterson@dcpud.org)" <bpatterson@dcpud.org>,"Bill Towey (bill.towey@colvilletribes.com)" <bill.towey@colvilletribes.com>,"Bob Jateff (jatefrjj@dfw.wa.gov)" <jatefrjj@dfw.wa.gov>,Bob Rose <rosb@yakamafish-nsn.gov>,'Brad James' <jamesbwj@dfw.wa.gov>,'Bret Nine' <bret.nine@colvilletribes.com>,'Chad Jackson' <chad.jackson@dfw.wa.gov>,"Charlie McKinney (cmck461@ecy.wa.gov)" <cmck461@ecy.wa.gov>,Chas Kyger <chask@dcpud.org>,Chris Sheridan <csherida@blm.gov>,'Donella Miller' <donella@yakama.com>,Jason McLellan <Jason.McLellan@colvilletribes.com>,"Jeff Korth (korthjwk@dfw.wa.gov)" <korthjwk@dfw.wa.gov>,'Jessi Gonzales' <jessica_gonzales@fws.gov>,"Joe Peone (joe.peone@colvilletribes.com)"

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APPROVAL BY THE AQUATIC SETTLEMENT WORK GROUP OF THE BULL TROUT STRANDING, ENTRAPMENT AND TAKE STUDY PLAN

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Final Conference Call Action Items

Aquatic Settlement Work Group

To: Aquatic SWG Parties **Date**: September 16, 2013

From: Michael Schiewe, Chair (Anchor QEA, LLC)

Re: Final Action Items of the September 11, 2013, Aquatic SWG Conference Call

Below is a summary of Action Items from the Aquatic SWG meeting held by conference call from 10:00 am to 11:30 am on Wednesday, September 11, 2013. These action items include the following:

I. Summary of Action Items

1. Douglas PUD will finalize the revised draft Bull Trout Stranding and Take Study Plan, and will provide a final version of the plan to Kristi Geris for distribution to the Aquatic SWG (Item VI-2).
2. Douglas PUD will incorporate Section 2.6 – Regional Coordination of the Pacific Lamprey Management Plan (PLMP) into the draft Lamprey Entrance Efficiency and Operations Study Plan, per U.S. Fish and Wildlife's (USFWS's) request. Upon USFWS's approval of the revisions, Kristi Geris will distribute the final version of the plan to the Aquatic SWG (Item VI-3). *(Note: Steve Lewis provided USFWS's approval of the revised plan via email on September 11, 2013, and the final plan was distributed to the Aquatic SWG by Geris on September 12, 2013.)*
3. Douglas PUD will provide a revised draft Water Quality Attainment Plan (WQAP) to Kristi Geris for distribution to the Aquatic SWG. Aquatic SWG members will submit edits and comments on the revised draft WQAP to Andrew Gingerich no later than Tuesday, October 1, 2013 (Item VI-4).
4. Aquatic SWG members will submit edits and comments on the draft Spill Prevention Control and Countermeasures (SPCC) Plan to Andrew Gingerich no later than Tuesday, October 1, 2013 (Item VI-5).
5. Jason McLellan will present his Mid-Columbia Regional Sturgeon Workshop materials at the Aquatic SWG in-person meeting on October 9, 2013 (Item VI-6).
6. Douglas PUD will provide a demonstration of the Aquatic SWG Extranet site at the Aquatic SWG in-person meeting on October 9, 2013 (Item VI-8).

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7. **The Aquatic SWG meeting on October 9, 2013, will be held in person at 9:00 am at Douglas PUD Headquarters in East Wenatchee, Washington. If time permits, there will also be a Wells Dam site visit following the meeting (Item VII-1).**

II. Summary of Decisions

1. There were no Statements of Agreement (SOAs) approved at today's meeting.

III. Agreements

1. The Aquatic SWG members present approved the draft Bull Trout Stranding and Take Study Plan, as revised (Item VI-2).
2. The Aquatic SWG members present conditionally approved the draft Lamprey Entrance Efficiency and Operations Study Plan, pending USFWS's email approval of the revised draft plan (Item VI-3). *(Note: Steve Lewis provided USFWS's approval of the revised plan via email on September 11, 2013, as distributed to the Aquatic SWG by Kristi Geris that same day.)*
3. The Aquatic SWG members present agreed to continue discussions on the Conflict of Interest Policy at the Aquatic SWG in-person meeting on October 9, 2013 (Item VI-9).
4. The Aquatic SWG members present agreed to hold the Aquatic SWG meeting on October 9, 2013, at an earlier than usual start time of 9:00 am. The meeting will be held in person at Douglas PUD Headquarters in East Wenatchee, Washington. If time permits, Aquatic SWG members also agreed to a Wells Dam site visit following the meeting (Item VII-1).

IV. Review Items

1. Kristi Geris sent an email to the Aquatic SWG on August 26, 2013, notifying them that the draft SPCC Plan is available for review, with comments due to Andrew Gingerich no later than Tuesday, October 1, 2013.
2. Kristi Geris sent an email to the Aquatic SWG on August 27, 2013, notifying them that the draft Conflict of Interest Policy is available for review. The draft policy will be up for approval at the Aquatic SWG meeting on October 9, 2013.
3. Kristi Geris sent an email to the Aquatic SWG on August 27, 2013, notifying them that the draft WQAP is available for review, with comments due to Andrew Gingerich no later than Tuesday, October 1, 2013.

V. Reports Finalized

1. The final Lamprey Entrance Efficiency and Operations Study Plan was approved by the Aquatic SWG on September 11, 2013, and was distributed to the Aquatic SWG by Kristi Geris on September 12, 2013.

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Document Content(s)

Transmittal Bull Trout Eval Study Plan.PDF.....1-40

APPENDIX D

FERC APPROVAL OF THE BULL TROUT STRANDING, ENTRAPMENT AND TAKE STUDY PLAN

20131029-3024 FERC PDF (Unofficial) 10/29/2013

145 FERC ¶ 62,070
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Public Utility District No. 1 of Douglas County, Washington — Project No. 2149-163

ORDER APPROVING BULL TROUT STRANDING, ENTRAPMENT, AND TAKE STUDY PLAN PURSUANT TO LICENSE ARTICLE 402

(Issued October 29, 2013)

1. On September 23, 2013, Public Utility District No. 1 of Douglas County, Washington (licensee) filed, for Federal Energy Regulatory Commission (Commission) approval, a bull trout (*Salvelinus confluentus*) stranding, entrapment, and take study plan (plan) for the Wells Hydroelectric Project. The plan is required by Article 402 of the Commission's November 9, 2012 Order Issuing New License.[1] The Wells Hydroelectric Project is located on the Columbia River in Douglas, Okanogan, and Chelan Counties, Washington, and partially occupies federal lands administered by the U.S. Department of the Interior and U.S. Army Corps of Engineers.

LICENSE REQUIREMENTS AND BACKGROUND

2. Article 402 requires the licensee to file a bull trout monitoring plan for Commission approval that includes stranding evaluations and incident take studies as described in sections 4.4, 4.5.1, and 4.6.1of the Aquatic Settlement Agreement's Bull Trout Management Plan.[2] The plan must include a record of consultation with the National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (FWS), Confederated Tribes of the Colville Reservation (Colville), Confederated Tribes and Bands of the Yakama Nation (Yakama Nation), U.S. Bureau of Indian Affairs (BIA), and U.S. Bureau of Land Management (BLM). The plan is due to the Commission within one year of issuance of the project license, or November 9, 2013.

3. Section 4.4 of the Bull Trout Management Plan mandates that the licensee must identify potential entrapment or stranding areas for bull trout. In 2004 through 2008, the

[1] 141 FERC ¶ 62,104.

[2] *See* Attachment C of the May 27, 2010 filing with the Commission.

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licensee employed high resolution bathymetric information, hydraulic and elevation data, and backwater curves to identify the areas of highest risk for entrapment or stranding. The licensee is required to monitor those potential entrapment or stranding areas when low reservoir levels expose the identified sites in as many as five entrapment/stranding assessments over the first five years of the November 9, 2012 license term. If no incidences of entrapment or stranding are observed during the initial five years, the licensee must continue the assessments once every five years. If bull trout entrapments and strandings exceed the authorized incidental take level, the licensee must consult with the Aquatic Settlement Working Group (ASWG)[3] to address the impact. The ASWG consists of representatives from consulting agencies and tribes and assists in the implementation of the Aquatic Settlement Agreement.

4. Similarly, section 4.5.1 of the Bull Trout Management Plan mandates that, if the licensee exceeds the authorized incidental take of bull trout during implementation of other resource management plans, the licensee must consult with the ASWG to identify factors contributing to the exceedance. If the exceedance is a result of implementing the Predator Control Program, the licensee must develop a plan, in consultation with the Habitat Conservation Plan Coordinating Committee[4] and the ASWG, to address the impact.

5. Section 4.6.1 of the Bull Trout Management Plan also addresses incidental take of bull trout. Under this requirement, the licensee must consult with the ASWG to address any observed impacts from the operations of the Wells Hatchery that cause an exceedance of the authorized incidental take of bull trout.

LICENSEE'S PROPOSED PLAN

6. The licensee's plan describes monitoring protocols aimed at detecting incidental take of bull trout as a result of other management activities. Because the project is operated in run-of-river mode, the licensee does not anticipate frequent reservoir level fluctuations that exceed one to two feet. As a result, potential entrapment/stranding areas may not be exposed for assessment annually. The licensee proposes conducting their

[3] The Aquatic Settlement Working Group consists of at least one representative from each of the following agencies and organizations: FWS, Washington State Department of Ecology, WDFW, Colville Tribes, Yakama Nation, and the licensee. The BLM has elected to waive regular participation, but it receives all documents and reserves the right to participate as desired. The BIA participates intermittently as an observer, but it receives all documents and reserves the right to participated as desired.

[4] The Habitat Conservation Plan Coordinating Committee consists of representatives from FWS, NMFS, WDFW, Colville, Yakama nation, and the licensee.

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annual entrapment and stranding assessments opportunistically, rather than deliberately lowering the water levels for the purpose of conducting their assessments, for the first five years of operation under the new license.

7. The licensee, through its pre-license surveys, identified six potential entrapment or stranding areas. Under its plan, the licensee would conduct assessments of the previously-determined areas of concern annually, if possible, for five years. If there are no instances of bull trout entrapment or stranding, the assessments would be transitioned to a once every five years schedule.

8. The licensee would notify the FWS of its intention to conduct an entrapment and stranding survey within 24 hours of reservoir elevations dropping to 773 feet mean sea level or below. Each of the six areas of concern would be visually inspected or, if too deep for visual inspection, sampled using a soft nylon seine. The licensee would remove bull trout from the entrapment or stranding location, count and estimate the size and condition of each individual, and release any living bull trout. Any other entrapped or stranded fish would be recorded. The licensee would record the temperature of any pool containing fish, regardless of species.

9. During aquatic resources sampling activities required by the license, the licensee would continue to monitor for the incidental take of bull trout. If the activities contribute to exceeding the allowable level of incidental take, the licensee proposes working with the ASWG to identify the contributing factors and develop a plan to address them. The size and condition of any incidentally captured bull trout would be recorded, and the licensee would release living bull trout as quickly as possible.

10. The licensee would screen for bull trout during hatchery activities at the Wells and Methow Hatcheries, as well as at any additional facilities it may use in the future. During broodstock collection and stock assessment of Chinook salmon and steelhead trout, the licensee proposes anesthetizing, measuring, and collecting tissue samples from any live bull trout unintentionally captured. The licensee would also scan for and record any passive integrated transponder (PIT) tags. Any bull trout not containing a PIT tag would be injected with one. Bull trout would be handled and released in accords with protocols established by the FWS to minimize take.[5]

11. For all bull trout mortalities resulting from the licensee's aforementioned management activities, the licensee proposes taking tissue samples for genetic analysis. The licensee would then refrigerate and store the mortalities until it would be able to provide the fish to the FWS. If levels of incidental take are acceptable after three years of

[5] *See* the FWS's June 19, 2012 Recommended Fish Exclusion, Capture, Handling, and Electroshocking Protocols and Standards.

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implementation, the licensee, after consultation with the ASWG, would request that the Commission amend the plan to decrease or discontinue monitoring.

12. After each entrapment and stranding survey, the licensee proposes summarizing its findings to the ASWG and Commission via electronic communication before developing a more detailed report to be included in the licensee's incidental take report, due to the FWS by April 15 annually.[6] The licensee also proposes including its incidental take data in its annual bull trout monitoring report, as required by the approved Bull Trout Management Plan[7] which is filed with to the Commission by May 31 annually.

CONSULTATION

13. On July 29, 2013, the licensee provided its draft plan to the NMFS and ASWG, which includes representatives from the FWS, Colville, Yakama Nation, BIA, and BLM, for review and comment. The FWS, via electronic communication on August 28, 2013, requested clarification in multiple sections of the plan, which the licensee revised. No other comments were provided. The licensee additionally confirmed ASWG approval of the plan during a September 16, 2013 conference call.

DISCUSSIONS AND CONCLUSION

14. The plan fulfills the requirements of Article 402 to monitor and report on strandings and incidental take of bull trout during various project management activities. The licensee's plan includes a summary of potentially impactful activities and provisions for adjusting contributing factors if unacceptable levels of take are observed. The plan incorporates ongoing dialog with the ASWG and allows for adaptive management at the ASWG's request. The bull trout study would be ongoing until members of the ASWG agree that monitoring should be decreased or discontinued, and the licensee files an amendment request with the Commission.

15. The licensee's proposed bull trout stranding, entrapment, and take study plan for the Wells Hydroelectric Project should be approved.

The Director orders:

(A) Public Utility District No. 1 of Douglas County, Washington's (licensee) bull trout stranding, entrapment and take study plan, filed October 4, 2013 pursuant to Article 402 of the Wells Hydroelectric Project No. 2149, is approved.

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[6] *See* Appendix E of the project license.

[7] *See* Order Modifying and Approving Bull Trout Management Plan Under Article 61. 111 FERC ¶ 62,069 (issued April 19, 2005).

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(B) This order constitutes final agency action. Any party may file a request for rehearing of this order within 30 days from the date of its issuance, as provided in section 313(a) of the Federal Power Act, 16 U.S.C. § 825*l* (2012), and the Federal Energy Regulatory Commission's regulations at 18 CFR § 385.713 (2013). The filing of a request for hearing does not operate as a stay of the effective date of this order, or of any other date specified in this order. The licensee's failure to file a request for rehearing shall constitute acceptance of this order.

Thomas J. LoVullo
Chief, Aquatic Resources Branch
Division of Hydropower Administration
and Compliance

Document Content(s)

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APPENDIX E

2013 METHOW BASIN BULL TROUT PIT TAG SUMMARY

METHOW RIVER BASIN BULL TROUT PIT TAG SUMMARY

WELLS HYDROELECTRIC PROJECT

FERC PROJECT NO. 2149

January 22, 2014

Prepared by:
Public Utility District No. 1 of Douglas County

Prepared for:
Aquatic Settlement Work Group

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Table 2. Summary of detections by location Jan 1, 2008 - Nov 1, 2013 6

Table 3. Tag location for fish detected in Figure 3 above. Note that Twisp River and Twisp River Weir tagging constitutes 80% of the tagging effort. 8

List of Figures

Figure 1. Map of PIT-tag interrogation locations in the Methow River Basin (locations are approximate). The Rocky Reach Dam and Wells Dam interrogation location are not shown. 3

Figure 2. Summary of all bull trout tagged by Douglas PUD contractors since 2005 by location. 5

Figure 3. Detections by interrogation location since 2008. Three hundred and twelve unique fish that created 408 detection summaries are displayed in the bar graph. Small numbers above bars are percentiles for number of detections at a given site. 7

Figure 4. Seasonal detection of bull trout in the Methow River Basin. 9

Figure 5. Total monthly bull trout counts observed at Wells Dam count windows since 2002. The box around the months of May through July denotes 98.5% of all 821 observations. 10

Figure 6. Annual bull trout observations at Wells Dam count windows since 2002. 10

1.0 INTRODUCTION

1.1 Regulatory Framework

On November 9, 2012 the Federal Energy Regulatory Commission (FERC) issued Public Utility District No. 1 of Douglas County (Douglas PUD) a new operating license for the Wells Hydroelectric Project (Wells Project or Project). The terms of the new license requires Douglas PUD to implement the Bull Trout Management Plan, Fishway Prescriptions (Federal Power Act Section 18), Biological Opinion Terms and Conditions (Federal Power Act Section 10), and Clean Water Act 401 Certification Measures for bull trout (*Salvelinus confluentus*). Douglas PUD was required in year one of the new operating license to conduct a bull trout radio-telemetry study at the Twisp Weir (Weir) in Twisp, WA.

After the development of a Twisp Weir Bull Trout Study Plan and at the request of the Aquatic Settlement Work Group (Aquatic SWG), Douglas PUD submitted a request to the FERC to defer the Twisp Weir Bull Trout Study. Instead, Douglas PUD and the Aquatic SWG agreed that a more comprehensive study would be completed in license year five as part of a required 'at dam' radio-telemetry study. Combining the year one and year five studies would reduce the number of study fish needed to complete the combined Twisp Weir and Wells Dam bull trout investigations. On October 15, 2013, the FERC issued an order granting a deferral of the Twisp Weir Bull Trout Study; requiring a combined year one and year five study to be filed with the FERC no later than November 8, 2017. As part of the deferral, Douglas PUD agreed to summarize Passive Integrated Transponder (PIT) tag data from the Methow River Basin to help inform the Aquatic SWG's understanding of bull trout movements and behaviors in the watershed. This information is not required to be filed with the FERC.

1.2 Tagging, Seasonal Movements and Detection

Since 2005, bull trout have been PIT-tagged in the Methow River Basin by Douglas PUD's monitoring and evaluation (M&E) team contracted to conduct various studies associated with the implementation of the Hatchery Compensation Plan in support of the Wells Anadromous Fish Agreement and Habitat Conservation Plan (HCP). The majority of the fish PIT-tagged have been incidentally captured at the Twisp River Weirand at Wells Dam during the collection of hatchery brood stock. Varying life stages of bull trout have been captured and PIT-tag incidental to the collection of juvenile salmon and steelhead at rotary screw traps installed in the Twisp and Methow rivers.

The number of tagged fish that pass an interrogation location, compared to the number that detected at the interrogation locations, is referred to as "detection efficiency". Detection efficiency is largely a function of the power and configuration of a particular antenna array. Detection efficiency at stream site locations is variable with season, flows, location, and reliability of operation. Therefore, data presented in this analysis has not been used to estimate other metrics outside of general behavior. Unlike instream antenna arrays, detection efficiency at Wells Dam fish ladders is greater than 99.999%.

Since PIT-tagging effort began in 2005, consistent movement patterns have been observed in the Methow Basin thanks in large part to the 13 detection arrays located throughout the Methow Basin and mainstem Columbia River. A typical migration pattern includes a mature adult bull trout spawning in the Twisp River followed by a directed downstream movement out of the Twisp River in the months of September through November. Downstream overwintering locations are unknown but presumably some proportion of fish overwinter in the mainstem Columbia River since fish are detected in the spring and early summer moving upstream past Wells Dam (count window enumeration). Nearly ten years of M&E activities suggests that bull trout continue to use the Twisp, Methow and mainstem Columbia rivers (Radio telemetry studies conducted by Douglas PUD also confirm this habitat use). The reoccurring seasonality of detections suggests that bull trout behavior above Wells Dam is very predictable from year to year.

2.0 TAGGING SUMMARY

Since 2005, Douglas PUD's HCP hatchery M&E contractor m has incidentally encountered nearly 700 bull trout. Bull trout are encountered each year during adult trapping at Wells Dam, Twisp River weir operations, juvenile outmigration screw trap operations in the Twisp and Methow rivers, and during hook and line surveys in the Methow River Basin. All encountered fish are PIT-tagged, measured and released. Data from these tagged fish are routinely uploaded to the Columbia River PIT TAG Information System (PTAGIS) database and therefore is publically available.

Since 2005, several new PIT tag antenna locations have been added to the Methow River Basin. Many of these locations are operated year-round and others are temporary. Numerous agencies are custodians of the antenna arrays. As of 2013, approximately 13 antenna locations were present in the Methow River (Figure 1). Detection efficiencies at these antenna locations are a function of equipment, location, reliability, flows, and time of year. In addition to the Methow River arrays, adult fish ladders at Rocky Reach Dam and Wells Dam provide nearly 100% detection efficiency for PIT-tagged bull trout ascending adult fish ladders at these dams.

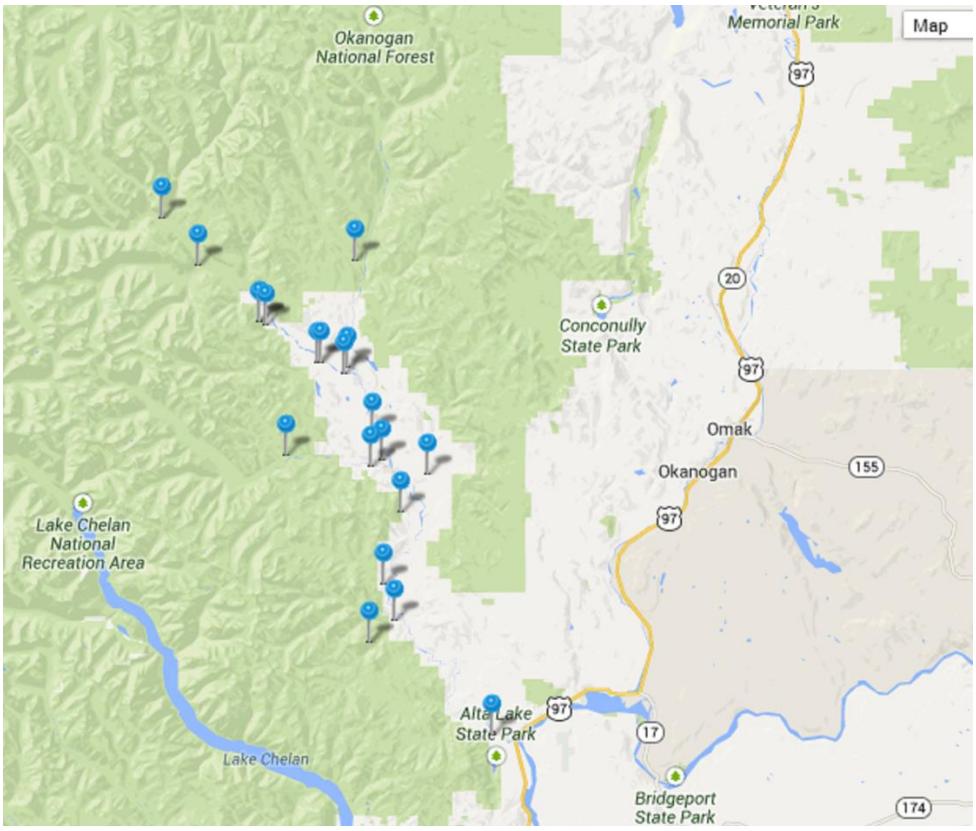

Figure 1. **Map of PIT-tag interrogation locations in the Methow River Basin (locations are approximate). The Rocky Reach Dam and Wells Dam interrogation location are not shown.**

In most years, including 2013, the majority of bull trout are encountered at the Twisp Weir in June and July when operated for spring Chinook broodstock capture activities. Bull trout captured at the Weir are always adult fish and are presumably moving towards the upper reaches of the Twisp River to spawn. Other locations where bull trout are encountered include Wells Dam where trapping for broodstock and stock assessment studies take place. Over the last four years, 25 adults have been trapped at Wells Dam during salmon and steelhead capture efforts (Table 1; Figure 2). Screw traps in the Methow and Twisp rivers have encountered sub-adult and juvenile bull trout. Historically, more bull trout are encountered at the screw trap in the Twisp River as compared to the Methow River. Other bull trout captures include hook and line surveys in the Chewuch, Methow, Twisp and other Methow River Basin locations. In 2013, Douglas PUD contractors had encountered and PIT tagged 127 individual bull trout (by November 1st) when combining all locations of incidental capture (Table 1).

Douglas PUD staff assumes that environmental factors, seasonal behaviors, and fishing effort effects the rate of bull trout encounters in the Methow River Basin and at Wells Dam. For example, high flows preclude contractors from operating the Weir and screw traps. If the Weir is not fished during the months of June and July, bull trout capture will likely be reduced since

existing data indicate that bull trout start moving past the Weir during these months to locate fall spawning areas in the upper reaches of the Twisp River. Similarly, if screw traps are not being operated due to high flows and juvenile or sub-adult bull trout are moving downstream during these periods, the rate of bull trout capture is subsequently reduced.

Table 1 and Figure 2 provide summaries of incidental captures of bull trout during salmonid M&E activities required by Douglas PUD's HCP since 2005 through October of 2013.

Table 1. Summary of all bull trout tagged by Douglas PUD contractors since 2005 by year and location.

Year	Chewuch River	Methow River	Twisp River	Twisp River Weir	Wells Dam	**Grand Total**
2005			16			16
2006			20			20
2007		4	10			14
2008	1	42	28			71
2009		7	21			28
2010		18	42	87	5	152
2011	5	6	57	*	4	72
2012	6	47	63	67	3	186
2013		6	11	97	13	127
Grand Total	12	130	268	251	25	686

* High flows during June and July 2011 prevented captures of adult bull trout at the Twisp Weir. As such, counts at these locations are not separated from "Twisp River" during this year.

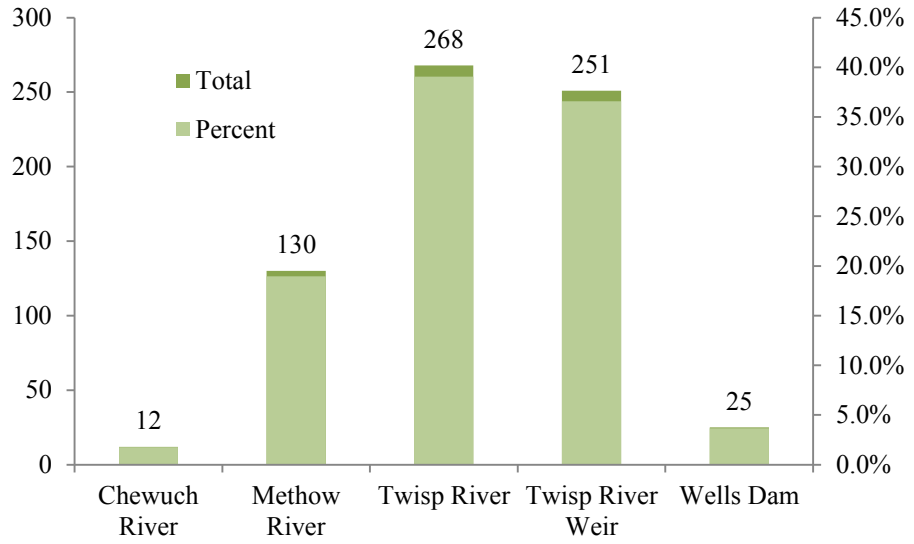

Figure 2. Summary of all bull trout tagged by Douglas PUD contractors since 2005 by location[1].

3.0 DETECTION SUMMARY

Since 2008, 408 summarized detection events have been captured from those bull trout tagged by Douglas PUD contractors since 2005 (Table 2). The majority of detections have taken place since 2010 since at that time, sample size and tagging effort has increased as has the number of Methow Basin PIT-tag detection arrays further compounding comparisons in capture rate between years. Detections have occurred in the Methow River Basin, Wells Dam, Entiat River Basin, and Rocky Reach Dam. Three PIT interrogation locations have collected more than 30 detection events since 2008; Wells Dam (WEA), Twisp River (TWR) and the lower Methow River (LMR) near the Columbia River confluence. Of these three sites the TWR detection site near the confluence of the Methow and Twisp rivers has been the most productive collecting over 250 summarized bull trout events.

[1] Other agencies have tagged bull trout in the Methow Basin, including the United States Fish and Wildlife Service and the United States Forest Service. The analysis in this report, including those summarized in Figure 2, only include those tagged by the Washington Department of Fish and Wildlife under monitoring and evaluation contract agreements with Douglas County Public Utility District. To Date, the majority of the bull trout tagged in the Methow Basin have been tagged by WDFW.

Table 2. Summary of detections by location Jan 1, 2008 - Nov 1, 2013

Methow River	Lost River (LOR)	2
	Early Winters Creek (EWC)	7
	Chewuch (CRW)	6
	Wolf Creek (WFC)	3
	Spring Creek Acclimation Pond Behind Winthrop NFH (SCP)	1
	Methow River Near Wolf Creek (MRW)	3
	Methow River Above Twisp Confluence (MSC)	11
	Little Bridge Creek (LBT)	1
	Twisp River near Methow Confluence	**258**
	Lower Twisp Acclimation Pond (LTP)	4
	Beaver Creek (BVC)	2
	Lower Methow River above Libby Creek (MRB)	2
	Libby Creek (LBC)	1
	Gold Creek (GLC)	21
	Lower Methow River Near Columbia Confluence (LMR)	**46**
Columbia	Wells Dam Adult Fish Ladders (WEA)	**31**
Entiat	Lower Entiat River (ENL)	1
	Mad River Entiat (MAD)	1
Columbia	Rocky Reach Dam Fish Ladders (RRF)	4
	Rocky Reach Juvenile Bypass (RRJ)	3
	Grand Total	**408**

TWR has collected 63.1% of the total detections since 2008 (Figure 3). The high number of detections at TWR is not surprising since:

1. Of all the detected fish since 2008 approximately 75% of them have been tagged in the Twisp River as adults (Table 3).
2. The high spawning site fidelity that bull trout are known to display and the iteroparous nature of bull trout.
3. Fish are detected at this location in the spring as they move upstream to spawn and in the fall during post-spawn downstream movements towards foraging and overwintering grounds. Therefore, this PIT antenna is positioned in a high use migratory corridor between two key habitat areas critical to supporting Methow River Basin bull trout. The relatively small size of the Twisp River likely increases the in-stream detection efficiency within this drainage compared to other drainages in the Methow Basin.

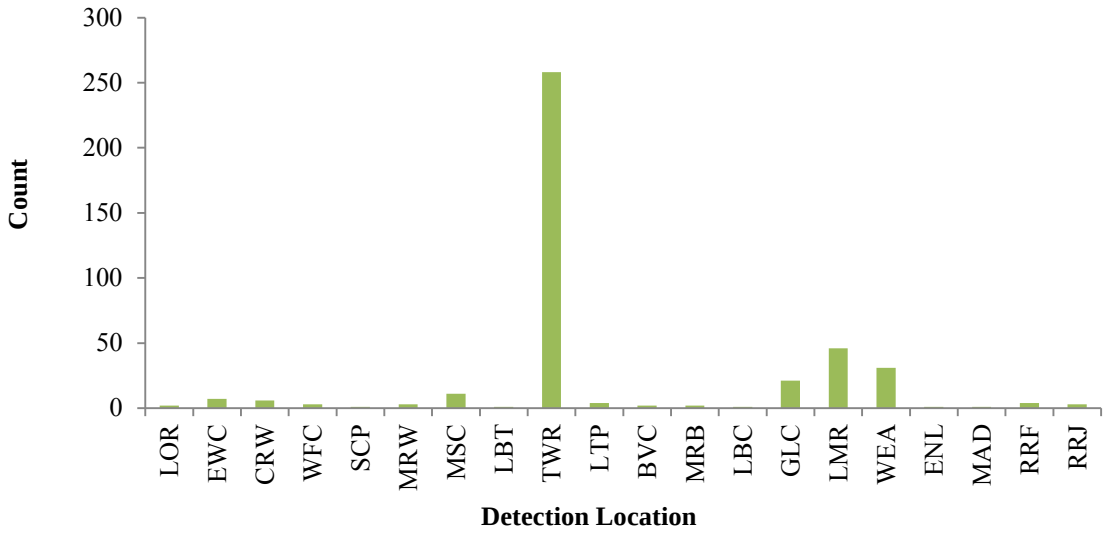

Figure 3. **Detections by interrogation location since 2008. Three hundred and twelve unique fish that created 408 detection summaries are displayed in the bar graph. Small numbers above bars are percentiles for number of detections at a given site.**

Table 3. **Tag location for fish detected in Figure 3 above. Note that Twisp River and Twisp River Weir tagging constitutes 80% of the tagging effort.**

Mark Location for 312 fish detected since 2008	Count
Chewuch River	3
Methow River	30
Methow Smolt Trap at McFarland Creek Road Bridge	3
Twisp River	88
Twisp River Weir	240
Wells Dam	45

3.1 Seasonality of Detections at Interrogation Locations

Bull trout are detected at various locations in a predictable annual pattern (Figure 4). Winter detections are very limited (December through April), which is hypothesized to be a result of reduced foraging and movement across detection locations during these periods. Detections increase at Wells Dam and TWR during late May, June and early July when fish begin migrating from overwintering locations in the mainstem Columbia River towards upstream spawning locations in the Twisp River and upper reaches of the Methow River Basin. Detections at TWR begin to increase again in September, October and early November when adult fish complete spawning events in the upper reaches of the Twisp River and move down river past the TWR location toward foraging and overwintering locations. Upstream and downstream movements are inferred based on the order of antenna crossings at a given detection location (using the 'complete tag history' query in PTAGIS). Finally, downstream detections at TWR are estimated to be 75% greater compared to upstream detections in the spring and summer, which is assumed to be a function of river environment and reduced detection efficiency during high flows during this time period. During the fall when bull trout leave the Twisp River, flows are often much lower compared to the spring and therefore antenna function or detection probability is much higher. It is also an indication that bull trout are capable of moving over the weir during high water events in the spring thereby avoiding being trapped and interrogated for a PIT-tag.

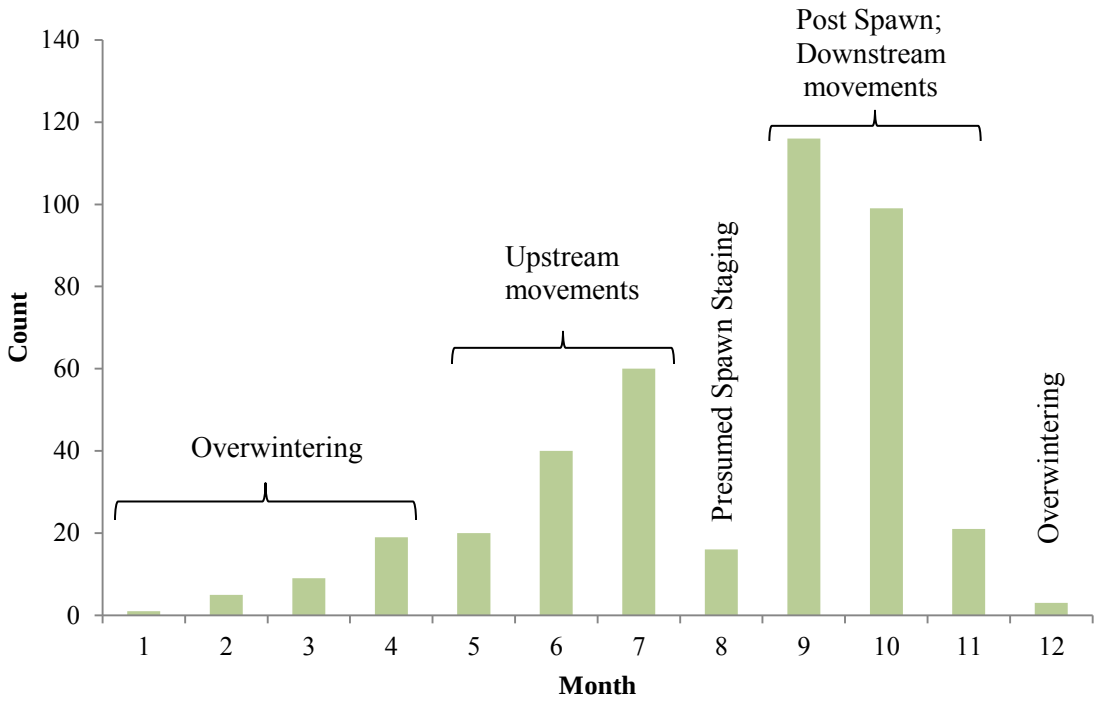

Figure 4. Seasonal detection of bull trout in the Methow River Basin.

4.0 DISCUSSION

Important general movement patterns have been established using approximately 13 detection locations in the Methow River Basin and mainstem Columbia River. Adult bull trout in the Twisp River often make downstream movements from the Twisp River in the months of September through November. Downstream overwintering locations are unknown but presumably some proportion of fish reside in the mainstem Columbia River since fish are detected in the spring and early summer moving upstream past Wells Dam (count window enumeration; Figure 5). For example, since 2002, 821 adult bull trout have been counted at Wells Dam fish ladder count stations. Eighty-four percent of these fish were counted during the spring months of May and June. Further, nearly 99% of historic counts at Wells Dam have occurred during the months of May through August (Figure 5). These fish are hypothesized to be predominately adults that are actively migrating to natal streams in the Methow River Basin to spawn.

Detection efficiency is a large limitation of interrogation locations at all Methow River Basin PIT tag arrays. Detection efficiency at stream site locations is variable with season, flows, location, and reliability of operation. Detection efficiency plasticity related to environmental changes such as flow, prevents this data from being used beyond general descriptions of bull trout behavior. Nearly ten years of M&E activities suggest that bull trout continue to use the Twisp, Methow and mainstem Columbia rivers as habitat. The reoccurring seasonality of detections suggests that bull trout behavior above Wells Dam is predictable year after year.

In 2017, Douglas PUD will use radio-telemetry techniques to examine adult bull trout passage at the Twisp Weir and Wells Dam. Previous radio-telemetry studies indicate that downstream and upstream passage and survival at Wells Dam is 100% for adult bull trout. Since 2002, counts at Wells Dam fish ladders confirm a stable or increasing population of bull trout (Figure 6). Specifically, in 2013, almost 40% more bull trout were observed at Wells Dam compared to the next highest count of nearly 100 in 2006 (Figure 6). These data are consistent with instream PIT-tag detection and Weir incidental capture data of bull trout which also suggest a stable or slightly increasing population of bull trout in the Methow River Basin (data not shown).

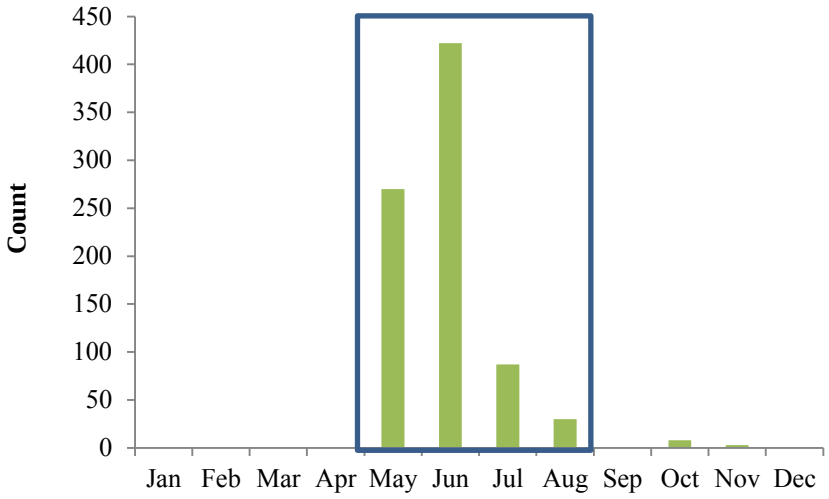

Figure 5. **Total monthly bull trout counts observed at Wells Dam count windows since 2002. The box around the months of May through July denotes 98.5% of all 821 observations.**

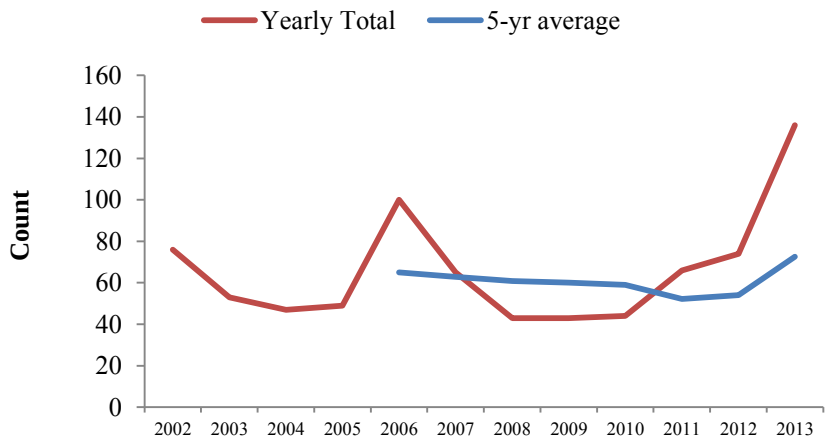

Figure 6. **Annual bull trout observations at Wells Dam count windows since 2002.**

APPENDIX F

CROSS REFERENCED UNITED STATES FISH AND WILDLIFE SERVICE (USFWS) REASONABLE AND PRUDENT MEASURES (RPMS) WITH WELLS BULL TROUT MANAGEMENT PLAN (BTMP) OBJECTIVES AND SUPPORTING PROTECTION, MITIGATION AND ENHANCEMENT MEASURES (PMES)

FWS RPM 1: FERC shall require Douglas PUD, in coordination with the Service, to provide adequate year-round passage conditions for all life history stages of bull trout at all Project facilities.

Associated BTMP Objectives and PMEs:

Objective 1: Operate the upstream fishways and downstream bypass systems in a manner consistent with the HCP (Section 4.1).

PME: Provide Upstream and downstream Passages for Adult and Sub-Adult Bull Trout (Section 4.1.1).

PME: Upstream Fishway Counts (Section 4.1.2).

PME: Upstream Fishway Operations Criteria (Section 4.1.3).

PME: Bypass Operations Criteria (Section 4.1.4).

Objective 2: Identify any adverse Project-related impacts on adult and sub-adult bull trout passage (Section 4.2).

PME: Adult Bull Trout Upstream and Downstream Passage Evaluation (Section 4.2.1).

PME: Adult Bull Trout Passage Evaluation at Off-Project Collection Facilities (Section 4.2.2).

PME: Sub-Adult Bull Trout Monitoring (Section 4.2.3).

Objective 3: Implement reasonable and appropriate options to modify upstream fishway, downstream bypass, or operations if adverse impacts on bull trout are identified and evaluate effectiveness of these measures.

FWS RPM 2. FERC shall require Douglas PUD, in coordination with the Service, to minimize the effect of spillway operations and hydrographic variation to all life history stages of bull trout at all Project facilities.

Associated BTMP Objectives and PMEs:

Objective 1: Operate the upstream fishways and downstream bypass systems in a manner consistent with the HCP (Section 4.1).

> PME: Provide Upstream and downstream Passages for Adult and Sub-Adult Bull Trout (Section 4.1.1).
>
> PME: Upstream Fishway Operations Criteria (Section 4.1.3).
>
> PME: Bypass Operations Criteria (Section 4.1.4).

Objective 3: Implement reasonable and appropriate options to modify upstream fishway, downstream bypass, or operations if adverse impacts on bull trout are identified and evaluate effectiveness of these measures (Section 4.3).

Objective 4: Periodically monitor for bull trout entrapment or stranding during low Wells Reservoir elevations (Section 4.4).

FWS RPM 3. FERC shall require Douglas PUD, in coordination with the Service, to minimize the effects of the Hatchery Supplementation Program to all life stages of bull trout.

Associated BTMP Objectives and PMEs:

Objective 2: Identify any adverse Project-related impacts on adult and sub-adult bull trout passage (Section 4.2).

> PME: Adult Bull Trout Passage Evaluation at Off-Project Collection Facilities (Section 4.2.2).

Objective 6: Identify any adverse impacts of Project-related hatchery operations on adult and sub-adult bull trout.

> PME: Bull Trout Monitoring During Hatchery Activities (Section 4.6.1).

FWS RPM 4. FERC shall require Douglas PUD, in coordination with the Service, to minimize the effects of the other Aquatic Resource Management Plans and Predator Control Program to all life stages of bull trout.

Associated BTMP Objectives and PMEs:

Objective 5: Participate in the development and implementation of the USFWS Bull Trout Recovery Plan, including information exchange and genetic analysis (Section 4.5).

PME: Monitor other Aquatic Resource Management Plan Activities and Predator Control Program for Incidental Capture and Take of Bull Trout (Section 4.5.1).

FWS RPM 5. FERC shall require Douglas PUD, in coordination with the Service, to design and implement a bull trout monitoring program that will adequately detect and quantify Project impacts. This information will reduce uncertainty regarding Project impacts over the life of the project and shall be used to modify Project operations to the extent practicable to further minimize the manner or extent of take.

Associated BTMP Objectives and PMEs:

Refer to Wells Bull Trout Management Plan in its entirety.

Additional PMEs Proposed in the BTMP (not listed above):

PME: Funding Collection of Tissue Samples and Genetic Analysis (Section 4.5.2).
PME: Information Exchange and Regional Monitoring Efforts (section 4.5.3).