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Via Electronic Filing

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

October 11, 2013

Subject: Wells Hydroelectric Project No. 2149 – Lamprey Entrance Efficiency and Operations Study Plan - License Article 401

Dear Secretary Bose:

Pursuant to Article 401 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 Lamprey Entrance Efficiency and Operations Study Plan (Lee and OS Plan) for the Wells Project.

Article 401 requires Douglas PUD to file a Lamprey Entrance Efficiency Plan (LEE Plan) with the Federal Energy Regulatory Commission (FERC) for approval within one year of issuance of the license following consultation with the parties to the Aquatic Settlement Agreement (ASA), as well as consultation with the National Marine Fisheries Service (NMFS) and the Bureau of Indian Affairs (BIA). The Operations Study Plan (OS Plan) does not require approval by the FERC, but because of the interrelated aspects of the two plans Douglas PUD, in consultation with the parties to the ASA, decided to integrate the two plans into one document.

The proposed LEE and OS Plan is intended to satisfy the requirement for the development of a LEE Plan as described in section 4.1.5, bullet 2 of the Pacific Lamprey Management Plan (PLMP), and section 6.5 of Appendix A and section 5.6.2, bullet 3 of Appendix C of the license for the Wells Project.

The proposed LEE and OS Plan is also intended to satisfy the requirements for the development of an OS Plan as described in section 4.1.1 of the PLMP, and section 6.5 of Appendix A and section 5.6.2 bullet 2 of Appendix C of the license.

The final LEE and OS Plan is attached as Exhibit A to this letter and was developed and approved by the parties to the ASA including the U.S. Fish and Wildlife Service, U.S. Bureau of Land Management, Washington State Department of Fish and Wildlife, Washington State

20131011-5112 FERC PDF (Unofficial) 10/11/2013 2:33:12 PM

Department of Ecology, the Confederated Tribes of the Colville Reservation, and the Confederated Tribes and the Bands of the Yakama Nation. The BIA and the NMFS were also provided an opportunity to review and comment on the LEE and OS Plan during the 30-day ASA comment period.

The LEE and OS Plan is designed to evaluate potential operational and physical ladder entrance modifications to create an environment at the fishway entrances that are conducive to adult Pacific lamprey passage without significantly impacting the passage of adult salmonids. The LEE and OS Plan outlines a strategy for identifying potential problem areas negatively impacting lamprey entrance efficiency and implementing and evaluating potential modifications to operating criteria or structures to the Wells Project fishway entrances. The LEE and OS Plan is also intended to identify operational measures that can be evaluated, the proposed monitoring strategy, implementation timeline and criteria for determining success related to lamprey passage through the fishways at Wells Dam. The plan also includes a component to evaluate the effects of various lamprey passage measures on salmon and steelhead passage.

Douglas PUD respectfully requests that the FERC approve the enclosed LEE and OS Plan. The pre-filing consultation record supporting the approval of the Lee and OS Plan is attached as Exhibit B to this letter.

If you have any questions related to the Lamprey Entrance Efficiency and Operations 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 – Lamprey Entrance Efficiency and Operations Study Plan.
Exhibit B – Pre-filing consultation record for Lamprey Entrance Efficiency and Operations Study Plan.

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

20131011-5112 FERC PDF (Unofficial) 10/11/2013 2:33:12 PM

EXHIBIT A

FINAL LAMPREY ENTRANCE EFFICIENCY AND OPERATIONS STUDY PLAN

20131011-5112 FERC PDF (Unofficial) 10/11/2013 2:33:12 PM

ADULT PACIFIC LAMPREY FISHWAY ENTRANCE EFFICIENCY AND OPERATIONS STUDY PLAN
WELLS HYDROELECTRIC PROJECT

FERC PROJECT NO. 2149

September 2013

Prepared by:

Chas Kyger
Public Utility District No. 1 of Douglas County
East Wenatchee, Washington

20131011-5112 FERC PDF (Unofficial) 10/11/2013 2:33:12 PM

1.0 INTRODUCTION

The Pacific Lamprey Entrance Efficiency (LEE) and Operations Study (OS) Plan is designed to evaluate potential operational and physical ladder entrance modifications to create an environment at the fishway entrances that are conducive to adult lamprey passage without significantly impacting passage of adult salmonids. The LEE and OS Plan outlines a strategy for identifying potential problem areas negatively impacting lamprey entrance efficiency and implementing and evaluating potential modifications to operating criteria or structures to the Wells Hydroelectric Project (Wells Project or Project) fishway entrances. Results from previous and ongoing studies of adult Pacific lamprey passage at the Wells Project will serve as the framework for developing future studies and potential modifications to operating criteria and the fishway entrances. In addition, current and emerging information about operational and structural modifications at other Columbia River dams, and the effect of such modifications on adult Pacific lamprey entrance efficiency and passage will be used to inform and guide future activities under the LEE and OS Plan.

1.1 Regulatory Framework

Development of plans to address LEE and OS requirements are contained under Objective 1 of the Pacific Lamprey Management Plan (PLMP). The LEE plan is one of five components of section 4.1.5 of the PLMP which outlines measures to identify, design, and implement operational and structural modifications at fishway entrances to improve upstream passage of adult Pacific lamprey. The development of an OS plan is the principal component of section 4.1.1 of the PLMP (Upstream Fishway Operations Criteria). Public Utility District No. 1 of Douglas County (Douglas PUD) proposes to develop one plan (LEE and OS Plan) to address both requirements contained within the PLMP.

Development of the LEE and OS Plan also meets requirements contained within the U.S. Department of Interior (USDOI) and U.S. Fish and Wildlife Service (USFWS) Fishway Prescription for the Wells Project (section 5.6.2).

The PLMP and USFWS Fishway Prescriptions section 5.6.2 list the following requirements for the LEE and OS Plans:

Operations Study Plan (PLMP Section 4.1.1): Within 1 year of license issuance or as soon as practicable following consultation with the FWS, the WCC, the Aquatic SWG and the BIA, the Licensee shall develop an Operations Study Plan (OS Plan) that specifically identifies operational measures to be evaluated, the proposed monitoring strategy, implementation timeline and criteria for success. The plan shall include a component to evaluate the effects of lamprey measures on salmon.

Entrance Efficiency (PLMP Section 4.1.5): Within 1 year of license issuance or as soon as practicable following consultation with the FWS, the Aquatic SWG, and the BIA, the Licensee shall develop a Lamprey Entrance Efficiency Plan (LEE Plan) for evaluating operational and

20131011-5112 FERC PDF (Unofficial) 10/11/2013 2:33:12 PM

physical ladder entrance measures intended to increase lamprey passage into the adult fishway without significantly impacting the passage of adult salmonids.

In addition to implementation of activities associated with the PLMP and USFWS Fishway Prescriptions, the Federal Energy Regulatory Commission (FERC) Operating License for the Wells Project also requires that the development and implementation of these plans occur in consultation with the Aquatic Settlement Work Group (SWG) and the Anadromous Fish Agreement and Habitat Conservation Plan (HCP) Coordinating Committee (CC). Members of these two implementation work groups are comprised of the National Marine Fisheries Service (NMFS), USFWS, Bureau of Land Management (BLM), Washington Department of Fish and Wildlife (WDFW), Washington Department of Ecology (Ecology), Yakama Nation (Yakama), and Confederated Tribes of the Colville Reservation (Colville). The Bureau of Indian Affairs (BIA) is a non-voting observer in the Aquatic SWG process. Upon approval by the Aquatic SWG and HCP CC, Douglas PUD shall submit the LEE and OS Plan to the FERC for approval prior to implementation.

1.1.1 Effects on Adult Salmonid Passage

Consistent with requirements of the PLMP, USFWS Fishway Prescription and the HCP, the LEE and OS Plan must include a component to evaluate the effects of any operational and structural modifications for lamprey on adult salmonid passage. The HCP CC must be consulted prior to implementing any proposed modifications. Following the evaluation of proposed modifications, the HCP CC will be consulted to determine whether the proposed modifications should be made permanent, removed, or modified.

1.2 Wells Project Pacific Lamprey Studies

Until recently, relatively little information was available on Pacific lamprey in the mid-Columbia River Basin. However, with increased interest in the species coupled with the process to relicensing the Wells Project, Douglas PUD initiated studies to address Pacific lamprey passage and migratory behavior in the Project consistent with currently available technology. Results of these studies provide baseline information for identifying potential problems with adult lamprey entrance and passage efficiency at the Wells Project.

1.2.1 2001-2003 Project Pacific Lamprey Study

In 2004, Douglas PUD contracted with LGL Limited to opportunistically collect lamprey passage information at Wells Dam during the completion of a lamprey passage study being conducted at Rocky Reach Dam by the Public Utility District No. 1 of Chelan County (Chelan PUD). . A total of 150 lamprey were radio-tagged and released below Rocky Reach Dam. The radio-tags used in this study had an expected operational life of 45 days (Nass et al. 2005). It is important to note that as a result of the lamprey release site being located over 50 miles downstream of Wells Dam, the value of the study results for the Project was limited by the relatively small numbers of tagged fish detected in the Wells Dan tailrace (n=18) and the fact that many of the radio-tags detected at Wells Dam were within days of exceeding their expected battery life.

20131011-5112 FERC PDF (Unofficial) 10/11/2013 2:33:12 PM

The 2004 study at Wells Dam was implemented through a combination of fixed-station monitoring at the dam and fixed-stations at tributary mouths. Collectively, these monitoring sites were used to determine migration and passage characteristics of lamprey entering the Project Area. Of the 150 adult lamprey released below Rocky Reach in 2004, 18 (12% of 150) were detected in the Wells Dam tailrace, and ten (56% of 18) of these were observed at an entrance to the fishways at Wells Dam. A total of 3 radio-tagged lamprey passed Wells Dam prior to expiration of the tags, resulting in a project efficiency estimate of 30% (3 of 10) for the study period. A single lamprey was detected upstream of Wells Dam at the mouth of the Methow River (Nass et al. 2005). Median time required to pass through the fishway was 0.3 d and accounted for 8% of the Project Passage time (Nass et al. 2005).

The 2004 study at Wells Dam provided preliminary passage and behavioral information for migrating adult lamprey, the limited observations (n=18) and the mature condition of the batteries in the tagged fish that did approach Wells Dam resulted in an inability of the study to address the objectives of the 2004 study.

1.2.2 2007-2008 Project Pacific Lamprey Study

In 2007, Douglas PUD contracted with LGL Limited to conduct a second lamprey radio-telemetry study at Wells Dam. The study was scheduled to occur from early August through November and utilized tags that had 87 days of battery life. A total of 21 adult lamprey were tagged and released for the purpose of this study. However, due to very low adult lamprey returns to Wells Dam in 2007 (n=35) and low trapping efficiency, only 6 adult Pacific lamprey were captured at Wells Dam during trapping activities (August 14 to October 3). Therefore, 15 additional adult lamprey were collected at Rocky Reach Dam, transported to Wells Dam, tagged and released. The study was repeated in 2008 to obtain additional information. Overall, 2007-2008 study results indicate that any potential areas of impediment at Wells Dam are restricted entirely to the entrance and lower fishway, as upper fishway passage efficiency (releases in the fishway) was 100% for the two consecutive study years (LGL Limited and Douglas PUD 2008). A comprehensive report was produced in February of 2009 containing the results from the two-year radio-telemetry behavior studies (Robichaud et al. 2009). Results indicated that the "greatest impediment to successful passage of adult lamprey at Wells Dam appears to be the conditions at the fishway entrance, probably related to water velocities that limit swimming and attachment capabilities." An equally significant impediment to successful passage of adult lamprey at Wells Dam in 2008 was the installation of perforated plates on the floor of the weir orifices in an effort to increase trapping efficiency for the 2008 study. Robichaud et al. further recommended the following:

- Implement a reduction in fishway head differential to reduce entrance velocities to levels within the swimming capabilities of Pacific lamprey (0.8 to 2.1 m/s). These proposed flow reductions should be restricted to hours of peak lamprey activity (i.e., nighttime) and within their primary migratory period at Wells Dam (August-September).
- Remove perforated plates from orifice floors at the current trapping locations and discontinue trapping efforts at Wells Dam.

20131011-5112 FERC PDF (Unofficial) 10/11/2013 2:33:12 PM

- Consider using monitoring tools that are less intrusive, do not require the collection of fish from the ladders at Wells Dam, and minimize the surgical implantation of tags in fish that are nearing their physiological limits.

1.2.3 2009-2010 Wells Project DIDSON Studies

In response to Robichaud et al. (2009), Douglas PUD, in consultation with the Aquatic SWG, prepared a plan to implement and evaluate measures to enhance entrance efficiency of adult Pacific lamprey at Wells Dam (Johnson et al. 2011). These measures, originally scheduled for year two after license issuance (2013), were designed to determine whether temporary velocity reductions at the fishway entrances would enhance the attraction and relative entrance success of adult lamprey at Wells Dam fishways.

Dual-frequency identification sonar (DIDSON) units were deployed at Wells Dam fishway entrances during the peak of historic Pacific lamprey migration in 2009 (20 August to 24 September) and 2010 (7 August to 30 September). DIDSON was used to sample lamprey behavior and upstream passage events along the entire width of the fishway entrances and 1.3 m of vertical coverage above the sills (about 26% of the wetted vertical opening). Lamprey passage was examined relative to variable head differential treatments and entrance velocities. In 2009, three head differential treatments were tested: existing high (0.48 m; or 3.0 m/sec), moderate (0.31 m; or 2.4 m/sec) and low condition (0.15 m; or 1.8 m/sec) (Johnson et al. 2010). In 2010, only two of the 2009 treatments were used: existing high, and the moderate head differential conditions (Johnson et al. 2011). Treatments were grouped in 3-day blocks and lasted four hours each evening in 2009 (21:00 through 00:59). In 2010, the treatments were paired and lasted eight hours each evening (17:00 through 00:59). Data collected during the treatment periods were reviewed and all lamprey observations were described.

Combining both years, a total of seven lamprey observations were recorded where lamprey were observed to encounter the entrance sill heading upstream (N = 5 in 2009; and N = 2 in 2010). Five of these seven observations were in the east fishway and two were in the west fishway. Overall, five of the seven observations showed successful entry into the fishways (71%). During reduced head differential treatments, five observations were recorded with four of the five resulting in successful entry (80% entrance efficiency). Three of three observations with the moderate head differential condition resulted in successful entry (100% entrance efficiency). During high head differential conditions, one of the two lamprey observed entered a fishway (50% entrance efficiency).

Four lamprey exhibited attach and burst behaviors (one during low (25%), two during moderate (50%) and one during high head differential conditions (25%)), all of which resulted in successful entry into the fishways. One of three lampreys that did not exhibit the former behavior successfully entered the fishway, under the moderate treatment condition. The other two lamprey that did not exhibit attach and burst behavior did not successfully enter the fishway.

Extremely low Columbia River basin lamprey runs during the study years resulted in few fish observed at Wells Dam (the ninth and last hydroelectric project on the Columbia River [river mile 516] with fish passage). In total, nine and two lamprey were enumerated at Wells Dam fishway count windows in 2009 and 2010, respectively. Low sample sizes precluded statistical

evaluation of these results. Nonetheless, operational modifications implemented in these two years of study suggest that lamprey entrance efficiency may be increased with lower head conditions. Pooling observations that occurred during reduced head differential treatments shows 80% (4 of 5) entrance efficiency compared to 50% (1 of 2) under the current operating condition (high condition). Study results suggest that reduced head differentials show promise in providing an environment conducive to upstream passage of lamprey.

1.2.4 2011 Wells Dam Fishway Velocity Measurements

In 2011, Douglas PUD hired Jacobs Engineering and Northwest Hydraulic Consultants to measure fishway entrance velocities at different ranges of tailrace elevations at the existing 1.5 ft head deifferential and a reduced 1.0ft head differential. The measurements showed that operating the fishways at the reduced 1.0ft head differential reduced entrance velocities approximately 20% compared to the exisiting 1.5ft head differential operating condition.

1.2.5 2011-2013 Lamprey Operations

Based upon the results of the 2009-2010 DIDSON studies and fishway entrance velocity measurements, as a best management practice in 2011 through 2013, Douglas PUD operated the fishways with a 1.0 foot head differential during the hours 17:00 and 00:59, once five lamprey had been counted at Rocky Reach Dam and continuing through September 30. Outside those hours, fishway collection-gallery operations were maintained at the "normal" head differential of 1.5 feet.

1.2.6 2013 Adult Pacific Lamprey Passage and Enumeration Study

The goal of the 2013 Pacific lamprey study is to evaluate the effect of the Wells Project and its operations on translocated adult Pacific lamprey upstream passage behavior and to evaluate operational treatments at the fishway entrance and structural modifications to the fishway count window areas designed to improve lamprey enumeration.

Fishway operations treatment conditions at Wells Dam will be similar to operations for the DIDSON Study conducted in 2010 (Johnson et al. 2011); two head differential treatments, including the existing high condition (0.48 m) and a moderate condition (0.31 m), will be implemented. A treatment condition will occur over a 7-hour block (19:00 through 02:00) and will be changed daily (i.e., existing high condition one day and moderate condition the next day).

In recent years, the efficacy of using narrower bar screens as a way to improve the enumeration of smaller salmon, steelhead and lamprey passing adult fishways has been tested at PUD and federal dams (LGL et al. 2011, ACOE 2011). The use of smaller leads has resulted in no reduction in travel time and has not increased the fallback rates within the fish ladders at those dams tested (Peery et al. 2011). During the 2012-2013 Wells Dam ladder maintenance period (December 2012 through January 2013), Douglas PUD fixed several broken pickets and at the same time upgraded the pickets to a new $11/16^{th}$ inch spacing at the request of the Aquatic SWG and HCP CC. The maintenance and upgrades to these pickets are intended to improve the counts of salmon, steelhead and lamprey migrating upstream through the east and west fishways at

20131011-5112 FERC PDF (Unofficial) 10/11/2013 2:33:12 PM

Wells Dam. This study will evaluate the behavior and performance of these new temporary pickets in guiding adult lamprey through the existing fish count stations.

Given the extremely low numbers of adult lamprey passing Wells Dam in recent years, up to 100 adult lamprey will be collected at Bonneville Dam over a four-week period in July 2013. In addition, up to 25 fish at Priest Rapids Dam will also be captured. All fish will be transported to Wells Hatchery, tagged, and released. Details of tagging, release, and monitoring methods are identified in Longview Associates and Douglas PUD (2012).

The data collected during this study will be used to evaluate passage behavior and success of radio-tagged lamprey compared to prior years of study at Wells Dam to determine whether lamprey enumeration can be enhanced without negatively impacting the lamprey passage rates and times within the upper fishways. Results of this study will be available in early 2014.

1.3 Structural and Operational Modifications at Other Columbia River Hydroelectric Projects

Radio-telemetry studies of adult lamprey migration patterns past dams and through reservoirs in the lower Columbia River during 1997 to 2002 provided the earliest data sets on lamprey passage timing, travel times, and passage success at hydroelectric projects (Vella et al. 2001; Ocker et al. 2001; Moser et al. 2003a; Moser et al. 2003b). While these studies have shown that 87% to 96% of the radio-tagged lamprey released migrate upstream and are detected at Bonneville Dam, less than 50% of the lamprey which encounter an entrance actually pass the dam (Le et al. 2013). In recent years, Columbia River basin hydroelectric facilities have begun modifying fishways and fishway operations to facilitate the upstream passage of adult lamprey. Army Corps of Engineers (ACOE) and utilities with hydroelectric facilities in the basin are in various phases of design implementation and evaluation of passage improvements including those operational and structural improvements focused on improving lamprey entrance efficiency and lower fishway passage efficiency.

1.3.1 Modifications to Fishway Entrances to Improve Entrance Efficiency

From 1996 to 1999 keyhole entrances were installed at Wanapum and Priest Rapids Dams. In 2001-2002, Public Utility District No. 2 of Grant County (Grant PUD) conducted a comprehensive passage evaluation. Entrance efficiencies ranged between 53% and 100% for Priest Rapids Dam and 54% and 100% for Wanapum Dam for the two years of study.

1.3.2 Modifications to Fishway Operations to Improve Upstream Passage

Since the cumulative evidence on adult lamprey passage at dams has indicated that fishway entrances may be a major passage bottleneck, a significant effort was undertaken by the ACOE to develop and evaluate new entrance designs and operations. In 2007 and 2008, ladder flows at Power House 2 (PH2) fishway at Bonneville Dam were placed on standby at night. The combined 2007 and 2008 results suggest that some reduction in entrance velocity is beneficial for lamprey passage, but that these benefits are velocity-dependent and that zero attraction flow

20131011-5112 FERC PDF (Unofficial) 10/11/2013 2:33:12 PM

is probably a deterrent. Entrances with higher velocities under normal operation (capable of a larger net reduction in velocity) may provide relatively more benefit from velocity reductions than entrances with lower velocities (Johnson et al. 2009). The 2009 evaluation revealed that overall dam passage metrics in 2009 were similar to estimates observed in prior years. Of the 596 lamprey tagged and released, 471 (79%) approached the dam, 383 (64%) entered, 177 (29%) passed the dam thru September 30. Comparison of treatment vs. control nights at PH2 entrances indicated that there was a benefit of the lower velocity treatment to entrance efficiency (entrance: approach ratio) for tagged lamprey (ACOE 2009). Currently, the ACOE continues to implement reduced nighttime flow operations at a variety of facilities including the Bonneville Dam Washington Shore Fish Ladder and McNary Dam Oregon Shore Fish Ladder (Le et al. 2013).

2.0 GOALS AND OBJECTIVES

Goals of the LEE and OS Plan include:

- Identifying potential areas at the Wells Dam fishway entrances that may negatively impact adult lamprey entrance efficiency and/or identify potential negative effects of Wells Dam fishway operating conditions on adult lamprey passage;

- Based upon best available information, evaluating and implementing, if appropriate, any potential operational or structural modifications at Wells Dam fishway entrances that may improve lamprey entrance efficiency;

- Designing and implementing studies to evaluate the effects of modifications on lamprey and salmonid passage, and if necessary, making changes to modifications and re-evaluating effects;

- Ultimately determining if the modifications are beneficial to lamprey entrance efficiency and passage, while not negatively impacting salmonid passage, and filing FERC license amendments to make beneficial modifications permanent.

Each aspect of the LEE and OS Plan will involve consultation with the Aquatic SWG including the potential to improve lamprey entrance efficiency and to not negatively impact bull trout passage. In addition, consultation with, and approval from the Wells HCP CC is also required due to the potential effects of structural and operational modifications on salmon and steelhead .

2.1 Identification of Entrance Efficiency and Passage Problems and Potential Modifications

Douglas PUD and the Aquatic SWG shall utilize results from previous studies of fishway entrance modifications and changes to fishway operating criteria at Wells Dam and other Columbia River basin hydroelectric projects as the primary source of information for identifying potential operational and structural modifications to the Wells fishway entrances. Results from previous studies will be used to identify potential problem areas or highlight observed

20131011-5112 FERC PDF (Unofficial) 10/11/2013 2:33:12 PM

improvements in lamprey entrance efficiency and passage that have been attributed to such modifications. Before selecting any modifications for implementation and evaluation at Wells Dam, the Aquatic SWG must agree that there is sufficient evidence that identifies a specific problem area at the fishway entrances with negative impacts on lamprey entrance efficiency, and that the proposed modification(s) are designed to and have been shown (through previous studies) to mitigate those impacts. If there is no evidence available to suggest a specific problem area, the Aquatic SWG may request development of a study to examine specific components of the fishway entrances to determine which if any of the components negatively impact lamprey entrance efficiency. Similarly, if fishway operating conditions are suspected to be negatively impacting adult lamprey passage, the Aquatic SWG may propose a study to evaluate the effects of the current operating conditions and modifications to operating conditions on lamprey passage.

2.2 Potential Operational and Structural Modifications

Operational modifications to improve adult lamprey passage have been previously evaluated at Wells Dam and other Columbia River basin hydroelectric projects. The primary operational mechanism that may be modified to improve adult lamprey entrance efficiency is a reduction of head differential in the collection gallery which thereby reduces the velocities measured at the entrance. These operational modifications typically target hours between dusk and the early morning when adult lamprey migratory activity is at its peak. Adjustments to head differential are limited by the designed operational range of the fishways and at Wells Dam, existing requirements for passing salmon, steelhead and bull trout. The fishways must also be operated in accordance to the criteria outlined in the Wells HCP and the USFWS Fishway Prescription.

Structural modifications to the Wells Dam fishway entrances may be similar to modifications implemented at other hydroelectric projects, or novel modifications that specifically address unique characteristics of the Wells Dam fishways. Potential structural modifications may include, but are not limited to, rounding of sill edges, installation of attachment plates or ramps, installation of baffles, installation of LPS structures near the entrance.

2.3 Study Development

The scope of studies developed in support of the LEE and OS Plan will be to specifically investigate potential problems with lamprey entrance efficiency and if needed evaluate structural modifications to the fishway entrances to improve lamprey entrance efficiency. Studies in support of the fishway operations component of the plan will be designed to specifically address modifications to fishway operating criteria.

Prior to conducting any study, study plans will be developed in consultation with the Aquatic SWG. The Wells HCP CC will also be consulted when operational or structural modifications are proposed. Potential study methods include, but are not limited to, radio or acoustic telemetry, DIDSON, underwater video/infrared imaging, and Passive Integrated Transponder (PIT) technology. Similar to the 2013 Adult Pacific Lamprey Passage and Enumeration Study at Wells Dam, lamprey may be translocated from other locations in the Columbia River Basin in order to acquire sufficient sample size for studies, if necessary. It should be noted that using

20131011-5112 FERC PDF (Unofficial) 10/11/2013 2:33:12 PM

translocated fish for a passage study at Wells Dam is itself inherently risky. Some level of passage bias is likely to be inherent when using fish transported for downriver locations for studies at Wells Dam. However, given the limited number of lamprey observed at Wells Dam, some form of translocation may be needed in order to attempt to meet minimum sample size requirements for statistically valid study results. The use of translocated lamprey for future studies may only be warranted, however, if they are shown to interact and attempt to pass the dam and not fail to approach the dam or travel downstream.

Following approval by the Aquatic SWG and the HCP CC, all study plans will be filed with FERC for approval. No studies or modifications will be implemented until FERC approval is granted.

2.4 Evaluation of Operational and Structural Modifications

Operational modifications may be evaluated based on several lamprey passage criteria including entrance efficiency, passage time (in collection gallery and lower fishway), or fall back rate. Structural modifications will be evaluated based on the effects to lamprey entrance efficiency after modifications compared to entrance efficiency prior to the modifications. Appropriate statistical methods will be used to test for effects of structural or operational modifications.

If results of evaluation studies suggest that ladder modifications are warranted, Douglas PUD, in consultation with the Aquatic SWG and HCP CC, shall design and make changes to the ladder and then re-examine the effects of the new modifications using similar methods to those used in the original evaluations.

Determining the effects of operational or structural modifications on salmon, steelhead and bull trout passage will be a required objective of any study. Effects on salmon, steelhead and bull trout passage will be tested using statistically rigorous methods and only following agreement of the HCP CC for salmon and steelhead and the Aquatic SWG for bull trout.

2.5 Compliance

Consistent with the FERC license and the PLMP, Douglas PUD shall exhibit steady progress, as agreed to by the Aquatic SWG, towards improving adult lamprey passage until performance at Wells Dam is determined to be similar to other mid-Columbia River hydroelectric dams, or until scientifically rigorous standards and evaluation techniques are established by the Columbia River Basin Lamprey Technical Workgroup, or its successor, and adopted regionally. The Aquatic SWG will then evaluate, and if applicable and appropriate, adopt these standards for use at Wells Dam. If compliance is achieved, Douglas PUD shall only be required to implement activities pursuant to Section 4.1.7 (Periodic Monitoring) of the PLMP for adult Pacific lamprey passage.

20131011-5112 FERC PDF (Unofficial) 10/11/2013 2:33:12 PM

2.6 Regional Coordination

Regional coordination of actions taken under the LEE and OS Plan will take place in support of requirements of the PLMP. This includes participation in Pacific lamprey work groups in order to support regional conservation efforts (e.g., the Pacific Lamprey Technical Work Group and the USFWS Lamprey Conservation Initiative). Activities may include but are not limited to information exchanges with other entities, meeting attendance, and coordination of Douglas' Pacific lamprey activities with other entities conducting lamprey research in the mid-Columbia River. Activities may also include conducting PLMP research within the Project, and sharing that information with other entities.

2.7 Reporting and FERC Approval

All activities carried out under the LEE and OS Plan will be reported upon in the PLMP Annual Report in fulfillment of section 4.4 of the PLMP. Pursuant to FERC license article 401 for the Wells Hydroelectric Project, all study plans, design drawings, study reports, etc. related to the LEE and OS Plan will be filed with the FERC for approval prior to implementation. In addition, all parties to the Aquatic SWG and HCP CC will be consulted during all stages of development and implementation of the LEE and OS Plan. If the Aquatic SWG and HCP CC recommend adopting permanent modifications to structural components of the Wells fishway entrances or the fishway operating criteria, Douglas PUD shall file a notice with the FERC indicating the desire to install a proposed permanent modification to the fishways at Wells Dam.

20131011-5112 FERC PDF (Unofficial) 10/11/2013 2:33:12 PM

3.0 REFERENCES

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Flow chart of the Lamprey Entrance Efficiency and Operations Study Plan implementation process.

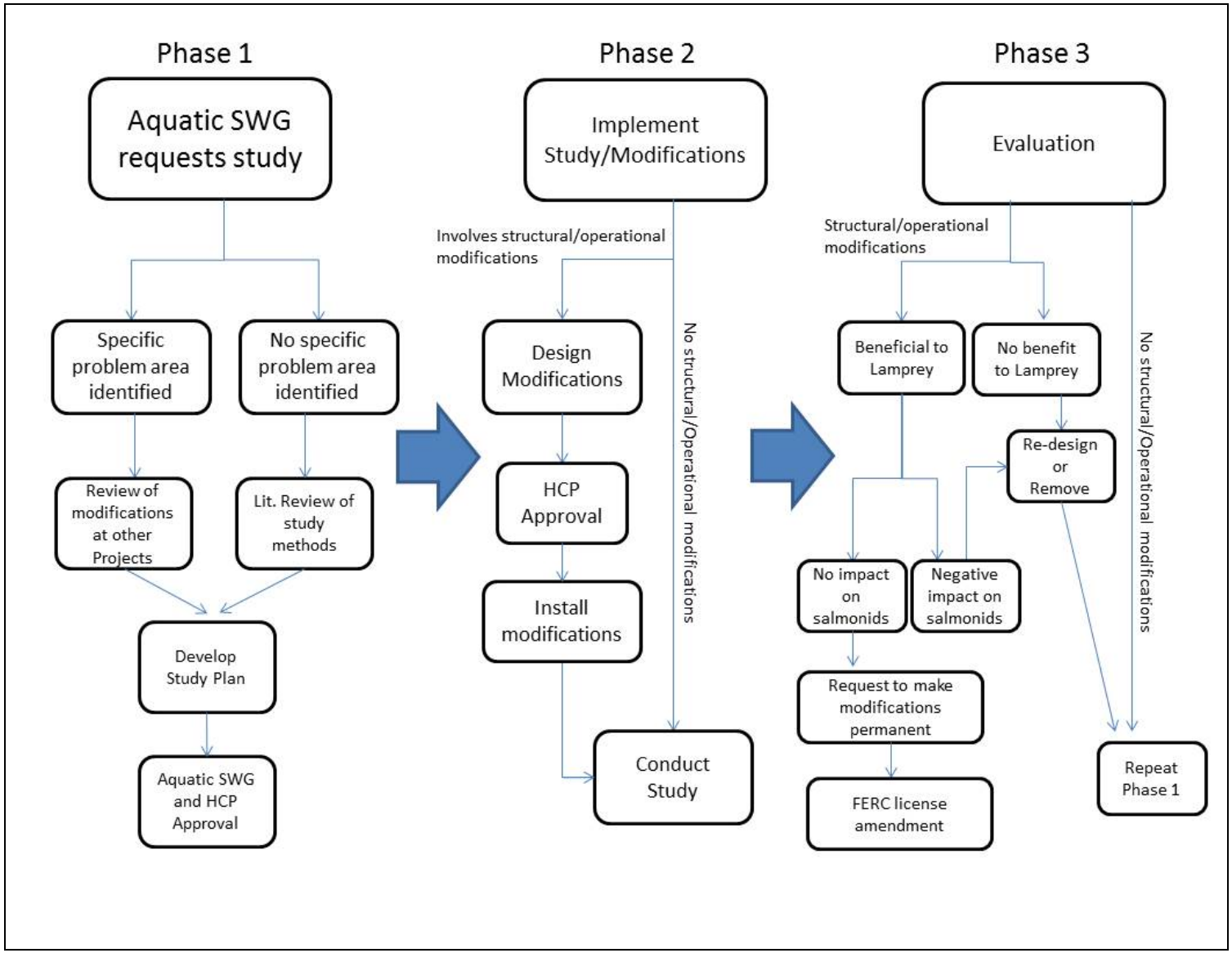

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EXHIBIT B

PRE-FILING CONSULTATION RECORD FOR THE LAMPREY ENTRANCE EFFICIENCY AND OPERATIONS STUDY PLAN

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FINAL AQUATIC SETTLEMENT WORK GROUP CONFERENCE CALL MINUTES
June 12, 2013

20131011-5112 FERC PDF (Unofficial) 10/11/2013 2:33:12 PM

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).

20131011-5112 FERC PDF (Unofficial) 10/11/2013 2:33:12 PM

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

20131011-5112 FERC PDF (Unofficial) 10/11/2013 2:33:12 PM

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

20131011-5112 FERC PDF (Unofficial) 10/11/2013 2:33:12 PM

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.

20131011-5112 FERC PDF (Unofficial) 10/11/2013 2:33:12 PM

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

20131011-5112 FERC PDF (Unofficial) 10/11/2013 2:33:12 PM

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

20131011-5112 FERC PDF (Unofficial) 10/11/2013 2:33:12 PM

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

20131011-5112 FERC PDF (Unofficial) 10/11/2013 2:33:12 PM

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.

20131011-5112 FERC PDF (Unofficial) 10/11/2013 2:33:12 PM

FINAL AQUATIC SETTLEMENT WORK GROUP CONFERENCE CALL MINUTES
July 10, 2013

20131011-5112 FERC PDF (Unofficial) 10/11/2013 2:33:12 PM

Final Conference Call Minutes

Aquatic Settlement Work Group

To: Aquatic SWG Parties **Date**: August 19, 2013

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

Re: Final Minutes of the July 10, 2013 Aquatic SWG Conference Call

The Aquatic Settlement Work Group (SWG) met by conference call on Wednesday, July 10, 2013, from 10:00 a.m. to 11:45 a.m. Attendees are listed in Attachment A of these meeting minutes.

I. Summary of Action Items

1. Andrew Gingerich, Bob Rose, and Jason McLellan will review logistic and coordination issues associated with the 2013 direct gamete and larval collection field season, and report the results to the Aquatic SWG (Item VI-2).
2. Andrew Gingerich, Bob Rose, and Jason McLellan will develop an agenda focusing on genetic diversity issues associated with implementation of the Wells White Sturgeon Reintroduction Program for a session at the Aquatic SWG in-person meeting on October 9, 2013 (Item VI-2).
3. Aquatic SWG representatives will consider possible white sturgeon and genetics experts to invite to participate in the white sturgeon discussions planned for the Aquatic SWG in-person meeting on October 9, 2013 (Item VI-2).
4. Douglas PUD will provide the draft Lamprey Entrance Efficiency Plan (LEE Plan) to the Aquatic SWG for a 30-day review within the next few weeks (Item VI-3).
5. Douglas PUD will provide the draft Water Quality Attainment Plan to the Aquatic SWG for review when completed (Item VI-3).
6. Bob Rose will provide the revised draft Lamprey Proposal for the Upper Columbia to the Aquatic SWG for review no later than July 19, 2013 (Item VI-5).
7. Steve Lewis will contact Andrew Gingerich regarding submittal of the final revised letter to the Federal Energy Regulatory Commission (FERC) requesting deferral of the Bull Trout Radio Telemetry Study at the Twisp Weir (Item VI-8).
8. **The Aquatic SWG meeting on October 9, 2013 will be held in person (Item VII-2).**

20131011-5112 FERC PDF (Unofficial) 10/11/2013 2:33:12 PM

II. Summary of Decisions

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

III. Agreements

1. Aquatic SWG representatives present agreed to discuss logistics of the white sturgeon program, and also unresolved genetics issues, at the Aquatic SWG in-person meeting on October 9, 2013 (Item VI-2).

IV. Review Items

1. Kristi Geris sent an email to the Aquatic SWG on July 29, 2013, notifying them that the draft Bull Trout Stranding and Take Study Plan is available for a 30-day review period, with comments due to Andrew Gingerich no later than Wednesday, August 28, 2013.
2. Kristi Geris sent an email to the Aquatic SWG on August 9, 2013, notifying them that the draft Lamprey Entrance Efficiency and Operations Study Plan is available for a 30-day review period, with comments due to Andrew Gingerich or Chas Kyger no later than Monday, September 9, 2013.

V. Reports Finalized

1. The final Wells Hydroelectric Project Quality Assurance Project Plan (QAPP) for Water Temperature and Total Dissolved Gas that was approved by the Aquatic SWG on May 8, 2013, and filed with FERC in June 2013, was distributed to the Aquatic SWG by Kristi Geris on July 11, 2013.

VI. Summary of Discussions

1. **Welcome, Agenda Review, and Meeting Minutes Review** (Mike Schiewe): Mike Schiewe welcomed the Aquatic SWG members (attendees are listed in Attachment A) and opened the meeting. Schiewe reviewed the agenda and asked for additions or other changes to the agenda. The following revisions were requested:

    - Bob Rose requested: 1) that the White Sturgeon Collection Update be discussed at the beginning of the meeting; 2) a 2013 Adult Lamprey Passage and Enumeration Study update; and 3) a follow-up discussion on the Lamprey Proposal for the Upper Columbia.
    - Steve Lewis added an update on the Bull Trout Letter Deferring the Twisp Weir Study.

    Kristi Geris reviewed two late revisions to the revised draft June 12, 2013 meeting minutes. One revision fixed a typographical error, and the other added historical information about the past Dual-Frequency Identification Sonar (DIDSON) lamprey

20131011-5112 FERC PDF (Unofficial) 10/11/2013 2:33:12 PM

passage studies. She reported that all other comments and revisions received on the draft minutes had been incorporated. The Aquatic SWG members present approved the June 12, 2013 meeting minutes, as revised. Patrick Verhey approved the revised draft minutes via email on July 3, 2013.

2. **White Sturgeon Collection Update** (Andrew Gingerich): Andrew Gingerich said that the three-by-three (3x3) and one-by-three (1x3) crosses that were delivered to Wells Hatchery from Marion Drain are doing well, and added that the first group is exogenously feeding. He said that in addition to the direct gamete takes, the larval program has now started; and as of last week, 600 larval fish have been delivered to Wells Hatchery from Lake Roosevelt. Gingerich said that fish obtained through the larval program are further along developmentally than those from the direct gamete takes. He said that so far, mortality is low in both programs; and added, however, that now is a critical time period for fish survival (i.e., when fish are transitioning to feed following the complete absorption of their yolk). Gingerich said that the Colville Confederated Tribes' (CCT's) larval collection is taking place downstream of Rock Island Dam and also in Lake Roosevelt. He said that, so far, 16 larvae have been collected from areas downstream of Rock Island Dam. Jason McLellan added that the first indication of spawning in the Rock Island tailrace was on July 4, 2013, and that there have been collections at that location every two days since. He said that only a few yolk-sac larvae have been collected from the Rock Island tailrace; and added that the first feeding larvae will be transferred to Wells Hatchery this weekend. He also added that fishing in the Rock Island tailrace will be suspended until that time. With regards to Lake Roosevelt, McLellan said there has been substantial free embryo catch, and added that a large pulse is expected anytime. He said that the CCT hopes to collect 5,000 fish from Lake Roosevelt by the end of the week, and then plans to add to that the fish collected downstream of Rock Island Dam.

   Bob Rose asked if the CCT has encountered any problems fishing downstream of Rock Island Dam, and McLellan replied that conditions have been good. He said that the CCT has been fishing upstream of Crescent Bar at a location with a flat bottom that has been good for anchor sets. He said that bottom velocities have been ideal and that debris-loading is low. He said that the location is a great place to sample with a fair amount of potential, and that they are just waiting for fish to develop.

   Rose asked Gingerich if there have been any problems from Douglas PUD's perspective that would be a consideration for the program in future years. Gingerich replied that, for this first year of Douglas PUD funding the direct gamete take program, he did not have any concerns. He added that this question may be better suited for hatchery staff. Gingerich noted that the program has been so successful, and that survival has been really high thus far, that the program ended up with a lot of fish—possibly too many. He said that perhaps in future years, delivering fewer eggs could be considered. McLellan

20131011-5112 FERC PDF (Unofficial) 10/11/2013 2:33:12 PM

cautioned that with conservation aquaculture, there is often high variation in survival between crosses; he added that this is something to keep in mind before reducing egg numbers. Gingerich also added that next year, Douglas PUD plans to keep half sibling families in separate hatching jars to manage for differential success (this year, in 2013, hatching jars were separated by maternal family only for the first 3x3 cross, while the 1x3 cross was separated by both maternal and paternal family groups). Steve Lewis said that the logistics of catching fish also need to be discussed with regards to having ample staff available to sample the fish collected and to prevent over-handling of fish. Rose suggested convening a post-season meeting in August or September 2013 to review logistics and coordination issues associated with the 2013 direct gamete and larval collection field season to help inform future years for the program. He suggested that, for the initial meeting, the principals convene and then bring key discussion points back to the larger Aquatic SWG.

Pat Irle noted that there are still unresolved genetic issues that need to be addressed, that will also inform the future of the white sturgeon program. She suggested that these issues could be jointly addressed at Rose's proposed meeting. She also recommended inviting outside experts in sturgeon genetics to participate in these discussions. Gingerich agreed with Irle that the genetic issues will require further discussion, and that inviting outside expertise is a good idea. However, at this time, he said the meeting that Rose is proposing is only meant to focus on the program mechanics of the 2013 field season. Rose agreed with Gingerich, and added that now may also be a good time to reconvene a separate meeting to discuss the genetic issues, such as those noted by Irle. McLellan said that the genetics discussion is relevant in the near term because decisions need to be made this fall regarding which fish to release in the Wells pool. He said that it is important that all of those involved in the decision-making have the right information to inform their decisions before that time.

Mike Schiewe summarized the two proposed meetings: 1) Gingerich, Rose, and McLellan will review logistic and coordination issues associated with the 2013 direct gamete and larval collection field season, and report the results to the Aquatic SWG; and 2) the Aquatic SWG will plan for an extended discussion of genetic issues and concerns associated with the white sturgeon enhancement program. Gingerich, Rose, and McLellan will develop an agenda for the second meeting, which Aquatic SWG representatives present agreed to hold in person at the Aquatic SWG meeting on October 9, 2013. Aquatic SWG representatives also agreed to suggest names of outside white sturgeon genetics experts to invite to participate in the white sturgeon discussions planned for the Aquatic SWG in-person meeting on October 9, 2013.

3. **Lamprey Entrance Efficiency Plan** (Chas Kyger): Chas Kyger said that Douglas PUD will provide the draft LEE Plan, which includes the Lamprey Operations Plan, to the Aquatic SWG for a 30-day review within the next few weeks. Kyger reminded the Aquatic SWG

20131011-5112 FERC PDF (Unofficial) 10/11/2013 2:33:12 PM

that the LEE Plan is a year one requirement of the Wells FERC license that requires approval by the Aquatic SWG prior to submitting the plan to FERC in October 2013.

Andrew Gingerich noted that October 2013 is also an important deadline for two other year one requirements, including Douglas PUD's Water Quality Attainment Plan and Article 402 Bull Trout Monitoring Plan. He explained that the Water Quality Attainment Plan outlines how Douglas PUD plans to meet water quality requirements, and added that Douglas PUD will also be providing this draft plan to the Aquatic SWG for review when completed. He said the other plan due in October 2013 is a Bull Trout Monitoring Plan that is required by Article 402 of their FERC license. He said to expect that plan soon, as well.

Steve Lewis asked if tributary interactions are incorporated in the LEE Plan. Kyger replied that the LEE Plan focuses solely on entrance efficiency and operational modifications at Wells Dam, and therefore, it does not address tributary interactions. He said, however, that the 2013 Adult Lamprey Passage and Enumeration Study will start next week and has tributary interaction aspects incorporated into the plan. Gingerich further explained that the LEE Plan is one of four sub-plans under the Pacific Lamprey Management Plan (PLMP). Each plan is specific in scope and addresses different areas in Wells Dam and its fishways to improve passage for lamprey. He said the other three plans, however, are not due until year five of the license. Lewis expressed the notion that, regardless of future studies, tagged lamprey should always be used to their fullest extent, which may include tracking tagged individuals through the reservoir into applicable tributaries where spawning events could be noted as an expression of passage success at Wells Dam; and as such, Lewis suggested that this concept should also be incorporated into the LEE Plan.

4. **2013 Adult Lamprey Passage and Enumeration Study Update** (Chas Kyger): Chas Kyger recalled that the 2013 Adult Lamprey Passage and Enumeration Study Plan stated that 100 lamprey would be obtained from Bonneville Dam, spread over three different trapping occasions. He noted that the plan also implied that trapping would be conducted as the need arose. He said that the Yakama Nation (YN) has already reached their quota on lamprey collection from Bonneville Dam, and that surplus fish are being held at Prosser Hatchery. Kyger asked if there were any concerns with Douglas PUD using these surplus fish for the study. He said that the fish will have been held longer than planned, but added that this may be beneficial because stress related to trapping and transfer should be lessened. He noted that the plan called for immediate collection at Bonneville and delivery to Wells Hatchery with no holding at Prosser; and that this may complicate the study. Rose added that, based on past experiences, mortalities related to the stress of trapping and transfer typically occur within the first few days of transfer; therefore, using fish that have been held longer may result in healthier fish. Steve Lewis asked how many days total the fish would be held prior to release. Rose

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replied that lamprey collection at Bonneville Dam started in late June 2013 and ended around July 2, 2013. After about a 2-week holding period, the first delivery of lamprey to Wells Dam will be on July 16, 2013, and release will occur shortly thereafter. Aquatic SWG representatives present had no concerns with using the surplus fish for the study. *(*Note: lamprey were delivered to Wells Dam on July 16, 2013, as planned. The transfer of lamprey was conducted by the YN from the YN Prosser Hatchery facility; and therefore, did not require that Douglas PUD obtain a transport permit for the transfer.)*

5. **Lamprey Proposal for Upper Columbia** (Bob Rose): Bob Rose recalled that an updated draft of the regional coordination plan (otherwise known as the "Lamprey Proposal for Upper Columbia"; and formerly the "Joint Fisheries Parties No-Net-Impact proposal [JFP NNI]") was distributed to the Aquatic SWG by Kristi Geris on June 12, 2013. Rose said that fish managers are requesting that regional relicensing workgroups and forums participate in implementation of the plan as it pertains to their FERC licenses. Rose added that the plan is being revised to identify which objectives link to which PUD license. He said that, after initial revisions, the plan now has 10 objectives, as compared to the 7 it previously had. Rose explained that there is no new content, but rather the existing objectives have been reorganized. He said that objectives are now defined by tier, with tier 1 objectives being most applicable to the PUDs, and tier 2 and 3 objectives having less or no direct linkage. The idea is to be explicit and inclusive, with nothing implied. He also said that the revised plan will identify specific tasks as they relate to each objective. Rose said that he also wanted to make the Aquatic SWG aware that discussions are currently underway regarding the logistics and costs associated with double-tagging fish. He said that those conversations are occurring outside of the Aquatic SWG—not out of disrespect, but in consideration of timeline. Rose said that he still needs a few days to refine the language in the revised plan, in coordination with Washington Department of Fish and Wildlife (WDFW) and U.S. Fish and Wildlife Service (USFWS), and with whomever else would like to participate. He added that he will provide the revised draft Lamprey Proposal for the Upper Columbia to the Aquatic SWG for review no later than July 19, 2013. He said that Douglas PUD should feel free to continue reviewing and commenting on the initial draft, and those comments can still be incorporated into the new revised draft. Rose also said that it would be helpful if Douglas PUD, Chelan PUD, and Grant PUD worked together to identify and distribute roles and responsibilities, as opposed to doing so separately in each forum. Rose also added that a one-on-one conversation with Douglas PUD would be beneficial prior to the larger gathering of the PUDs.

   Andrew Gingerich said that Douglas PUD is committed to implementing the PLMP; which, in some aspects is consistent, and sometimes even redundant, with the Lamprey Proposal for the Upper Columbia, or former JFP NNI proposal. He added that those elements will be easy to parse out. He said, however, that those aspects that are not consistent with the PLMP will be more difficult to support. He said that Douglas PUD is

on board as far as regional coordination and participating in meetings. Chas Kyger added that Douglas PUD is also very interested in continuing coordination and sharing of data.

6. **Wells Dam Water Quality Update** (Andrew Gingerich): Andrew Gingerich said that the Wells Dam Water Quality Update for July 1 to July 7, 2013, was distributed to the Aquatic SWG by Kristi Geris on July 9, 2013 (Attachment B). He explained that the update is titled, "Report #13," to easily distinguish between the similar reports that Douglas PUD provides to Washington State Department of Ecology (Ecology) each week. Gingerich provided an overview of the report layout and specifically noted the three standards that the Wells Project is required to meet during the fish passage (spill) season as described on page 2 of Attachment B. He said that Table 1 on page 3 of Attachment B summarizes weekly total dissolved gas (TDG) compliance at Wells Dam. He explained that, last week, criteria were met for the 12C-High and the hourly high in the Wells tailrace; however, the 12C-High in the Rocky Reach forebay was not met. Gingerich said that it is difficult to meet standards in the Rocky Reach forebay when incoming TDG is already above the standard. He said that, last week, hot weather and drawing Lake Roosevelt levels down to provide more beach area for the holiday weekend likely contributed to the high incoming TDG. He added that, with a Fish Passage Waiver, if incoming TDG is out of compliance, as long as the project does not add TDG, the project is still in compliance. *(*Note: the last condition is not written in the Washington Administrative Code [WAC], but has been verbally agreed to by Ecology.)* Gingerich said that Chief Joseph Dam, however, does not have a Fish Passage Waiver; and therefore, needs to meet the Washington State standard of 110 percent year round in the Chief Joseph tailrace. Gingerich added that these findings will be summarized in a gas abatement plan (GAP) report and TDG report at the end of the year.

7. **Aquatic Nuisance Species Signage Update** (Chas Kyger): Chas Kyger said that, in May 2013, Douglas PUD posted aquatic nuisance species (ANS) signage and educational pamphlets at all project area boat launches and recreation facilities, including at the Highway 97 rest area at Wells Dam. Andrew Gingerich provided a photograph of the ANS signage and pamphlets (Attachment C) that Kristi Geris distributed to the Aquatic SWG following the meeting on July 11, 2013. Kyger said that pamphlets at some locations have already been refilled, which seems to indicate that the public is taking interest in the materials. Gingerich noted that boater surveys have also been posted at these locations. Kyger also noted that Douglas PUD will start zebra mussel sampling next week.

   Steve Lewis asked about Douglas PUD's 2013 aquatic herbicide application, and Gingerich replied that an update was distributed to the Aquatic SWG by Geris on June 21, 2013. He summarized that Triclopyr, the Chelan County Weed Board's choice for treatment in the Entiat, is used to specifically treat milfoil, and will not affect all

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vegetation in the swimming areas in the Wells Pool. Gingerich added that notices for Douglas PUD's 2013 aquatic herbicide application were distributed to the Aquatic SWG by Geris on July 9, 2013; and that application is planned for July 15, 2013. He said that Douglas PUD obtained a 3-year aquatic herbicide application permit, and so they are already permitted for treatment in 2014, if needed.

8. **Bull Trout Letter Deferring Twisp Weir Study** (Steve Lewis): Steve Lewis said that the USFWS plans to file with FERC the final revised letter requesting deferral of the Bull Trout Radio Telemetry Study at the Twisp Weir. He said that he will contact Andrew Gingerich regarding submittal of the letter.

VII. Next Meetings

1. **Chelan River Fish Forum Meeting** (Pat Irle): Pat Irle said that, after not meeting for a number of years, the Chelan River Fish Forum is scheduled to reconvene on August 14, 2013 at 8:00 am. Irle said that, therefore, she will be unable to attend the Aquatic SWG meeting on August 14, 2013, but plans to review the agenda once it is distributed and will be prepared to provided Ecology input, if necessary, prior to the meeting.

2. **Upcoming meetings** (Mike Schiewe): ***August 14, 2013 (conference call); September 11, 2013 (conference call); and October 9, 2013 (in person).***

List of Attachments

Attachment A – List of Attendees
Attachment B – Wells Dam Water Quality Update for July 1 to July 7, 2013
Attachment C – Photograph of the ANS signage and pamphlets

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Attachment A
List of Attendees

Name	Role	Organization
Mike Schiewe	SWG Chair	Anchor QEA, LLC
Kristi Geris	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
Bob Rose	SWG Technical Representative	Yakama Nation
Jason McLellan	SWG Technical Representative	Colville Confederated Tribes

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EMAIL TO AQUATIC SETTLEMENT WORK GROUP REGARDING DRAFT LAMPREY ENTRANCE EFFICIENCY AND OPERATIONS STUDY PLAN

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From: Kristi Geris [mailto:kgeris@anchorqea.com]
Sent: Friday, August 09, 2013 7:47 PM
To: Andrew Gingerich (andrewg@dcpud.org); Bao Le; Beau Patterson (bpatterson@dcpud.org); Bill Towey (bill.towey@colvilletribes.com); Jateff, Robert J (DFW); Bob Rose; James, Brad W (DFW); 'Bret Nine'; 'Bryan Nordlund (bryan.nordlund@noaa.gov)'; Jackson, Chad S (DFW); McKinney, Charlie (ECY); Chas Kyger; Chris Sheridan; 'Donella Miller'; Jason McLellan; Korth, Jeff (DFW); 'Jessi Gonzales'; Keith Kirkendall (Keith.Kirkendall@noaa.gov); kirk.truscott@colvilletribes.com; Kristi Geris; 'Mary Mayo'; Mike Schiewe; Irle, Pat (ECY); 'Patrick Luke'; Verhey, Patrick M (DFW); Paul Ward (ward@yakama.com); Shane Bickford (sbickford@dcpud.org); 'Steve Lewis'; 'Steve Parker (parker@yakama.com)'
Subject: FW: Draft Lamprey Entrance Efficiency and Operations Study Plan

Hi Aquatic SWG: please see the email below from Chas and the attached draft Lamprey Entrance Efficiency and Operations Study Plan. As discussed at the ASWG 7/10 conference call, this draft report is out for a **30-day review period** with comments due to Andrew or Chas no later than Monday, September 9, 2013.

Thanks!
Kristi ☺

Kristi Geris

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

From: Chas Kyger [mailto:chask@dcpud.org]
Sent: Friday, August 09, 2013 1:52 PM
To: Kristi Geris
Subject: Draft Lamprey Entrance Efficiency and Operations Study Plan

Hi Kristi,

Please distribute the attached Lamprey Entrance Efficiency and Operations Study Plan to the workgroup.

Thanks,

Chas

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WASHINGTON DEPARTMENT OF ECOLOGY COMMENTS ON DRAFT LAMPREY ENTRANCE EFFICIENCY AND OPERATIONS STUDY PLAN

From: Irle, Pat (ECY) [mailto:PIRL461@ECY.WA.GOV]
Sent: Monday, August 19, 2013 11:07 AM
To: Irle, Pat (ECY); Andrew Gingerich; Verhey, Patrick M (DFW); 'Bob Rose'
Cc: Shane Bickford; 'Kristi Geris'
Subject: RE: Draft Lamprey Entrance Efficiency and Operations Study Plan

I.e., wherever there is a list of fish that includes bull trout, add sturgeon?

From: Irle, Pat (ECY)
Sent: Monday, August 19, 2013 10:54 AM
To: 'Andrew Gingerich'; Verhey, Patrick M (DFW); 'Bob Rose'
Cc: Shane Bickford; 'Kristi Geris'
Subject: RE: Draft Lamprey Entrance Efficiency and Operations Study Plan

You're right – looks like I didn't send a copy that included my suggested changes. Most of the suggestions were minor edits, but I did have a question (I believe it showed up in a couple of places) about whether we should also be considering the potential impact of any changes on young sturgeon, as well.

From: Andrew Gingerich [mailto:andrewg@dcpud.org]
Sent: Monday, August 19, 2013 10:38 AM
To: Irle, Pat (ECY); 'Kristi Geris'
Cc: Verhey, Patrick M (DFW); 'Bob Rose'; Shane Bickford
Subject: RE: Draft Lamprey Entrance Efficiency and Operations Study Plan

Pat, I just got a chance this morning to open your document. Is it possible you attached the unedited version? I wasn't able to find any edits in the version that you sent , nor in the version that Kristi distributed.

Thanks for the clarification in advance.

Andrew

From: Irle, Pat (ECY) [mailto:PIRL461@ECY.WA.GOV]
Sent: Friday, August 16, 2013 2:23 PM
To: 'Kristi Geris'
Cc: Andrew Gingerich; Verhey, Patrick M (DFW); 'Bob Rose'
Subject: FW: Draft Lamprey Entrance Efficiency and Operations Study Plan

Some comments…

From: Kristi Geris [mailto:kgeris@anchorqea.com]
Sent: Friday, August 09, 2013 7:47 PM

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To: Andrew Gingerich (andrewg@dcpud.org); Bao Le; Beau Patterson (bpatterson@dcpud.org); Bill Towey (bill.towey@colvilletribes.com); Jateff, Robert J (DFW); Bob Rose; James, Brad W (DFW); 'Bret Nine'; 'Bryan Nordlund (bryan.nordlund@noaa.gov)'; Jackson, Chad S (DFW); McKinney, Charlie (ECY); Chas Kyger; Chris Sheridan; 'Donella Miller'; Jason McLellan; Korth, Jeff (DFW); 'Jessi Gonzales'; Keith Kirkendall (Keith.Kirkendall@noaa.gov); kirk.truscott@colvilletribes.com; Kristi Geris; 'Mary Mayo'; Mike Schiewe; Irle, Pat (ECY); 'Patrick Luke'; Verhey, Patrick M (DFW); Paul Ward (ward@yakama.com); Shane Bickford (sbickford@dcpud.org); 'Steve Lewis'; 'Steve Parker (parker@yakama.com)'
Subject: FW: Draft Lamprey Entrance Efficiency and Operations Study Plan

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Thanks!
Kristi ☺

Kristi Geris

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

From: Chas Kyger [mailto:chask@dcpud.org]
Sent: Friday, August 09, 2013 1:52 PM
To: Kristi Geris
Subject: Draft Lamprey Entrance Efficiency and Operations Study Plan

Hi Kristi,

Please distribute the attached Lamprey Entrance Efficiency and Operations Study Plan to the workgroup.

Thanks,

Chas

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EMAIL TO BUREAU OF INDIAN AFFAIRS REGARDING DRAFT LAMPREY ENTRANCE EFFICIENCY AND OPERATIONS STUDY PLAN

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From:	Kristi Geris
To:	Keith Hatch (Keith.Hatch@bia.gov)
Cc:	Andrew Gingerich; Chas Kyger
Subject:	FW: Draft Lamprey Entrance Efficiency and Operations Study Plan
Date:	Tuesday, August 20, 2013 9:32:55 AM
Attachments:	2013_08_09 Douglas - Draft Lamprey Entrance Efficiency and Operations Study Plan.doc

Hi Keith,

Andrew requested that I send this along. Please see the email below regarding the review period for the attached draft plan. Thanks! –kristi ☺

From: Kristi Geris
Sent: Friday, August 09, 2013 7:47 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'; '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 (sbickford@dcpud.org); 'Steve Lewis'; 'Steve Parker (parker@yakama.com)'
Subject: FW: Draft Lamprey Entrance Efficiency and Operations Study Plan

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Thanks!
Kristi ☺

Kristi Geris

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

From: Chas Kyger [mailto:chask@dcpud.org]
Sent: Friday, August 09, 2013 1:52 PM
To: Kristi Geris
Subject: Draft Lamprey Entrance Efficiency and Operations Study Plan

Hi Kristi,

Please distribute the attached Lamprey Entrance Efficiency and Operations Study Plan to the workgroup.

Thanks,

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Chas

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U.S. FISH AND WILDLIFE SERVICE COMMENTS ON DRAFT LAMPREY ENTRANCE EFFICIENCY AND OPERATIONS STUDY PLAN

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From: Lewis, Stephen
To: Andrew Gingerich; Chas Kyger
Subject: Fwd: FW: Draft Lamprey Entrance Efficiency and Operations Study Plan
Date: Thursday, September 05, 2013 5:26:11 PM
Attachments: 2013_08_09 Douglas - Draft Lamprey Entrance Efficiency and Operations Study Plan.doc

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Andrew/Chas;

As the September 9, 2013 deadline for submitting comments on this plan is fast approaching, I offer the following comments pertaining to the attached study plan. Many of these comments were discussed (in part) during previous meetings of the ASWG:

1.) It would be helpful if there was an implementation flow chart that tracks each stage of measure implementation over time in order for the resource agencies to track the progress of the study and provide input as deemed necessary.

2.) I suggest including the cross-walk between the section 18 prescription for lamprey and the measures in the PLMP for the operations study plan and the entrance efficiency components. That way FERC will truly understand why these two elements were combined into one document.

3.) In order to decipher whether or not lamprey reach upstream spawning grounds, I recommend that some type of tributary monitoring component be included in this document. This aspect could be a measure of success for fishway modifications at the concrete while also satisfying measures discussed for NNI.

S-

---------- Forwarded message ----------
From: **Kristi Geris** <kgeris@anchorqea.com>
Date: Fri, Aug 9, 2013 at 7:47 PM
Subject: FW: Draft Lamprey Entrance Efficiency and Operations Study Plan
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>, "Bryan Nordlund (bryan.nordlund@noaa.gov)" <bryan.nordlund@noaa.gov>, 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>, "Keith Kirkendall (Keith.Kirkendall@noaa.gov)" <Keith.Kirkendall@noaa.gov>, "kirk.truscott@colvilletribes.com" <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>

Hi Aquatic SWG: please see the email below from Chas and the attached draft Lamprey Entrance Efficiency and Operations Study Plan. As discussed at the ASWG 7/10 conference call, this draft report is out for a **30-day review period** with comments due to Andrew or Chas no later than Monday, September 9, 2013.

Thanks!

Kristi ☺

Kristi Geris

ANCHOR QEA, LLC
kgeris@anchorqea.com

T 509.491.3151 x104

C 360.220.3988

From: Chas Kyger [mailto:chask@dcpud.org]
Sent: Friday, August 09, 2013 1:52 PM
To: Kristi Geris
Subject: Draft Lamprey Entrance Efficiency and Operations Study Plan

Hi Kristi,

Please distribute the attached Lamprey Entrance Efficiency and Operations Study Plan to the workgroup.

Thanks,

Chas

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

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EMAIL TO AQUATIC SETTLEMENT WORK GROUP REGARDING APPROVAL OF THE FINAL LAMPREY ENTRANCE EFFICIENCY AND OPERATIONS STUDY PLAN

From:	Kristi Geris
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: Final LEE and OS Plan
Date:	Tuesday, September 10, 2013 8:51:18 AM
Attachments:	2013_09_10 Douglas - Final Lamprey Entrance Efficiency and Operations Study Plan.doc

Hi Aquatic SWG: please see the email below from Chas and the attached Lamprey Entrance Efficiency and Operations Study Plan that will be up for approval at tomorrow'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: Chas Kyger [mailto:chask@dcpud.org]
Sent: Tuesday, September 10, 2013 8:43 AM
To: Kristi Geris
Subject: Final LEE and OS Plan

Hi Kristi,

Please distribute the attached Lamprey Entrance Efficiency and Operations Study Plan to the workgroup. This latest version of the plan addresses the comments received during the 30-day review period which ended yesterday. We would like to add this as a decision item for approval on the call tomorrow.

Thanks,

Chas

Chas Kyger
Aquatic Resource Biologist
Douglas County Public Utility District No. 1
(509) 881-2388

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FINAL ACTION ITEMS AQUATIC SETTLEMENT WORK GROUP CONFERENCE CALL

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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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RESPONSE TO U.S. FISH AND WILDLIFE SERVICE COMMENTS ON REVISIONS TO THE LAMPREY ENTRANCE EFFICIENCY AND OPERATIONS STUDY PLAN

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From: Chas Kyger
To: "Lewis, Stephen"; Kristi Geris; RD Nelle
Subject: RE: FW: Revisions to LEE and OS plan for approval 9-11-13
Date: Thursday, September 12, 2013 11:04:14 AM

Thanks Steve.

Douglas is completely on board with coordinating with others on our lamprey study efforts. As you said, Douglas has invested significant effort and cost into transporting and tagging lamprey for the 2013 study. Because the goals and objectives of the study and the Pacific Lamprey Management Plan are explicitly identified as identifying and addressing Project impacts, particularly in the fishways, this is where our efforts are focused. However, we realize what a great opportunity this and other studies at the Project are for addressing other goals related to understanding lamprey behavior in the tributaries. We welcome and encourage coordination with any other groups involved with lamprey research and conservation in the region to make the most of this opportunity. We are glad to extend our support by sharing data and/or loaning study equipment that we have available. We hope that this message of coordination and support was clear during the development of the 2013 study and want it to remain clear during future discussions in the Aquatic SWG.

Our goal is to keep everyone informed on the progress of the 2013 study through periodic updates as more data is collected. If the USFWS FRO has any questions or would like more information please don't hesitate to ask.

To answer your question about tracking in Wells Reservoir, at this point we have not done any tracking upstream of Wells Dam. The most current data shows that the majority of lamprey that have exited the fish ladders were detected by the antenna in the Methow River shortly after (none at the Okanogan yet) so there appears to be little to gain from tracking in the reservoir. A little more on our tailrace tracking efforts; the rationale for tracking in the tailrace is to collect data on the fate of tagged lamprey released in the tailrace that do not interact with the Project. As you may recall from the study plan, only tagged lamprey that are detected at the dam will be used in the analysis. If mobile tracking in the tailrace suggests that translocated lamprey do not interact with the Project or have a propensity to move downstream after release, we may need to re-think how or if translocated fish are used in future studies that have the goal of identifying or addressing project related effects on passage.

I look forward to sharing more information as the study progresses and continuing these discussions in the future.

Chas

Chas Kyger
Aquatic Resource Biologist

Douglas County Public Utility District No. 1
(509) 881-2388

From: Lewis, Stephen [mailto:stephen_lewis@fws.gov]
Sent: Wednesday, September 11, 2013 4:31 PM
To: Kristi Geris; RD Nelle
Cc: Chas Kyger
Subject: Re: FW: Revisions to LEE and OS plan for approval 9-11-13

Hi Chas-

Thanks for inserting the regional coordination section from the Wells Pacific Lamprey Management Plan. It looks good. For the purposes of filing with FERC, the USFWS approves the document. As we discussed in the ASWG meeting today, tracking lamprey from the current study up to the tributaries (i.e., spawning grounds) is critically important to the USFWS and can be considered a measure of success while acknowledging the inherent gaps in information we have regarding their life history patterns/behaviors. It makes good sense to utilize these fish to the fullest extent possible since DPUD invested a significant effort in tagging and transporting these lamprey. In that vain, two lamprey from the current study have entered the Methow River, however, monitoring coordination with the USFWS FRO has not occurred to my knowledge. I think this is the perfect opportunity for a cost-sharing approach since funding for such activities is limited for the USFWS as well as DPUD. These activities may include sharing of receiver codes and/or periodic telemetry flights. Let's continue to have this dialogue as this current study progresses. On a related note and pertaining to the current study, how often is DPUD monitoring the reservoir within the Wells Project and/or up to Chief Joseph to locate these lamprey?

Thanks for the patience!

S-

On Wed, Sep 11, 2013 at 1:03 PM, Kristi Geris <kgeris@anchorqea.com> wrote:
Chas, to clarify, upon Steve's approval, am I to distribute the attached version as final? Thanks! –kristi ☺

From: Chas Kyger [mailto:chask@dcpud.org]
Sent: Wednesday, September 11, 2013 11:56 AM
To: 'Lewis, Stephen'
Cc: Kristi Geris
Subject: Revisions to LEE and OS plan for approval 9-11-13

Steve,

The attached LEE and OS plan draft includes the additions discussed during today's call. Section 2.6 – Regional Coordination has been added. It contains language identical to that found in the PLMP. If you are satisfied with this revision, please let Kristi know so she can distribute the final approved document.

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Thanks,

Chas

Chas Kyger
Aquatic Resource Biologist
Douglas County Public Utility District No. 1
(509) 881-2388

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

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EMAIL TO AQUATIC SETTLEMENT WORK GROUP REGARDING FINAL LAMPREY ENTRANCE EFFICIENCY AND OPERATIONS STUDY PLAN

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From:	Kristi Geris
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:	Aquatic SWG: Final Lamprey Entrance Efficiency and Operations Study Plan
Date:	Thursday, September 12, 2013 10:33:53 AM
Attachments:	2013_09_12 Douglas - Final Lamprey Entrance Efficiency and Operations Study Plan.doc

Hi Aquatic SWG: please see the attached final Lamprey Entrance Efficiency and Operations Study Plan.

Thanks!
Kristi ☺

Kristi Geris
Scientist

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Document Content(s)

Transmittal letter for LEE & OS Plan.PDF.....1-61