Priest Rapids Coordinating Committee

Wednesday, December 15, 2010

9:00 a.m. – 3:00 p.m.

Grant PUD SeaTac Office

PRCC Members

Scott Carlon, Bryan Nordlund, NMFS	Jim Craig, USFWS
Jerry Marco, Colville Tribe	Bill Tweit, Teresa Scott, WDFW
Bob Rose, YN	Carl Merkle, CTUIR
Tom Dresser, Curt Dotson, GCPUD	Denny Rohr, Facilitator

Attendees: (*Denotes PRCC member)

Bryan Nordlund, NMFS*	Jim Craig, USFWS*
Teresa Scott, WDFW*	Jerry Marco, Colville Tribe* (on phone till 11:01)
Alyssa Buck, Wanapum	Mark Timko, Blue Leaf Environmental
Tom Dresser, GCPUD*	Curt Dotson, GCPUD*
Debbie Williams (on phone)	Denny Rohr, Facilitator

Action Items:

1. Rohr will contact committee members regarding future specific agenda topics to be discussed.
2. Dotson will compare 2009 to 2010 data on: Wanapum Dam forebay and tailrace elevations in relation to WFB operations, loads, and flows. The same data will also be looked at for Priest Rapids Dam.
3. Dotson will find out when the final Predator Index Study report will be presented to the PRCC.
4. Dotson will ask Skalski about a triple release strategy for a steelhead survival study.
5. Dresser, Dotson, and Timko will draft a report that encompasses steelhead survival hypotheses.
6. Nordlund and Rohr will contact Marco and Rose regarding steelhead survival hypotheses discussed during today's meeting.

7. Dresser and Dotson will prepare a proposal by 12/24/10. A conference call will be held on 1/6/2011 to discuss this matter further and draft an outline for the proposed study.
8. Dotson will send the draft "Evaluation of Gatewell Exclusion Screens and Escapement at the Priest Rapids Project in 2010" to Buck, Marco, and Rose.
9. Submit comments prior to a January 10, 2011 email vote on the Priest Rapids and Wanapum Dams Exclusion Screen Study and Gatewell Retention Study.
10. Williams will send the Progress and Implementation and Downstream Passage Alternative Action Plans to Carlon, Rose, Marco, and Buck.
11. Dresser will send the NNI Account handout to Marco and Rose.

Final Meeting Minutes

I. Welcome and Introductions – Rohr welcomed members.

II. Agenda Review – Agenda items were added to the discussion during the course of the meeting and are included under agenda item XII. Rohr explained that he has had discussions with some PRCC members and will contact others, regarding future agenda development - with the idea of focusing in on a few specific topics with greater in-depth detailed discussion during a given meeting, rather than having such an extensive agenda each month that sees time allotment constraints on some topics that need more time. Some currently suggested future agenda topics included: NNI Fund calculations, survival evaluation check-ins, and fry plants. **Rohr will contact committee members regarding future specific agenda topics to be discussed**. Scott would like the PRCC to see the Washington Department of Fish and Wildlife (WDFW) presentation on fall Chinook found spawning in Lower Crab Creek (Red Rock Coulee). Scott explained that DNA analysis shows they are locally originating there and are different than any other fall Chinook found in Washington State. In order to organize work loads, Scott asked for a table showing Grant PUD's annual reporting requirements to the Federal Energy Regulatory Commission (FERC) and Washington Department of Ecology (WDOE).

Dotson invited PRCC members to travel to Iowa the week of January 31st.

III. Action Items Review – Action items identified during the November PRCC meeting were completed or discussed during today's meeting.

IV. 2010 Steelhead and Sockeye Survival Studies

A. Review and Discussion of Comments due by November 17th on the report titled "Survival of Acoustic Tagged Steelhead and Sockeye Salmon Smolts through the Wanapum and Priest Rapids Projects (PR) in 2010 – Scott, who had asked for additional time to provide comments has completed that task. No other comments were received at today's meeting.

B. Discussion of Table 2 Calculation Methodology – See discussion under V.A.7.

V. Steelhead Performance Standards

A. List of Hypotheses Relative to Low Steelhead Survival – Rohr distributed the document titled "*Possible Reasons for Low Steelhead Survival Estimates in the Priest Rapids Project"* (Grant PUD)*,* which had also been distributed electronically prior to the meeting.

Nordlund questioned the 10% drop (85.5%) in steelhead survival at Wanapum Dam in 2010, compared to 2008 & 2009. (Table 3), and wondered if there's something we don't know about operating the Wanapum Fish Bypass (WFB) that's reflected in this lower survival number. Nordlund questioned if enough is known about fish survival in the each of the different zones (plunging or skimming) defined when performance curves were developed for the Wanapum surface collector (based on Wanapum tailwater elevations for Priest pool). Nordlund would like to have operations (level of Priest Rapids forebay) between 2008, 2009, and 2010 compared. Dotson thought that the difference between 2009 and 2010 was .6", but he will verify that number.

2010 flows during the study time were lower than the 10 yr average. Marco hypothesized that predation rates may increase with reduced flows because of extended reservoir travel times and less turbidity. Reservoir survival, not dam passage, seems to be the reason survival hasn't been met at both projects, stated Dotson. Nordlund suggests that an evaluation (balloon tag test at different pool levels to show immediate survival through the bypass) be done to assure that the Priest Rapids pool elevation is right.

Dotson will compare 2009 to 2010 data on: Wanapum Dam forebay and tailrace elevations in relation to WFB operations, loads, and flows. T**he same data will also be looked at for Priest Rapids Dam**.

List of Hypothesis – Members reviewed the list provided by Dotson.

1. *Is there a difference in the survival rates between the wild steelhead smolts and the hatchery steelhead smolts within a given acoustic tag steelhead survival study?* 2010 data estimated 41.3% of the steelhead used in the study was of wild origin and the other 58.7% of the tagged steelhead were of hatchery origin. Based on Ricker survival estimates, there did not appear to be any (statistical) increase in survival of wild (77%) verses hatchery (80%) steelhead through the Project. **Blue Leaf Environmental will analyze 2008 and 2009 steelhead survival study data and compare it to 2010 wild vs. hatchery survival rates.**

2. *Is there a difference in how steelhead (verse the sockeye smolts) migrate down the river? Do the steelhead smolts travel along the shorelines (more shallow and exposed to fish and avian predation) while the sockeye travel down the middle of the river?* 2008, 2009, and 2010 horizontal data (not vertical) reviewed by Blue Leaf Environmental indicates steelhead and sockeye travel the same corridors downstream during their out-migration. Can 3D be used to determine where fish are in the water column? Dotson explained that Grant PUD isn't set up to collect vertical data outside of the two dams' forebays, and that it would be difficult unless the entire array system was taken apart and replaced with additional hydrophones and supporting cables, power, etc. Timko explained that JSATS autonomous nodes make it impossible to collect 3D data unless a cable system, like HTI is used. Timko suggests placing hydrophones in a specific pattern in the thalweg in order to collect 3D data for a small area (Ringold or Vernita Bar). Craig asked how important it is to have the 3D look when we already have the horizontal view. Timko explained that if you want vertical positioning and not horizontal, the arrays would be placed in the water column from top to bottom, not across the river. The hard part would be suspending hydrophones in the water column. Tags that read pressure (Vemco) to get depth in the water column are to large for the size of smolt being tagged.

3. *Is there a difference in the water depth that the steelhead (verse the sockeye smolts) travel down the river – making a difference to predation rates?*

   Nordlund concluded that this can't be determined from existing data. Timko stated that data from in front of the forebay shouldn't be relied upon to assess behavior. Scott noted her interest in the installation of a 3D array because of the vast differences in river bottom contours and how that affects flows and predation. Scott believes the mouth of Crab Creek should be looked at for predator ambush sites. Rough bathometric data is available for the Project. Nordlund asked if existing bathometric data could be overlaid to determine where most of the tags are exiting the Project. Because of the present locations of the detection arrays in the reservoirs, Dotson explained that we would only be able to tell if fish were lost in the first or second half of the reservoir, but nothing more refined. If arrays were installed every mile, presence or absence could be determined. Dresser suggests overlaying all existing data sets (bathometry, fish descriptive inventory, catch per unit efforts for predators that were sampled, predator index survey) in order to narrow down where tags are being taken from the Project. Nordlund suggests using professional guides in order to locate and catch large predators. That information could then be used to

concentrate on where smolts are being lost. Nordlund reminded members of a study conducted by Chuck Peven for Chelan PUD on the Rocky Reach Reservoir. The final report contained good information about when and where to send northern pikeminnow (NPM) Predator Index crews to locate fish. Dotson will continue to discuss this topic with Blue Leaf Environmental. Mobile tracking shows presence absence, but wouldn't give you depth information. Timko said mobile tracking takes a lot of effort with little return value. Scott asked what the PRCC would do with the information if it was found steelhead are higher in the water column. Nordlund replied that it may be something the PRCC can't control and Grant PUD can't fix, so the committee decides to park it. Time, effort, and money all need to be taken into account when determining which studies will be conducted.

4. *Why is there a 1:18 greater number of steelhead PIT-tags recovered on the Potholes Caspian Tern colony than sockeye PIT-tags? Why are steelhead being "targeted" over sockeye?* Dotson explained a lot of people downstream are working on the same question. Dotson doesn't think there is a way to do a study on this. There has been ongoing dialog with Dr. Robie, Oregon State, and Evan Allen of Real Time Research regarding this topic, and it will continue, explained Dotson.

5. *What impact are Double-Crested Cormorants having as avian predators within the Priest Rapids Project?* Dotson has talked to other bird people in the region, and has asked Chelan PUD for PIT-tag data they've collected from cormorants. That data was then compared to Grant PUD's PIT-tag information and found that few of Grant PUDs fish were being taken by this group of cormorants. Three of the five years of data from the DC Cormorant breeding colony in North Potholes show it didn't seem to be preying upon Columbia River smolts. Grant PUD will continue to find out where cormorants seen in the Project are going if there not going to the breeding colony? Chelan only collected 6 tags total.

6. *What impact are other avian predators (i.e. pelicans, grebes, mergansers) having on steelhead within the Priest Rapids Project?* Continue to look at research conducted by others in this field, and talk to Grant PUD biologist that are in the field on a regular basis to locate other bird colony locations. Nordlund asked if there is a way to determine if, and when an acoustic tag leaves the water. Timko replied we only know when it was last detected by an array. The tag would probably shut down quickly if consumed by a bird because bird guts are hard on the tag's epoxy coating. If not for the PIT-tags, tags found on the rookeries couldn't be traced back to Grant's studies because they don't look like tags anymore. There are

additional bird colonies in the area that are being looked at. Goose Island has a gull, black crown night heron, and blue heron colony located on it. Very few tags have ever been located here.

7. *Are some of the steelhead smolts used in the survival studies showing a residual behavior (over-wintering) and not heading to the ocean until the following year?* Data from 2008 and 2009 studies didn't show any residulization taking place. To answer this question, Blue Leaf Environmental reviewed PIT-tag information from PTAGIS to determine if any of Grant PUD's 2008 and or 2009 steelhead study fish showed up at a downstream detection system the following year; they didn't. During the November PRCC meeting, the definition of recapture and sizing in Table 2 was questioned in the document titled "*Summary of 2010 Acoustic PIT-tagged Steelhead Results Requested from the PRCC on October 27, 2010*". Dotson explained how to read data in Table 2. The table shows study fish that have returned back upstream as adults and were detected on upstream detection systems. In 2008, 7 adults were detected. In 2009 4 smolts were detected coming back upstream the following year. Dotson expressed his surprise at the growth rate of some of the fish. Five inch smolts that left two years earlier returned as 30" adults. From PIT-tag data analyzed, it doesn't appear that any of the out migrating steelhead being used in the study are over wintering. Dotson feels this question has been satisfactorily answered.

8. *Are steelhead smolts more susceptible to barotrauma within the turbines than other species of tagged smolts and pressure injuries are causing delayed mortality?* Dotson asked if there could be internal injuries that are causing steelhead mortality on a fish that goes through a turbine; based on the size and ratio of air bladder to body mass, that sockeye aren't having. Dotson noted that mortality is being seen before fish go through turbines at Wanapum Dam, and questioned if fish being used as Grant PUD study fish might have gone through a turbine in an upstream project.

9. *Are steelhead more susceptible to fish predation (e.g. small mouth bass, NPM, walleye) than sockeye smolts?* Dotson believes the USGS/WDFW Predator Index Study currently taking place is more over arching, and doesn't think it will provide the laser point focus we need to show us where walleye and small mouth bass (SMB) predation hot spots are. Dotson asked if the reservoir should be dissected into 1 mile parcels to look for presence absence, determine where the largest amount of tags are being lost, overlay that onto known walleye and SMB hot spots, and then try to line something up. Scott noted that if the index was calculated for 2009

and 2010, you could compare overall abundance in the index. She's not sure if the study has that?

Dotson will find out when the final Predator Index Study report will be presented to the PRCC. Dotson would like to take the scope of work (SOW) from the original contract and the proposed SOW for the 3rd year of the study, bring them all together in one location and provide a synopsis for all 5 years in one location, but was unable to get it done for this meeting.

Nordlund remembered that Tim Counihan, USGS said SMB were a predator that resides in the forebay, and wonders if forebay residence time of steelhead vs. sockeye might be making the difference in steelhead survival numbers. Timko said there are fish that swim upstream and are never seen again, but he doesn't know if a higher percentage of those are sockeye vs. steelhead. Dresser asked if data shows how far off the face of the dam fish are located. Timko explained that in 2010, net upstream movement was defined as a fish came into the forebay, and then left back upstream and was never detected again. This year there were 4 sockeye and 14 steelhead that went back upstream. Steelhead do spend longer time in the forebay than sockeye.

10. *Are steelhead not handling the helicopter ride to the release site as well as the sockeye smolts do?* Dotson wonders if within the first 4 hours something happened in the helicopter ride that might cause steelhead mortality to happen more quickly than sockeye mortality. If data was looked at differently (from forebay to forebay, instead of tailrace to tailrace) to determine survival estimates, Dotson questions if survival results might be different by taking out the first 4 hour following the helicopter ride. Scott questioned why 2010 was different from 2008 and 2009. Craig asked if there is a degraded condition of the steelhead overall due to their time in the gatewell. Steelhead seem to have an initial mortality right away, and they are the fish being used for the study. Dotson reminded the PRCC that any issues related to fish condition or handling affects would be cancelled out because all study fish come from the same source (Gatewell) and the study is designed as a paired release (i.e. treatment and control). Treatment and control fish experience the same thing (dipping, tagging, helicopter ride). Since 2006, Grant PUD has been diligent about making sure control and treatment fish, and anything that could be considered handling affect was cancelled out. Nordlund wondered about using a triple release strategy to get a better look at the tailrace affects of a Project because there may be things happening before the first array that are affecting survival estimates. He saw the logic in how the study was set up, maybe we should think about this type of release in the

future. **Dotson will ask Skalski about a triple release strategy**. Fish that pass the dam will be distributed differently than fish released below the dam. What affect might that have on survival?

Could a pressure wave from helicopter prop wash creates a clean avian predation spot? Is it possible treatment fish are biased because avian predators aren't being pushed away by prop wash? In the PRD tailrace in 2008 there was 6.5 % survival difference between a tailrace draft tube release and helicopter release (pre "bird-wire" array installation). Dotson repeated the study again in 2009 and 2010 (post bird-wire array installation), the difference was 0.6%. He thinks the helicopter did have a negative bias on survival estimates, but since tailrace bird wire arrays, this bias is no longer seen.

11. *Are steelhead smolts not handling the tagging process as well as the sockeye smolts do?* Dotson stated that based on a paired release, it shouldn't be a factor.
12. *Are there certain areas ("hot spots") within the reservoirs that steelhead are "dropping out of the study"?* See answer to Item 9 above.
13. *Does travel time through the Priest Rapids Project have an influence on steelhead survival rates?* Dotson stated that additional studies may be required to address forebay residence time, river conditions, high and low flows. Data for 2008, 2009, and 2010 will be compared.
14. *Is there a difference in survival rates within the study? First couple of releases verse the last releases?* There were 22 releases of steelhead, some differences were seen because of taggers, but a paired release should eliminate that difference. Skalski looks for these types of differences and highlights them.

Dresser, Dotson, and Timko will draft a report that encompasses the above hypotheses and the following categories: operations, turbines, bypass, predation (avian, fish), environmental conditions, flows, turbidity data, species behavior, and study design questions. Dresser proposed that by the next meeting, the outline will be complete and have some data to start building the document with.

In an effort to get answers regarding steelhead survival in the PR Project sooner, rather than later, Nordlund asked if the PRCC could deviate from conducting a sockeye study in 2011 and focus on steelhead survival instead. Nordlund stated that having a good strategy going into 2011 to investigate these hypothesis is important. He understands that putting in a 70 cross section JSATS array probably won't happen next year, but their might be additional operations that

could be tried. Such as forebay residence for steelhead, would adding spill at Wanapum or Priest Rapids, in addition to the top-spill solve that, would it bring it down? More spill is a backup option; it's in the BiOp and License. Nordlund would like to find more efficient ways to spill. He wants to get a battle plan for 2011, to find answers to questions. The ones we can't answer we leave or defer to later when we can.

Dotson asked if that means we would be doing a sockeye study in 2012, or as proposed by Chelan PUD in the HCP regarding yearling Chinook, that a 3rd year of sockeye survival studies is not needed to determine that Grant PUD has met it's sockeye performance standard. Dotson believes that if we do another steelhead study using the same study plan used in the 2008 – 2010 studies that we will get the same answer as we did in 2008, 2009 and 2010. The deferral of the sockeye study will need to be answered by PRCC. Nordlund explained that the HCP was originally looking at Rock Island with 20% spill. After they met survival standards for each of the species they could test, they cut spill in half, did original work, looked at all three spring migrants, sockeye, spring Chinook and steelhead. It was decided that with consistent results, the committee could not call for a study on the third species with lower spill. They were seeing consistent results with reduced spill. So, the study wasn't deferred, they just didn't require the 3rd year study. There will be a confirmation study 10 years out if the committee chooses to do so. Nordlund is more comfortable with sockeye numbers than steelhead because steelhead are a listed species.

Dotson stated that the arithmetic 3-year average for sockeye survival performance standard from Rock Island tailrace to the Priest Rapids tailrace (Project) is 86.5%. Because the Project survival rate for sockeye in 2009 was 91% and 92% in 2010, having a 76.23% Project survival estimate for sockeye in 2011 would still meet the 3-year average performance standard of 86.5%.

Nordlund suggested changing operations in order to conduct another steelhead study, e.g., instead of 27 kcfs spill, go with 37 or 40 kcfs spill, or add a 5 kcfs training spill on one side of the top-spill to protect fish coming through the bypass from predators in the tailrace. Dotson replied that concrete survival numbers are good and that none of that affects the Wanapum reservoir; it's reservoir survival where steelhead are being lost. Unless residence time of steelhead in Wanapum forebay is where they are being lost replied Nordlund.

If the PRCC meets in January and doesn't come up with a battle plan for steelhead, Dresser questioned why operations would need to be

changed. Timing is critical because study detection array installation starts in February. Dotson explained that Grant PUD is budgeting for a 3rd year sockeye study with HTI tags, but proposed the following: Install an 18 mile JSATS array (68 cableless autonomous nodes, put in place via boat) in Priest Rapids Reservoir, release 1000 steelhead with JSATS tags (normal release size is 550), retrieved data would provide an imprint of where a tagged smolt is for every mile of the reservoir.

One node cost $3,000.00. It would cost $278,000 to divide the Priest Rapids Reservoir into 1 mile sections. JSATS tags cost $250.00 x 1000 = $250.00. Dotson suggests using $500,000 from the No Net Income (NNI) Fund to conduct the JSATS study. If the Priest Rapids study is successful in defining predation hot spots in 2011, Dotson suggest moving the JSATS arrays to the Wanapum Reservoir in 2012 to conduct the same study. Additional gear would have to be purchased at an estimated cost of 1.2 million dollars. Grant PUD has budgeted $300,000.00 to purchase HTI tags to conduct the 3rd year sockeye survival study in 2011. Dotson made clear that if HTI hydrophones are used to conduct a steelhead study of this type, Grant PUD doesn't own enough cables nor hydrophones.

Scott proposed using the budgeted sockeye resources to conduct a steelhead study instead. Rohr asked if NNI Funds could be used to answer some of these questions. Yes said Nordlund.

Dresser questioned using this technology in the Wanapum forebay to address residence time. Timko noted that in order to answer a question posed by Bill Tweit, WDFW, at the October PRCC meeting, Dotson plans on putting 500 HTI tagged summer Chinook in the gatewell slots next year to follow up with residence time issues raised by WDFW. Dotson asked if the PRCC wants Grant PUD to look at summer Chinook issues. Timko proposed that in addition to the 500 HTI tagged fish, a 8 hydrophone HTI array be installed at Mattawa to collect 3D information, and a 3D array be installed in the Priest Rapids forebay only, to look at predator residence time behavioral issues (are bass feeding). Release 50 tagged fish in the forebay to see what their 3D behavior is for the life of the tag, and then fish the forebay for bass. Timko explained that because we know there is a loss of survival in the forebay, this studies intent is to identify where survival is taking place. Then, focus on fishing large predator hot spots as identified by the USGS/WDFW Predator Index study. Predators caught would be tagged and released in the same location. Also, to determine where predators move throughout the basin, 100 predators would be tagged with JSATS to monitor their movement. By using new technologies, there are a lot of things that can be done, stated Timko. With ongoing

studies, you're answering where fish are lost, their depth in the river, predator movement throughout the basin, and forebay predators.

If we aren't trying to get survival information, but fish behavior as it relates to different operations, Nordlund questioned if a block study could be conducted to influence residence time in the forebay (spill on and off).? Timko responded that the issue with block testing is the sample size and repetitiveness of the blocks. Steelhead runs are short (3 week peak run) and would take a lot of tags, block would have to be conducted 3 days on and 3 days off. The power in the statistics is in how many blocks you have, because each block is an individual estimate. The blocks would have to be big enough, but spread out to separate residence time between blocks.

All in attendance agree that the concepts discussed made sense and agreed to move ahead. Timko reported that Blue Leaf Environmental has had extensive conversations with Lotek, Inc., and that they would be able to supply JSATS tags and equipment if contacted by the first week in January. **Nordlund will contact Marco and Rose regarding this topic**.

Dresser and Dotson will prepare a proposal by 12/24/10. **A conference call will be held on 1/6/2011 to discuss this matter further and draft an outline for the proposed study.**

VI. PR Bypass Operations and Adult Fall Back – Currently, Grant PUD uses the sluice for adult fallback, and had proposed using tainter gate bottom spill on the new bypass gate (10 ft below surface) for adult fallback during construction. During Dotson's most recent trip to Iowa, while evaluating this proposal with the 1:20 model, it showed that a vortex was created on either end of the gate; thus making it not work for adult fall back. The new proposal is to use surface spill that will be built into the new bypass tainter gate 22. It will have a straight sluice way look, just like before, but with better water column support, due to the new bypass ogee being built.

Construction was scheduled to start the fall of 2011, with bottom spill occurring in 2012, and completion by April 2013. Dotson now proposes that during construction the top-spill bulk head be moved towards the right bank to be used during the 2012 and 2013 out-migration and adult fallback, thus allowing the contractor until April 2014 to complete construction. Grant PUD staff believes this plan eliminate bottom spill, and result in a better end product. Dotson asked if the approach he outlined sounded acceptable, and if so, he questioned where the top-spill bulkhead should be move to. This issue will be looked at during the next trip to Iowa. Iowa is already working on CFD models for attraction flows at tainter gates 11-12 and 5-6. CFD work will be done before the Iowa trip in January. Dotson said that Grant PUD was

headed to Iowa the week of January 31 to look at possible top-spill bulkhead locations and invited the PRCC members to join them.

Dotson asked if PRCC members were comfortable with the new proposed design. Nordlund, Craig and Scott approved. Members also approved moving the existing bulkhead to a new location for adult fallback during construction.

Dresser reported that Grant PUD is in the process of writing a license amendment to FERC with a completion date of April 2015. The intention is to complete it sooner, hopefully by April 2013 or 2014.

VII. PR Bypass Operations during Construction Period (2012 Outmigration Season) – See discussion above on Item VI.

VIII. Action Item: Priest Rapids and Wanapum Dams Exclusion Screen Study and Gatewell Retention Study – Rohr explained that this agenda item has been discussed at the last few meetings and that a vote was going to be asked for at today's meeting, but Dotson has a final report on the findings of the study to distribute. Dotson explained that the report has the same results as previously given to members. Timko, Blue Leaf Environmental, noted that page 28 of the report shows video examples of fish interactions and refers to an internet link that requires a log in and password (provided in the hard copy report) for each member (**Dotson will send Buck's report via inter-office mail, Marco's will be sent electronically and Fed Ex**).

Timko noted that the actual study results (Figure 14 of the report) showed that both sockeye and steelhead did leave the gatewell on their own volition. Sockeye left much quicker; day two, 17% sockeye remained vs. 40% of steelhead. Sockeye survival was 95% and steelhead survival was just under 94%.

Timko reported that fish passage timing and periods of gatewell sampling were correlated to match when fish were in the area. Smolt contacts (brief and extended screen contact) were reviewed to show sampling timing.

Definitions: **Contact** = touch and go's

Multiple Contacts = touch and go, then touch and go again
Extended Contacts = fish held for 3 seconds before releasing

Smolt Data	Wanapum	Priest Rapids
Contact - Horizontal	513	280
Contact - Vertical	200	53
Multiple Contacts – Horizontal	13	10
Multiple Contacts – Vertical	3	0
Extended Contacts - Horizontal	22	16
Extended Contacts - Vertical	0	1

Members decided to review the final report and **submit comments prior to a January 10, 2011 email vote**. This will allow Grant PUD enough time to submit findings from the "*Results from the Wanapum and Priest Rapids Gatewell Salmonid Smolt Retention Study*" and make recommendations to FERC by January 15, 2011.

At today's meeting, Timko showed Gatewell Exclusion video taken by DIDSON camera (originally presented at the August and October PRCC meetings) in order to explain the "100 % adult lamprey" fallback that was seen. Timko explained that lamprey data and timing was reviewed by Blue Leaf Environmental in order to explain the phenomenon.

197 total lamprey were counted at the Priest Rapids Project: Wanapum – 31, Priest Rapids - 166.

Lamprey Data	Wanapum	Priest Rapids
Contact - Horizontal	18	91
Contact - Vertical	13	75

Timko believes all counts were unique with no repeats, because of what it would take for a repeat count to happen. Fish would have to swim back through the turbine, past the screen, then from the tailrace, find their way through the fish ladder again, and then redescend through the exact same slot as before. Because of the unlikelihood that all 197 lamprey would have been able to do that, and also because all lamprey movement was directed downstream, no upstream movement seen, these had to be unique contacts.

To look at projected numbers of what lamprey would have been if monitoring had taken place the whole time (only 78 hours of monitoring at Wanapum and 80 hours at Priest Rapids) in all the units, only 25% of Wanapum and 23% of Priest Rapids data was monitored to produce the 197 lamprey seen. Projected data estimates that Wanapum would have had 3,600 lamprey passing, and Priest Rapids would have had 20,000 passing, if all slots had been monitored, and all data processed from start to finish. Dotson reminded members that only 1,114 lamprey were counted passing the Priest Rapids fish ladders this year, so based on fishway lamprey passing, mathematically adult fallback can't be taking place.

Timko and Dotson believe the lamprey seen in the video were juveniles because of the size of each individual monitored and the timing of the downstream migration. A length histogram was developed for both dams combined. For reference, a study conducted by LGL 8 yrs ago for the Priest Rapids Project, the smallest upstream adult lamprey trapped in the fish ladder was 55 cm, the largest was 78 cm. The average lamprey length seen on the DIDSON data was 39 cm; thus leading Timko to believe they must be juveniles. Timko stated his surprise at the findings because he thought juveniles were tiny, like a pencil. The increased trend in size that was seen

over time during DIDSON monitoring suggest these fish are foraging and putting on weight as they move downstream (adult's loose weight as they move upstream).

Juvenile run timing (late May to mid-July) coincides with the outmigration documented by other project (McNary Dam) counts. Upstream timing of adults (migration being late July – Sept) limit them from being part of the sampling data. Direct counts from the Priest Rapids ladder this year show that counts pick up in late July and early August; again, not coinciding with the study data. Sampling data shows that the largest part of the population was getting bigger as they moved downstream. Because of these two reasons, Timko believes what was seen on the DIDSON video is part of the natural downstream progression of a juvenile lamprey.

IX. Sub-yearling Chinook White Paper – No discussion took place.

X. NNI Predator Index Study

A. Year 3 Expectations and Statement of Work – No discussion took place.

XI. Review 2010 FERC Report – Drafts of Grant PUD's annual Progress and Implementation Plan (P & I) and Downstream Passage Alternative Action Plan (DPAAP) were distributed via CD by Dresser. **Williams will send electronically to Carlon, Rose, Marco, and Buck.** Comments are due by 1/15/11. The Fisheries Operations Report and Plan will be distributed by 12/17/10. All three final reports are due to the Federal Energy Regulatory Commission (FERC) by 2/15/11. In order to organize her work loads, Scott asked for a table showing Grant PUD's annual reporting requirements to FERC and Washington Department of Ecology (WDOE). **Dresser explained that a table is available and will be sent to members**.

XII. NNI Recalculation – Dresser distributed information on No Net Income (NNI) recalculations and steelhead true ups based on the Statement of Agreement (SOA) developed by the PRCC in November 2008. **Dresser will send electronically to Marco and Rose.** At that time, assumptions were looked at, sockeye and subyearlings were decoupled from steelhead, linked sockeye and subyearling Chinook to yearling Chinook for 2008, 2009 and 2010, discussed a steelhead study in 2008, 2009 and 2010, and in 2011 everything would be recoupled.

Current Priest Rapids Project steelhead survival is 81.05%. This is 5.4% below the 3 year standard of 86.5%, which equates to a deposit of $89,482.56 into the NNI Fund. 2009 and 2010 will be used as part of the back fill. $89,482.56 is not adjusted for CPI (between 2005 and 2010) or interest (from 2008 to 2011), so that figure will increase. NNI contributions for sockeye are $1,740,633 and $1,439,013 for summer Chinook (not adjusted for CPI). The estimated 2011 NNI payment is $3,358,611 (not adjusted for CPI. After CPI adjustments, total NNI contributions will be approximately $3,900,000.

Current funds total $7,980,074 (NNI Fund $3,132,815, Habitat Supplemental Fund $3,973,429, Habitat Fund $873,831).

XIII. White River Activities

A. Draft Comment of White River Policy Group Memorandum – No discussion took place.

XIV. Updates:

A. PRCC Studies and Reports – No updates provided.

B. Committee Reports – No updates provided.

C. Potential Northern Pikeminnow Fishing Derby – No discussion took place.

D. Hatchery SOAs under Consideration – None at this time.

E. PNNL Laboratory Tour – No discussion took place.

XV. Approval of Meeting Minutes

A. October 27, 2010 – Craig's approval received on 11/18/10. Nordlund's edits and comments received on 12/08/10. **Resend after editing.**

B. November 17, 2010 – Nordlund's edits and comments received on 12/08/10. **Resend after editing.**

XVI. Next meeting: A conference call will be held on January 6, 2011. The regular monthly meeting will be held on January 26, 2011 at Grant PUD's SeaTac office.