

*Baker River Project License Implementation***Aquatic Resources Group**

**Team Leader:** Arnie Aspelund (PSE), [arnie.aspelund@pse.com](mailto:arnie.aspelund@pse.com)

**PRESENT**

Arnie Aspelund, Doug Bruland, Nathanael Overman, Jory Oppenheimer and Irena Netik by phone, Jacob Venard, Caitlin Faulkner, Nick Verretto, and Tom Flynn (PSE); Ashley Rawhouser by phone (NPS); Stan Walsh (SRSC); Jon-Paul Shannahan (Upper Skagit Tribe); Dan Berentson (Skagit County); Eric Jeanes by phone (R2); Craig Olson (NWIFC); Jeremy Gilman (USFS); Steve Fransen (NMFS); Bob Helton (Citizen); Brett Barkdull, Kevin Kurras, Jed Varney, and Steve Stout (WDFW); Lyn Wiltse and Jamie Riche (facilitators, PDSA).

**DECISIONS** – none today

**2013 ARG DATES:** Meet in-person, PSE Burlington, quarterly: March 12, June 11, and September 10.

**ACTION ITEMS**

- Jory Review R2's instream flow modeling to assess the potential impacts of downramping during Unit 4 Commissioning, identify ways to minimize downramping risk during Unit 4 Commissioning if needed; and consult with Steve, Stan, and the co-managers.
- Jeremy Check on beach road decommissioning options that are consistent with the overall spawning beach 3 decommissioning project.
- Caitlin Initiate spawning beach 1, 2 & 3 decommissioning permitting process and coordinate with all parties to expedite process.
- Steve Send draft FSC evaluation plan to Arnie to distribute to all.
- All Contact Nick if you'd like a site visit to the FSC screens balancing work, preferably Jan 18<sup>th</sup> with NMFS.
- Nick Send UB FSC juvenile emigration data for the last three years in Excel format to co-managers for consideration of FSC operating window at higher flow (i.e., 1,000-cfs).
- Nick Send agencies clarified subsampling proposal with outmigration data for review and discussion at a conference call toward the end of January.
- Nick Send FSC study summary file to the co-managers.
- Co-Mgrs Respond by the end of the month to Nick's recommendation regarding the FSC operating window at higher flow (i.e., 1,000-cfs).
- Co-Mgrs Review and respond by end of month to Nick's recommendation regarding the FSC subsampling plan.
- Arnie/Tom Discuss internally release site options, e.g., Jed's suggestions, then follow-up with the co-managers.
- Co-Mgrs Coordinate sockeye smolt IHN issue at policy-level representatives and provide confirmed direction to PSE regarding disposal or release of fish held in stress-relief ponds.

**PREVIOUS - STILL RELEVANT - ACTION ITEMS**

- Jeremy Check on the in-water schedule fish and avian limitations for the spawning beach 3 decommissioning. Is there room to move re: the avian timelines?
- Co-Mgrs Determine drop location for spawning beach "IHN hot" mortars.

- Co-Mgrs and agencies – Respond to Nick’s subsampling proposal by end of January.
- Co-Mgrs Send a draft Fish Production Plan to Arnie ASAP, as per FPP. Co-Managers smilingly report they are still making progress.
- All Review / update the ARG representatives list for your organization (ongoing).

## **SAFETY MOMENT**

Attendees shared reminders about checking vehicle equipment, especially in rainy / winter weather, washing up to avoid getting or sharing the flu, and staying up-to-date on CPR and First Aid certifications.

## **HOT TOPICS, BRCC, & LICENSE PROCESS UPDATES**

The fourth Wednesdays will continue to be reserved for BRCC conference calls as needed. In-person meetings are scheduled semi-annually (spring and fall). The next BRCC meeting is targeted for May and will include a review of the Settlement Agreement.

Tom reported that the TRIG conducted a small harvest on the Alder Creek property to open up forage areas; they are also considering purchase of parcels near the Burpee Hill property. The RRG have purchased bear-safe dumpsters and those are being installed now. The CRAG meets again later this month. Tom noted he emailed out the project evaluation article SA 602 and is awaiting comments on that. The next annual report is due to FERC in April, covering 2011.

No hot topics today. Lyn passed around a photograph from the Seattle Times, which is part of a series intended to capture images of all the NW salmon runs.

## **BAKER UNIT 4 COMMISSIONING UPDATE**

Jory updated the group about testing related to the installation of Unit 4 and a new bypass valve. Jory mentioned that the new unit is being constructed primarily to meet the new instream flow and downramping constraints specified in Aquatics Table 1 (SA 106 of the Baker License). He noted that these tests must be performed to determine that the new facilities will operate safely and reliably. “Wet” testing is currently scheduled for mid-April and will include conducting two combined (Units 3 and 4 together) load rejection tests; one will downramp from approximately 3000 cfs to 1500 cfs and another will downramp from about 6000 cfs to 1500 cfs. During the tests, which are each expected to last about 10 minutes, Jory noted that the flow bypass valve will be available, ensuring that 1500 cfs is maintained. Tom noted that these tests are mandatory and must be performed in a prescribed way as part of the facility commissioning.

There was some discussion about modifying the construction schedule to different months, but Tom noted that this schedule is fixed. Steve Fransen expressed concern about the potential impacts of these downramps to fish during this period (mid-April). Steve thinks there may be value in reviewing R2’s instream flow modeling to assess the potential impacts of the tests. Stan also suggested that spilling during the testing could be an option if the lake levels could be managed to a high enough level. Jory will look into these options and will consult with Steve, Stan, and the co-managers on the modeling and if needed, identify ways to minimize the potential risks of the downramping during the tests.

## **BAKER FISH HATCHERY UPDATE**

Doug shared information about the response to last month’s landslides at the headworks to the hatchery. He noted that they were able to save the fish by moving them out of the hatchery and into the stress-relief ponds. Coho broodstock, rainbow trout, and sockeye juveniles are being housed temporarily in the stress-relief ponds. Incubation of sockeye and coho eggs is by domestic water, so they remained at the hatchery. The spawning beach was temporarily placed on the Depression Lake overflow, and now is back on spring water. The water supply has been reestablished into the headworks and geologists, engineers and archaeologists are on site. Work is limited right now due to the ongoing rain and slope conditions.

Jed asked about the availability of domestic water onsite, with the thought that there may be additions to the “menu of options” available for future responses. He noted that the hill is unstable, and likely to slide again.

Doug and Kevin noted that the current design isn't set up to provide adequate domestic water to back-up all hatchery operations and Kevin added that timing of the slides and composition of fish onsite would play into any response. Jed emphasized that keeping Sockeye out of surface water is the priority; coho and rainbow aren't at the same risk. Craig recommended avoiding use of water from Depression Lake in future responses.

A few possible tweaks to the response protocol were briefly discussed. The co-managers and PSE operations staff will keep this conversation going and update the ARG about any protocol changes at the next ARG meeting.

**Hatchery Fish Inventory:** Arnie projected the current fish inventory, which is all in the stress relief ponds: 65k coho, 20k rainbow trout and 11.5k sockeye. The group talked about what to do with the sockeye, which are testing positive for IHN. There is uncertainty about the existence / duration of a carrier status for IHN and the associated risk / virology. Nobody at the table suggested bringing these sockeye back into the Baker Reservoir, but there was discussion about the risk / benefit related to killing these fish vs. keeping them at their current location until April and releasing them directly into the Skagit. The co-managers' policy level folks will need to determine the final approach and give PSE direction.

Coho Incubation Numbers:

Estimated total green eggs: 233K; Estimated total eyed eggs: 10.5K; Total fry ponded: 0

Sockeye Incubation Numbers:

Green eggs: 3.76 million; Eyed eggs: 2.4 million; Fry: 0

## **IHN UPDATE**

Jed added some additional detail to Craig's IHN report at the last meeting. He noted that we've had elevated pre-spawn IHN mortality the past two years, which is unusual. He noted that studies are underway, and preliminary results indicate different genetics within this virus. Further discussion will follow.

## **RELEASE SITES**

Jed suggested boat releases as a back-up plan when access is not available to usual release sites. As there are known problems with this (hauling distance, weather/lake conditions, etc.), he asked if the group would be okay trying a couple test runs this year to better understand the logistics involved. Fry plantings start in February (next month), so this must be decided soon. Tom said PSE will be meeting to discuss this internally and then with the co-managers.

## **SPAWNING BEACH 1-3 DECOMMISSIONING UPDATE**

Caitlin reported on the Spawning Beach Decommissioning. Design and plan development are underway to support the permitting process, which has been initiated. Stan asked about the windows for in-water work. The fish window may not be adequate and there appears to be conflict between the fish and bird windows. Jeremy said he would welcome a recommendation from the co-managers related to construction windows. Folks also referenced a question Brock raised via email regarding a potential spotted owl and marbled murrelet study. This study might not be needed if the work moves forward with the assumption that spotted owls and murrelets are present, which is what creates the "fish vs birds" schedule conflict. The USFWS and USFS will weigh in the decision on this, but everyone will have the opportunity for input via the JARPA permitting process.

Jon-Paul brought up an additional idea related to the decommissioning, suggesting that a currently unused berm spur road extending into the reservoir near Beach 3 be removed in the future. The berm spur road is not part of the spawning beach decommissioning, but access to remove the berm at a later time could be made possible if the spawning beach access road (which is part of the beach decommissioning project) remains. Article 505 funding may offer a way forward on the berm project. Jeremy discussed the ownership history of the berm road that complicates the discussion. PSE will complete beach decommissioning in 2013 in accordance to the License. Jeremy will ask about the options for the

decommissioning of the beach access road without derailing the overall permit related to the decommissioning of the spawning beaches.

PSE will be holding internal meetings related to the decommissioning and there is a meeting scheduled on this topic between PSE and the Forest Service February 1.

### **FSC UPDATES**

Caitlin reported that work to hydraulically balance the screens resumed yesterday after a two-week holiday break. Other commissioning work includes addressing issues with the screen cleaners, back-up power and communications with the Baker control center, sample station setup and numerous other details. A review of the Lower Baker net inspection video will be conducted to confirm that everything was properly installed. Caitlin showed a short time-lapse video of the FSC and NTS launch.

**Debris Management Update:** Jacob noted that debris issues at the Upper Baker FSC have inspired a more committed debris management system for the Lower Baker FSC. He showed the group design modifications that included an inclined “Super Mesh” barrier (3/32” vinyl-coated polyester) and a conveyor with sluiceway for removing debris from the front of the screens.

**Hydraulic Balancing:** Nick shared photos of the flow meter frames, installation of which in the Lower Baker FSC screen channel by Alden Lab began before the holidays and will be complete this week. Testing and adjustments will require 3-6 weeks additional work. Ed Meyer (NMFS) will be on site January 17 to resolve any issues that may be found. Ken Bates has also been involved in the process. Contact Nick if you are interested in observing the work.

**Nets Installation:** Nick shared that the new Upper Baker net installation was completed late November, in parallel with completion of the Lower Baker net installation. Both nets look great, with only minor issues to address before season startup.

### **SA 104: CONNECTIVITY PROGRAM UPDATE**

Nathanael reported that the Native Char snorkel surveys were completed in December, 2012. They observed 29 bull trout in Baker River and 24 in Sulphur Creek. He also noted that the annual Native Char consultation meeting will be held in March.

### **UPSTREAM FISH TRAP POST-CONSTRUCTION EVALUATION PLANNING**

A meeting will be held at R2’s office January 17 with Ed Meyer and (tentatively) Stan Walsh to agree on the upstream fish trap post-construction evaluation plan. The plan is intended to confirm adequacy of entrance conditions after startup of the new Lower Baker powerhouse. An item discussed at the last ARG meeting was the continued late fall entrance of sub-yearling coho, likely resulting from normal seasonal redistribution. Loss of some of the fish due to clearances and tolerances for a trap intended for adults and larger fish is inevitable, but PSE is reviewing the trouble spots for potential modifications aimed at minimizing the impacts. The best alternative might be to simply increase step height over the two entrance weirs to prevent entry of the coho, but previous tests have been inconclusive. The item will remain on the action item list until fully vetted or resolved.

### **2012 LB FSC STUDY REPORT**

Arnie reported that comments on this report were due last week; none were received.

### **2013 LB FSC STUDY UPDATE**

Jacob noted that the sockeye IHN outbreak has impelled modifications to the 2013 study. PIT-tagging has been postponed pending resolution of the hatchery water supply issue. The (secondary) performance aspect of the 2013 Lower Baker FSC flow preference study will include only coho releases, with the associated ATPase analysis. There will be no sockeye mark-release-recapture at Lower Baker, nor the sockeye ATPase

study. The primary study of flow preference (500-cfs vs 1000-cfs with daily switching) will continue as planned.

### **2013 OPERATIONS PLANNING**

**UB FSC Monitoring PIT-tag Releases:** Due to the sockeye smolt IHN issue, the Upper Baker sockeye PIT-tag releases are canceled, as with the sockeye releases associated with the first-year Lower Baker FSC study. PIT-tagged coho will be released at Upper Baker as planned, although the tagging has been delayed due to the hatchery water supply issues.

**UB FSC Operations Flow, Future:** Nick reviewed the flow preference data from the Upper Baker FSC evaluations, which indicated a marked preference by sockeye for the higher flow (i.e., 1000-cfs vs 500-cfs) in both 2009 and 2010. The UB FSC was run at 1,000 cfs for the 2011 performance study and during the 2012 season due to a presumed collection benefit. Notice was submitted end of June 2012 that a primary pump seal failure impelled its shutdown and a concurrent reduction in flow from 1,000- to 500-cfs. Nick suggested that a more formal determination of operating flow

Nick reviewed the series of pump, control and electrical failures that have impacted primary pump operation during the first five years of operation. Although a full reliability and contingency review have not yet been completed, past issues may be indicative of future reliability. While proving that higher flow leads to higher collection rates may be difficult to prove, it seems imprudent to assume otherwise. However, the potential for a reduction in reliability for the marginal increase in collection that higher flow may yield would also be imprudent. Nick suggested that the FSC be run at the higher flow through the peak migration period (May 1-21), and at the 500-cfs level for the remainder of the season. Brett noted that the peak outmigration period (e.g., 90% of the run?) appeared to have been April 26 – May 26 last year, so a review of the last three years data would help to identify the operating window, if that is the agreed direction.

Attendees were generally in accordance with this thinking, but also expressed concerns regarding the high level of uncertainties involved. Nick and his PSE colleagues will continue to work through this issue and will continue to update the ARG and seek additional input. Nick will send sockeye outmigration data for the last three years in Excel format to help inform this thinking. He also asked folks to review relevant data in the 2011 FSC Study Report, and will send the FSC evaluation results summary file to the co-managers.

**UB FSC Subsampling:** Nick proposed changes to last year's subsampling process during the last ARG meeting, following it up with submittal of information related to the recommendation. No responses were received. The goal is to ensure safe distribution and holding, to minimize handling, stress, potential injury and delayed transport of outmigrating fish, minimize risk to mechanical equipment through excessive cycling, and to manage sampling to provide adequate data for basin management needs by subsampling at the minimum rate required to achieve an acceptable estimate of outmigration, species and study group composition during the peak migration window.

Nick suggested a subsampling window of April 24-May 31, during which fish would be distributed to all four raceways (i.e., timed distribution of 25% to each of the four raceways). The distribution is necessary to avoid being surprised by a peak run day, with the potential for density-related mortality, within this period. Outside of the window, fish would be sent to one or two raceways, at the discretion of on-site biological staff. Mandatory distribution to four raceways will result in additional effort for staff on days when few fish are collected due to the need to crowd all four raceways and to operate all four hoppers, but is necessary to avoid exceeding pond holding capacity, to allow subsampling if the daily outmigration increases beyond a pre-determined number, and to establish a uniform time block for subsampling extrapolation.

Nick suggested open discussion of options, suggesting that full sampling would occur on all days when less than or equal to 6,000 fish (i.e., one transport load) are collected. Subsampling would be triggered when daily collection exceeds 6,000 fish. One option would be that on these days, all fish in holding pond #1 would always be diverted to the evaluation station, the remainder in ponds 3-4 transported directly, always

yielding at least a 25% sample size (by time block). Another would be to take a random and representative sample throughout the day to capture species composition for accurate extrapolation. The benefit of this would be reduced handling (e.g., obviate evaluation of 25K+ fish on 100K fish days) while capturing an adequate subsample of the entire population. If outmigration numbers continue to rise, reduction in the sampling rate (i.e., partial sampling from raceway #1 throughout the day, as in the second example) will become necessary.

In all cases, the daily outmigration number would be derived from the evaluated fish and the biologists' visual estimates of directly transported loads. Species distribution would be extrapolated to each of the directly transported groups based on species composition of the group sampled closest in time to those directly transported. In each case, staff would record the raceway number, load number, data, time, sampler initials, empirical estimate of fish number transported directly, and evaluation information on the daily sheet.

The discussion requires further consideration by the group. Nick will clarify the alternatives and provide a recommendation to the agencies, then coordinate a conference call to agree on the 2013 subsampling process toward the end of January. He will also send outmigration data to the group to assist in the determination.

**UB FSC Acceptance:** SA105 states:

*Upper Baker phase two shall be provided if Upper Baker phase one fails to meet performance criteria described in the DFPIP and the Services' section 18 prescription, and shall include a 1,000 cfs capacity floating surface collector to be installed no later than five (5) years after completion of phase one, if needed;*

*If at any time before a phase two expansion segment is constructed for either the Upper Baker or Lower Baker FSC, NOAA Fisheries and the USFWS determine that phase two is not required as a prescriptive measure due to the success of phase one downstream passage, and both NOAA Fisheries and USFWS provide documentation to the licensee and to FERC that no further prescriptive measures are required, \$800,000 will be made available to fund projects identified pursuant to Article 405 (sic – 505) for each unnecessary expansion*

Several years of FSC evaluations conducted pursuant to NMFS and USFWS Section 18 fishway prescriptions have provided the record required to make a determination of FSC performance, so the efforts toward establishing that administrative record have been initiated. Relevant determinations are whether the FSC satisfies the performance requirement, what operational flow is required, and – if the operational flow requirement is 1,000-cfs – whether the additional screen modules are required. As the NMFS representative, Steve Fransen will lead this effort in coordination with Lou Ellyn Jones of the USFWS, and will distribute a draft determination, possibly in June, with the idea of filing it with FERC later this year.

## **OTHER LICENSE IMPLEMENTATION UPDATES**

### **Progress on Plans and Reports**

Arnie explained that the ARG Overall Report (102) will be to FERC in April of this year. That concludes the 2011 reports and then they will start the 2012 reports. The Fish Propagation (101) and Connectivity (104) reports have been submitted to FERC already so they will see those twice.

108 Gravel: Jacob reported that the first year of monitoring was complete in December, 2012. The first year of data will be included in the annual report for 2012. He will share this at an upcoming ARG meeting.

109: LWD: Jacob explained we are looking at our first real year of collection this year – have 50 pieces collected so far. We will evaluate how effective our strategy is in May-June timeframe, as the reservoir comes up. No process is in place for prioritizing the use of the wood that is stockpiled. This will be at the ARG's discretion.

110: Shoreline Erosion Control: The project design for the Swift Creek campground is complete. PSE will be meeting with the USFS next week to discuss what this will look like. They are looking at late September or - early October a construction window.

101: Fish Propagation: Arnie explained that \$60K will be put into an account starting this year for nutrient enhancement program at the direction of the co-managers. This money may be transferred to the HERC Fund (comes online in 2018) due to program assessment potential or other relevant biological factors. Arnie will review the relevance of the 602 guidelines for this. PSE will discuss this internally and then get back to co-managers before March. Perhaps they can discuss this at the same time as they discuss fry release sites.

### **505: Aquatic Riparian Habitat**

Jacob was pleased to report that PSE has finally gotten all contracts in place for projects selected last year. This year's proposals are due January 17. The next 505 ARG-TRIG meeting will take place January 24 to review all the projects. They will meet again by conference call on February 12 to decide which projects to fund.

### **AGENDA ITEMS FOR MARCH MEETING**

- 104 Update
- IHN Update
- FSC Evaluation update.
- Update on LB FSC

### **MEETING EVALUATION**

- Some of the general conversations should have been moved offline
- IHN titer counts were too much detail
- Need more general reports that get to the punch line more quickly
- Minutes of offline meetings should be handouts in next meeting agenda
- This was a very interesting meeting to s fish neophyte
- Salmon chowder was good
- Trouble with phone early on
- Arnie did a great job of driving new system (*Lync online* instead of *Webex*)
- Coffee was late

### **PARKING LOT**

- Sampling rate for Baker hatchery coho needs to be addressed.
- PSE will propose a subsampling protocol.