# **Final Meeting Notes**

September 10, 2013 / 9 a.m. – 3:00 p.m./ PSE Burlington, LYNC Online, Call

Baker River Project License Implementation

## **Aquatic Resources Group**

Team Leader: Arnie Aspelund (PSE), arnie.aspelund@pse.com

#### **PRESENT**

Arnie Aspelund, Doug Bruland, Nathanael Overman, Jacob Venard, and Caitlin Faulkner (PSE); Brock Applegate, Ed Eleazer, Jed Varney, Brett Barkdull, and Kevin Kurras (WDFW); Bob Helton (Citizen); Pat Cagney, by phone (USACE); Jeff McGowan (Skagit Co.); Stan Walsh (SRSC); Jeremy Gilman (USFS); Steve Fransen by phone (NMFS); Lyn Wiltse and Jamie Riche (facilitators, PDSA).

**DECISIONS** – none today

2014 ARG DATES: Meet quarterly, PSE Burlington: Jan. 14, Mar. 11, Jun. 10, and Sept. 9.

#### OTHER UPCOMING MEETINGS/EVENTS:

- Oct. 23 BRCC (Snoqualmie)
- Nov. 12 Article 505, Aquatic Riparian Habitat (ARG-TRIG)

#### **ACTION ITEMS**

- Doug Set up meeting with co-managers and fish techs
- Nick Schedule call with co-managers to review / update sub-sampling protocol
- Arnie Distribute USFS comments and PSE responses to the ARG, re the proposed change to the reservoir's daily pool change limit
- Nathanael Send the 101(c)2 report to the ARG
- Jacob Coordinate with Jory re: response to Stan's question on interim flows (prior to Aq. Table 1)

#### PREVIOUS - STILL RELEVANT - ACTION ITEMS

- Nick Develop a draft of downstream facilities protocol, and then coordinate it's development with the co-managers and NMFS
- Co-Mgrs Determine drop location for "IHN hot" morts (work with USFS to determine disposal plan)
- Co-Mgrs Send a draft Fish Production Plan to Arnie ASAP, as per FPFP. Stan smiled, in progress.
- All Review / update the ARG representation list for your organization (ongoing, as needed)

#### SAFETY MOMENT

With a new attendee in the room, Arnie oriented folks to the emergency exits and safety equipment on site. He quickly reviewed key sections of the fisheries safety manual. He also reminded folks that, starting January 1, 2014, everyone under 50 will be required to complete a boater safety course in order to legally operate a boat. The Coast Guard Auxiliary has set up classes, or you can get the training online. Visit <a href="https://www.boat-ed.com">www.boat-ed.com</a> to take the online course and print your certificate of completion.

Doug B. shared a story about a preventable near-miss related to helping a family member move and reminded folks about the importance of taking a few moments at the beginning of any project (at work OR home!) to assess safety risks. Bob H. also shared a story about an unsecured load on the road and reminded folks to leave sufficient following distance when driving.

## HOT TOPICS, BRCC, & LICENSE PROCESS UPDATES

Arnie shared an overview of the most recent (August) BRCC update. 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 in-person BRCC meeting is planned for Oct. 23 in Snoqualmie.

No hot topics today.

#### LOWER BAKER UNIT #4 COMMISSIONING UPDATE

Arnie reported that PSE is targeting Oct. 15 to complete commissioning and begin operating according to Aquatics Table 1, about a year ahead of license schedule. PSE is coordinating operations now to be at the required reservoir elevations by Oct.15. PSE will have to complete the following: testing of the facility control system to verify it will operate to meet the new downramping and instream flow requirements, additional mechanical testing of the new unit, and a program and test of the warnings for flow excursions. Arnie showed an example of an email notification that will be generated and sent for any deviations from Lower Baker downramp and instream flow constraints that require notification within 24 hours.

#### DAILY POOL LEVEL CHANGE UPDATE

Arnie also updated the group on PSE's request to change the reservoir's daily pool limits during the summer season. The current license language calls for 0.5 feet/day between May 23 and Sept. 9. PSE proposes: 1.5 feet/day in the same window. He reminded the ARG that PSE brought this question to the BRCC back in May and emailed the specific request to the ARG and RRG July 24, requesting response by Aug. 26. No comments were received from other members of the ARG; the USFS provided comments. PSE is working with USFS to have an approved approach by May 2014. PSE will provide a status update at the January 2014 ARG meeting.

Brock noted that he has asked Jory for additional data. Stan asked Arnie to distribute the USFS comments and PSE responses, to the ARG.

## HATCHERY HEADWORKS WATER SUPPLY UPDATE

Arnie shared a history of the work that has been done over the last couple decades to address the periodic turbidity events in the water supply at the hatchery, leading up to the Dec. 2012 slide event. That event was so significant, it became clear that a more extensive solution would be needed.

This led to the work last spring and early summer to get the spring back underground and install a protective barrier over it. Arnie reminded folks that there was discussion during the settlement process about capping the spring and noted that this work aligns with those conversations. Kevin agreed.

Arnie walked the group through a photo overview of the work that was completed in June, which he described as, "essentially became a complete 'do over' of the project there, noting the fullest extent of the repairs completed. PSE will monitor performance of the repair work over a couple wet season cycles.

Kevin said following the repairs they flushed the hatchery system one zone at a time, they are in full operation and he noted that he also has confidence in the work that was completed. Connections to the alternate domestic water supply and pumping equipment on site continue to serve as emergency back-up systems.

#### **BAKER HATCHERY UPDATES**

Doug started the hatchery update. Circular 1 has 48 very large Rainbow Trout that will be released into Depression Lake as soon as the water temperatures there cool down. Circulars 6 and 7 have about 22,000 Rainbow Trout for release into Depression Lake next year. 117,000 Sockeye are being held in Raceway 1, and will be ad-clipped starting today. They are being saved for fall release (late Oct. / November) into Baker Lake and 2014 biological studies. 92,000 Coho will be ad-clipped; 28,000 of those will be released into Lake Shannon and the remainder will be retained for spring 2014 release and biological studies.

Kevin noted that the adult Sockeye broodstock came in rougher condition than usual this year, with more scars, lesions, and fungus is typical ... but there are still more than enough healthy fish for hatchery spawning operations. First spawning will be conducted Oct. 16 (moving to Wednesdays this year). They are testing the adults for IHN weekly. They are still working on plans for disposal of IHN-hot fish. A buyer will take most of the fish. He reported that sediment is far lower than in the last two years and operations are running smoothly.

The Sockeye return was significantly smaller this year than last, WDFW adjusted their estimate to be about 18,000 (last year was 48,000). 2,215 went to beaches, 3,847 went to Artificial Incubation, 5,877 to Baker Lake for a total of 11,939 in the Baker system.

#### SPAWNING BEACH DECOMMISSIONING

Caitlin walked the group through a powerpoint reviewing the work to decommission the three spawning beaches, outbuildings, and all instream structures. Critical work, including all in-water work, was completed by August 16. Asbestos abatement began August 26 and took about a week to complete. Beach 1 demolition commenced, and they are on target to complete construction by November this year. Jed asked about access to the site for fry releases. The approved project removes the road into the site. Arnie stated that the Channel Creek site from the Baker road should be the alternative, options were presented at length at the June ARG meeting.

#### **OPERATIONS UPDATES**

**Juvenile Outmigration, Lower Baker:** Doug reminded the group that the LB new FSC was installed and ready to go at the start of 2013 smolt season. This new equipment represents a HUGE improvement over past operations.

We've had a little over 181,000 Sockeye through the system. In past, about 20,000 was a more usual number. We were anticipating larger numbers based on the higher than usual fry plant (2 million), but folks were still amazed at the significant spike in smolt numbers. This is the highest outmigration on record since recording began. Coho also came in high with 20,487 ... just a couple thousand under Coho's record-breaking 2009 season.

Doug noted that the study he has been coordinating with Stan (informally calling it the 'caloric study') is complete. Stan reports that all those samples are in cold storage in Mt. Vernon, ready for transport to UW.

**Juvenile Outmigration, Upper Baker:** Doug reported that the total collection was 625,000. Combined with the LB FSC, we have had 828,000 smolts. Last year, we were excited to break the record at 526,000. This is really a phenomenal year! Direct transfers with sub-sampling occurred May 1 – May 12 and in accordance with the updated sub-sampling protocol, which seems to be working well. PSE hired ten temporary staff to help with the smolt season rather than the usual eight. This additional staffing was helpful during the peak.

LB FSC Sockeye Fry Mortality: Jacob walked the group through a review of the sockeye fry mortality related to the Lower Baker FSC. The sockeye fry mortality was significantly more than seen at UB. The 2013 total came to 17,135 fry mortalities and 10,270 fry live haul. For comparison, there were 944 live hauled and 131 fry mortalities at UB. A lot of the mortality at the LB FSC occurred after high flows early in the season. Some early thoughts were that the mortality was being caused by debris in the screens. That does not seem to be the case. They also looked at the holding ponds and made adjustments to make them better for fry, but that didn't resolve the entire problem. They called Alden (same folks who did the balancing at UB) in to help.

With Alden, they identified the likely issue as being an inability to balance screen hydraulics (inadequate baffle hole alignment?). Jacob shared an overview of Alden's approach, which entailed: 1. verify previous approach velocity calculations and confirm empirical method; 2. Determine benefit of decreased headloss to

moderate the issue; 3. Complete primary screen balancing work prior to end of 2013 operating season, if possible.

Their work confirmed the inability to balance screens, suggested that reduced headloss may help. The screens remain unbalanced. Next steps: the system was inspected in August to confirm decisions and develop repair alternatives. PSE is developing alternatives, costs, and schedule for internal approval (\$300 - 600 K estimated). They are looking at how to measure the headloss across the screen and how to make the necessary improvements. Nick is looking into this and will provide more information at our next meeting.

Here's a little more background data on the screen balancing / baffle hole alignment issue: The baffles function as sliding plates – should be cut at a given temp so when they are at reservoir temperatures, the holes would be aligned. This was not done, so the holes don't match up in the reservoir, especially at deeper levels. PSE is looking at reshaping these holes out to get these screens balanced. This would take approx. \$300K. It may make more sense to cut new plastic plates. On the balancing side, making any change to even one of the baffles results in a measured effect. Solution is not obvious, easy, or inexpensive.

**Direct transport / sub-sampling report:** Jacob showed a slide focused on the May 1-12 direct transport / sub-sampling window, and walked the group through the details of how the sub-sampling estimates are calculated. Doug shared information about the training process and checking that occurs throughout the season to maintain confidence in the estimations used for groups that aren't sampled. Stan emphasized the importance of continuing to run estimates on loads that are later sampled in order to provide ongoing verification.

Nick will be scheduling a conference call with co-managers to review the sub-sampling spreadsheets and discuss potential adjustments to the 2014 protocol.

**LB FSC Biological Evaluation Study**: Re-capture rate was 92% for the coho PIT test group. The data are preliminary, and more will be summarized regarding the preferences between 500 and 1000 cfs operations for sockeye and coho. PSE has just started analyzing the data.

#### UPSTREAM FISH TRAP PROTOCOL

Arnie projected the upstream adult fish trap protocol, updated 9/9/13 (hot off the presses!). Brett explained the two changes to this document:

- Line 10, Chinook ad-clip plus CWT (likely non-Skagit hatchery stray): prior to this change, fish that came in June 1 Sept 15 were all sacrificed, noses removed, coded wire tags sent to lab for reading. From Sept. 16 on, due to wild fall indicator program and our desire for those fish to contribute to spawning, only one of four was sacrificed. That program has been discontinued for six years now, so the co-managers would like for all of those fish to be sampled now, too.
- Line 18, Atlantic Salmon: In the happenstance you get one of those, please sacrifice it, remove and retain the otolith, sent to WDFW lab for reading.

Arnie briefly reviewed the contacts listed for the Baker River upstream fish trap harvest distribution coordination. Folks in the room noted changes and Arnie updated the list real-time.

## OTHER LICENSE UPDATES:

**2012 IHN Report:** Craig provided his analysis of the 2012 IHN outbreak. Arnie forwarded that document to the ARG this morning and briefly walked through highlights of the report with the group.

**Plan / Report Updates:** Arnie walked through schedule of the recently submitted and upcoming reports, thanking everyone for their comments and encouraging folks to keep up the good work.

**Nutrient Enhancement:** License also calls for PSE to make available \$60,000 for the fish co-managers for the purpose of evaluation, planning, permitting, and implementation of a reservoir nutrient enhancement

program. Arnie noted that PSE met with the Fish Co-managers and is working on a MOU to make these funds available.

SA 101 (c) Overview: Arnie reviewed the context for this subpart of article 101 is to operate the hatchery in a manner that enables sequential sockeye enhancement based on (1) two-year reservoir carrying capacity study (now completed), (2) tracking empirical data - smolts and adults (more from this in the next topic), and (3) testing loading to optimize fry output from Beach 4. Arnie introduced SA 101(c) 3 as a consideration for the co-managers who own the decisions when planning for broodstock goals, to consider approaches to loading one or more of the sections as testing of the facilities upper limits. This year's goals are set, so considering this approach should be on our radar for discussion in the next cycle in 2014.

**SA 101 (c)2 – Fry capacity related to food production limits:** The license calls for a phased approach for increasing Sockeye fry capacity from production limits derived empirically from monitoring and analyses of returning broodstock and subsequent smolt production.

Nathanael shared the following "plain English" version of the above license language: As we increase the number of sockeye in the lake, more sockeye will eat more food ...but the food is limited and we don't want to crash the system. To avoid that, we need to recognize when we are approaching food production limits.

Nathanael noted the major sources of available data for this research:

- Numerical data: fry in, smolts out, returning adults
- Morphological data: Length and weight of smolts out, condition of smolts
- Energy density data (caloric data)

## Numerical data summary:

- Baker Lake currently at 577K smolts, R2 estimate 773K capacity
- Shannon currently at 181K smolts, R2 estimate 313K capacity
- Estimated 2013 run size, TBD

## Morphological data summary:

The size and condition of Lower Baker out-migrating smolts were consistently better than those at Upper Baker. Nathanael looked at these data over the last few years and found that 2013 was not an unusual year, but there has been a slight decreasing trend in average length and condition from 2010 to 2013.

- Baker Lake, Age 1 smolts
  - Avg size and condition slightly smaller 2010-2013
  - Still very large (106 mm)
- Lake Shannon, Age 1 smolts
  - Avg size and condition huge (119mm)
  - 2013 baseline data

**SA 108, Gravel:** Jacob reported that we are in the midst of annual sampling. R2 completed the cross section surveys a couple weeks ago. Pebble counts are coming up over the upcoming weeks.

**SA 109, Large Woody Debris:** Were hoping for a big year of LWD collection, but staff has been stretched thin with the projects on their plate this spring and summer. They did make some collections, however, and Jacob will sort and inventory the collection, including a count of root wads. He should have this information available in time for the next round of 505 proposals.

**SA 110, Shoreline Erosion Control:** Jacob reported that the design is being refined, and plans are underway for permitting. Look for construction Oct 2014.

**SA 505, Aquatic Riparian Habitat:** Six projects have been approved over the last two years. Funds for all of them have been allocated. RFP going out shortly for round three. Jacob is looking to November 12 for potential Article 505 Aquatic Riparian Habitat Working Group.

#### CHEERS, NATHANAEL, AND THANKS FOR THE GREAT SUPPORT

This was Nathanael's last ARG meeting, as his team is undergoing a reduction. The ARG thanked him for his great service to the team, noting his expertise with explaining complex data in interesting ways (love those powerpoints!) and wished him the best.

## **MEETING EVALUATION**

#### Went Well:

- Welcome, Ed!
- Plenty of time for everything; full agenda but didn't feel rushed
- Nathanael we've appreciated having you and your great powerpoints
- Networking sessions (unallocated time in the agenda) appreciated

## Do Differently:

• Missed the deviled eggs (but the egg tarts were a great example of adaptive management!)

#### January 14 Agenda:

- Usual ARG welcome and standard updates / reports
- Update from USACE re: Skagit GI
- Update on proposed pool level change
- LB FSC 2013 Performance evaluation. 2014 study
- ARG-TRIG 505 Update