PUGET SOUND ENERGY

Final Meeting Notes

March 4, 2014 / 9 a.m. – 1:00 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, Tom Flynn, Nick Verretto, Doug Bruland, Tony Fuchs (by phone), and Jacob Venard (PSE); Brock Applegate, Brett Barkdull, Wendy Cole, Steve Stout, Edward Eleazer, and Kevin Kurras (WDFW); Bob Helton (Citizen); Jeff McGowan, Kara Symonds, and Dan Berentson (Skagit Co.); Jeremy Gilman (USFS); Craig Olson (NWIFC); Grant Kirby (Sauk-Suiattle Indian Tribe), Jon-Paul Shannahan (Upper Skagit Indian Tribe); Lyn Wiltse, facilitator and note taker, (PDSA Consulting)

DECISION: None today.

2014 ARG DATES: June 10 and Sept. 9 (meeting quarterly at PSE Service Center in Burlington)

ACTION ITEMS
- Kevin — Send out report on feed and Vexar netting experiments when complete.
- Jacob — Set up a meeting with co-managers in April to deal with future fry release locations.
- Tom — Set up a meeting with co-managers in May to agree on interim flows after Oct., 2014 due to the Lower Baker Unit 4 situation.
- Doug — Send to Co-Managers information on UB fry mortality to the co-managers (what ended up at the trap).
- All — Let Nick know if you are interested in joining when PSE visits the USFWS Lab in Abernathy on April 16.

PREVIOUS and/or ONGOING ACTION ITEMS
- Nick — Develop a plot overlaying fry stocking numbers with annual out-migrant collection numbers.
- Jacob — Clean up the proposed reporting schedule, clarifying dates, etc. and send to ARG.
- Co-Mgrs — Review & modify the draft Downstream Fish Passage Protocol.
- Doug — Continue coordinating with co-managers and fish techs.
- Co-Mgrs — Send a draft Fish Production Plan to Arnie ASAP, as per FPFP (Sept. '14).
- All — Review / update the ARG representation list for your organization (ongoing, as needed).

HOT TOPICS, BRCC, & LICENSE PROCESS UPDATES
Tom Flynn shared an overview of the most recent BRCC update. The next in-person BRCC meeting is scheduled for April 22 in Burlington. No hot topics today.

Terrestrial Resource Implementation Group (TRIG): New loon platform was installed by Noisy Creek – to replace the "lost' one, noxious weeds habitat procedures near completion. The work plan for managing the newly acquired properties (Alder Creek and Burpee Hill) is being drafted. They continue to look for properties suitable for elk forage. Their next meeting is March 6.

Cultural Resource Advisory Group (CRAG): This group last met on Feb. 19. They are working on plans for redevelopment work in Lower Baker area. PSE will be adding buildings to support the project and they

also plan to refurbish the clubhouse building and make it available for historic displays. This is expected to be a great community asset!

Recreation Resource Group and Law Enforcement Plan Meeting (RRG / LEP): These groups met last week to coordinate schedules, resources, and new equipment purchases for 2014 season. The USFS got tentative approval (pending email approval as there was not a quorum) for improvements at Panorama Point for expansion of parking area and improvements to boat launch.

Update on Unit 4: Tom reported PSE recently met with FERC re: the Unit 4 schedule. The manufacturer is doing studies on how to retrofit Unit 4 to make it work correctly. PSE will need to meet with Co-managers in May (vs. July as was previously discussed) to agree on the interim flow regime after October, 2014. PSE will then submit the plan to FERC.

Proposal: Grant expressed concern about invasive species, specifically zebra mussels. The Sauk-Suiattle had submitted a proposal to the ARG-TRIG 505 group on this and was told the RRG/LEP was a more appropriate place to seek funding. He will follow up.

SKAGIT GENERAL INVESTIGATION UPDATE

Kara reported that PM Lynn Wetzler sends regrets as she was unable to attend this meeting today. She will be available to present an update on this at our June meeting. Kara and Dan have been very involved with the GI and offered a quick update.

Kara reminded everyone this is a single purpose flood risk reduction study led by Corps, with Skagit County as the local sponsor. There were four alternatives that are being analyzed for an Environmental Impact statement:

1. No action
2. *Comprehensive Urban Levee Improvement Plan*
3. Joe Leary Slough *Bypass*
4. Swinomish *Bypass*

There was a vertical USACE meeting (with Headquarters, Division, and District) to discuss the tentatively selected plan on February 24. At that meeting the Corps District presented its analysis to Corps Headquarters. They are in the process of responding to some questions that came up during their presentation. They anticipate Headquarters *concurrence on a* tentatively selected plan in early April. That action will kick off a concurrent review. The Draft Feasibility report / EIS will go out for official 45-day comment period. Then there are a few other milestones in the process. That end game should be in early 2015. Kara mentioned that all alternatives *provide operational modifications to Upper and Lower Baker, per Article 107*.

HEADWORKS WATER SUPPLY

Tom updated the ARG on the hatchery headworks water supply protection work completed last spring. A big rainstorm last November raised the need for additional, longer-term measures to control erosion and protect the work that was completed last year. PSE is working on getting a contractor on board to do the erosion control. Pat suggested they will need to get permits again. Tom reported they should have a contract in place in the next week or two. To increase slope stability they will be doing some erosion control and possible re-vegetation this fall. Jacob reported that Scott Heller will be providing leadership on the vegetation planning. Temporary measures are currently in place.

ARTIFICIAL INCUBATION, SPAWNING BEACH 4 OPERATIONS

Sockeye AI: Kevin reported the ponding loss has been less than 1% WaHOOO! He did a couple of experiments – one with feed and one with Vexar (plastic) netting. He will share the results of those experiments with all by our June meeting. He was surprised to see the "no Vexar" groups came out better

than those with Vexar. We wouldn't be the only program that doesn't use Vexar – it is not recommended by the manufacturer of the stacks. Kevin will be following these takes individually, noting size differences, etc.

Spawning Beaches: Doug reported they are still having a problem keeping the fish from getting out of the beaches. They will do a thorough inspection and will solve the problem. Maybe the pressure washing washed some of the caulking away? They will look into HTP or aluminum blocks to use in place of the wood. They were able to crowd them into the fry hopper and never pulled the hopper. Winter weather reduced the availability of planting sites. Since Feb. 21st they have been putting fish in one of the AI ponds that will be used for delayed rearing. Blue Tarp will be available this afternoon (Mar. 4). They took the fish off the feed and will plant them on Mar. 5 along with the spawning beach fish. Doug showed photos of the clearing that was done and the gravel that was added to the roadbed in order to access Blue Tarp.

Some fry were released at the boat launch and they got some mortality at the FSC which is now up and running as of March 1. They sampled it on Monday and there were fry in there and associated mortality. It seems like higher numbers are coming out earlier this year at the Beach. They look good – all buttoned up. There doesn't appear to be any loss anywhere. There is no evidence of premature emergence. They are on track to meet the expected 1 million fry. No IHN was seen in the beaches. Kevin is sampling every take of fry. Will hold back 350,000 to make sure they are in good shape for release. The rest will stay in AI pond for next few weeks. Kevin has arranged for some associated outages. They will start ponding coho the end of the month. The monthly and cumulative total for the Beach 4 so far is 186,000 fry.

Hatchery Fish Inventory
Doug reported that circulars 1-4 are holding juvenile sockeye and coho for pit-tag biological studies. They will move these fish to net pens in Upper Baker and some to Lower Baker. Those will be used for the study and recovered at the FSC. A group of 86,000 coho juveniles in raceway #3 will be released in the spring.

22,540 rainbow trout are being held in circulars 5-8 pending release into Depression Lake and provision to the tribes. They are at a catchable size for anglers (now 2.8 to 2.2 fish to the pound). They will do a release before the opening day of fishing. Will release some to the Upper Skagit Tribe and some before Memorial Day.

Release Sites:
Blue Tarp: Jon-Paul pointed out that there were communication issues around Blue Tarp not being available. There were lots of emails sent out in what appeared to be an uncoordinated effort. The co-managers were caught off guard that Blue Tarp had become inaccessible. They only heard "we're not plowing. We've got to dump fish." All agreed there was a need to work on the logistics of getting the right information out. Doug and Kevin are point people for this. They will work more closely on communicating issues such as this in the future. Tom explained that with all the ice and 1½ ft. of snow the road seemed unsafe. The driver reported the road conditions unsafe for people and equipment. The truck slipped on Feb. 18 when they were backing down at the release site. At the same time PSE lost power for a couple of days due to downed tree in the line. Tom reported as long as PSE has clearance to do the occasional grading and gravel augmentation they need to do at Blue Tarp ramp, they should be able to make this release site useable for the next several years.

Channel Creek: Kevin discussed the possibilities of this site with Jon-Paul, Steve, and Jeremy. He believes the old apron is doable if we get a long enough hose ~ 400 ft. Jeremy said okay to take the trees out. No improvements have been made at this point. The road has been decommissioned. It terminates and there is top soil and a swale there. There was no agreement about using this as a release site. PSE has a contractor scheduled to be up there this fall to finish the site decommissioning. If Co-Managers want to do some work for the release, and then afterward restore it to the condition it was last fall, PSE would be fine with that. If PSE is asked to release at a site, they need to be able to access it. Tom doesn't believe it is PSE's responsibility to provide that access. When asked if it might be possible to use the Channel Creek release site this year, Tom replied that if the co-managers can get them access, PSE would provide snow plow services. *PSE does not see a requirement in the license for PSE to fund construction of new fry release sites.*

Next steps: There was a preliminary technical working group meeting on release sites and Jacob will set up another meeting in the next few weeks.

LOWER BAKER FSC SCREENS

Nick reported the last fish passage operations meeting was on January 7. The first half of that meeting focused on 2013 (1st year) LB FSC evaluation results by R2. They also reviewed 2014 plans – release groups of sockeye and coho ten days later (2,400 of each species). Upper Baker: long term monitoring releases 1,500 sockeye and coho around mid-May.

Screen issues at Lower Baker: Nick met with Ed and another hydraulic engineer to inspect both FSCs to better understand the issues we had last year, including fry mortality at the LB FSC and the lengthy balancing effort that extended into the run-up of 1st year ops. As they reviewed inspected the screens and baffles for consideration of conceptual plans for screen modifications they ended up identifying other areas to address. They plan to employ interim measures this year and next while they work out the long-term modifications.

Interim measures: During field inspection they found they didn't have good hydraulic control at the primary screen channel ramp. Nick briefly recounted how adjustments to rate of flows can be made by moving the baffles up and down. There is a small gap between the screen face and the baffle. They found water was flowing through the screens and then shooting down through the adjacent baffle and the lower baffle as well. Nick walked us through photos of the screens and baffles that control the flow. They designed and installed baffle plates to close these off in order to moderate the high approach velocity at that ramp area, completing the installation February 11. Fry, when they are migrating, will seek edge and protection so they will naturally migrate along the edge of that screen, where the problem was located. Hydraulic control of screen flow is through full-height segmented baffles (i.e., differential adjustment to flow can be made on the horizontal axis only). Perforated plate baffle holes aren't uniform top to bottom, so this will likely require modification. They took porosity measurements of all the individual frames on each side of the channel to determine how to adjust these over the next two years to improve the current conditions until the long-term fix can be completed. This interim adjustment will include a reduction in head loss to moderate the differential approach velocity across the screen channel.

Long-term fix: Present plans are to adjust the porosity of each of the frames so they are all equal. During the site visit, the decided to pursue installation of downstream baffle porosity control plates (i.e., installation of perforated plates of varying porosity) to equalize porosity in each of the frames within any one vertical control section. The porosity measurements taken on Feb 11 will assist development of this concept. The modification would be followed by another rebalancing effort by a hydraulic consultant prior to start up. The work is presently planned following the 2015 outmigration season. PSE submitted an interim hydraulic evaluation report to the FERC on Feb 28, and requested an extension of time for completion of the final hydraulic evaluation. The biological evaluation was included in the submittal.

Upper Baker FSC

Numerous years of operation and controlled releases of newly emergent fry indicate that these screens are operating well. The material in the primary screens for this FSC are vertical louvers, and steel on steel in the secondary screens at both UB and LB. The primaries have to be moved when we switch from 500 to 1000 cfs. The Services have prescriptive authority under Section 18 of the Power Act. These are operating on a parallel authority with FERC so FERC can't authorize anything until they get an approval letter from the Services.

Upstream Fish Passage

NMFS Section 18 prescriptions specify higher trap entrance flows than what was installed at the Lower Baker upstream trap. PSE negotiated a reduced flow based on historical evidence of non-delay and its commitment to confirm that reduced entrance flow (relative to the increased river flow with the new

powerhouse discharge capacity) has no adverse impact on adult entrance. A study is to be conducted following commissioning of the new powerhouse. Due to the delayed commissioning of the powerhouse (i.e., increased river flow), PSE is reviewing commitments made in the plan and will consult with NMFS prior to submittal to FERC of a revised plan or request for schedule extension.

Upstream Fish Trap: The trap is in operation and they are checking for fish on Mondays, Wednesdays, and Fridays. They will continue to do this until they do the annual cleaning in April (will likely take two - four weeks to complete).

Other Operations:
Hatchery Chillers: Brett Barkdull asked about status of PSE's response to the Fish Co-manager's request for the purchase and installation of a water chiller system for the Baker Hatchery. Tom replied that PSE expects to provide a response letter to the request by the end of March.

OTHER LICENSE IMPLEMENTATION UPDATE
FERC Boundary
License Article 304 – Tony reported PSE is revising the following exhibits:

- Exhibit A (what is in the project boundary)
- F (Construction Drawings for the FSC, Unit 4, etc.)
- G (the map of the project boundary)

They are removing the old spawning beaches from the boundary, using the same guidelines for where the boundary should be for the elevations and the trail. They need concurrence from the Forest Service on the boundary on Forest Service lands. Carol Gladsjo is the Forest Service contact for this and suggested we review the proposed new boundary at the ARG. Carol will be seeking approval from the Ranger.

Next steps: PSE will submit the revised exhibits with the proposed FERC boundary change to FERC. If they agree they will issue exhibit map numbers and PSE would update the maps.

Plans and Reports
The 2012 SA102 aquatics comprehensive report review has concluded and PSE is finalizing this report for submittal to FERC. Arnie reminded all that we are now moving into the 2013 annual reports with the 108 and 109 article reports due out by the end of March for ARG review.

SA 104, Fish Connectivity Implementation Plan (FCIP)
Arnie has assumed responsibilities for this article, which has developed into a unique programmatic fish way for inter-basin connectivity between Lake Shannon and Baker Lake. He reported the annual consultation meeting with the USFWS, NOAA Fisheries and WDFW for the FCIP was February 28 down in Lacey with Steve Fransen, Lou Ellyn Jones, Brock Applegate, and Dr. Maureen Small (w/the WDFW Molecular Genetics Lab) in attendance. At the meeting they reviewed results from 2013 activities and genetic analysis along with confirming proposed 2014 activities and associated protocols and schedule incorporated into the FCIP's OM and QA/QC. At the meeting all concurred on the past data and the plan for 2014 which was to continue with the same char handling protocols that were used in 2013. Native char management objectives support the development of transport protocols that preserve the reproductive potential of each basin's genetically unique native char population. The only suggested changes were minor, i.e. to reformat a certain clause about release of genetically unassigned char, so the instructions are easier to recognize and understand; and also, for PSE to notify co-managers when a snorkel survey is cancelled. The FCIP incorporates protocols into an operational plan.

Implementation activities:

- Active collection (angling) and transport
- PIT tagging to identify individuals
- Tissue sampling for DNA analysis to link individuals to genetic origin

- thus, enable char to be transported upstream, or downstream or returned according to protocols (that preserve reproductive potential for each basin's genetically unique char population)

Char Management Protocols:

- Genetic analysis on all char over 40 mm and PIT-tagging of all char 125 mm or longer (Except UFT: >300 mm).
- Char known to be out of basin origin are released in the Skagit River
- Upstream Fish Trap (UFT): Char of Sulphur Creek origin were transported to Lake Shannon, char of Upper Baker origin, as well as PIT-tagged char whose genetic analysis had not been completed, were transported to Baker Lake
- Upper and Lower Baker FSC" Released into the Skagit River with exception of Sulphur Creek origin char captured in the UB FSC that were released into Lake Shannon
- Char captured by active collection (angling) in Lake Shannon
    - Returned to Lake Shannon of Sulphur Creek origin
    - Released in Baker Lake if of Baker Lake Origin
    - Released in the Skagit River along with out-of-basin origin fish if of Baker Lake origin and captured from December through May
    - If origin unknown, released back into Lake Shannon
- Char captured by angling in Baker Lake
    - Returned to Bake Lake Shannon of Baker Lake origin
    - Released in Lake Shannon if of Sulphur Creek origin
    - Released in the Skagit River if of out-of-basin origin
    - If origin unknown, released back into Baker Lake

- The protocols in 2013 were largely the same as for 2012, except for further reductions in handling at the upstream fish trap. Arnie walked us though picture representation of these protocols

Arnie shared results of 2013 collection by fish facilities and by angling. Total (for all ages, all facilities and active capture) was 167 (66 from fish facilities, and 101 from angling). The last four years show we are moving more char than in the past through these collection efforts. Those released to the Skagit River were 63, Lake Shannon was 42, and Baker Lake was 59. Recaptures of PIT tagged char in 2013 included 16 from Baker Lake and 5 from Lake Shannon, and all transported and released according established protocols.

Arnie shared results of snorkel surveys, however not an activity in the sense of the article's FCIP objective for "programmatic fishway," snorkel surveys have been conducted out of earlier investigations of char in the Baker basin. PSE continued snorkel surveys in 2013 between Aug. 20 and Dec. 12 in the Upper Baker River and Sulphur Creek. In 2013, 77 char were observed in the Upper Baker River, and 17 in Sulphur Creek. This along with Baker basin char historical data for collection, angling and snorkeling are included in the annual report for SA 104.

Results of genetic studies have shaped the goals of this program: Tissue samples are done by WDFW – collected from fish collection facilities and angling between Nov. 8, 2012 and Nov. 7, 2013 and were submitted to WDFW for analysis in June and November, 2013.

<u>Genetic Analysis Summary</u>

- Upstream Fish Trap: 3 of 4 adult bull trout collected originated outside of the Baker Basin. The other was of Upper Baker origin.
- Lake Shannon: 52% (25) collected were from Sulphur Creek, 42% (20) assigned to Upper Baker Basin, and 6% (3) were unassigned.
- Baker Lake: 83% (54) assigned to Upper Baker basin, 5% (3) to Sulphur Creek, 9% (6) were unassigned. 3% from the greater Skagit Basin.

Char in both Lake Shannon and Baker Lake have maintained high levels of genetic integrity with little evidence of mixed ancestry. The FCIP provides a unique programmatic approach to a "fishway" by providing reproductive connectivity for genetically unique bull trout populations, as the primary focus of the connectivity efforts. Current char management objectives support active collection of native char, DNA sampling to determine geographic origins, and to transport char to their appropriate sub-basins.

Hence, 2014 proposed and confirmed activities include continuation of:

- Capture and transport from Baker Project facilities
- Angling in Lake Shannon
- Angling from UB FSC
- Sulphur and UB River snorkel surveys (conditions permitting)-Arnie discussed that safe field conditions are paramount to PSE. Hence, PSE will attempt surveys, only when conditions are permitting (safety, access, flow, etc). Last year PSE encountered difficult trail conditions in the Upper Baker River.
- WDFW genetic analyses
- SA 104 Annual report.

SA 505, Aquatic Riparian Habitat

The Article 505 Aquatic Riparian Habitat Working Group (ARG-TRIG) met again January 23 to consider proposals for this year. Jacob announced that terrestrial biologist Scott Heller is the new Team leader for this group. They agreed to fund cavity nesting bird species investigations and also riparian restoration projects in the Skagit Basin (a handful of sites). Still up for discussion is modification to the 1152 road project. Jacob will let Scott know that Phil is out for up to 6 weeks and the Forest Service contact in the meantime is Jim Mitchell.

Little Sandy Creek Project

Jeremy reported there is a change to the budget for this project since the original estimate in January of 2013. Originally they proposed 8 and 16 ft. pipes. They have had to replace the 16 ft. pipe with a bridge. The 8 ft. pipe has been changed to a 14 ft. bridge to satisfy the Forest Service ALP. There are additional safety features required because it is on the main line. Jeremy will provide all of the alternatives available to the group at the next 505 meeting. Carol Gladsjo is the contact for invoicing on this. Jacob will follow up with her regarding the invoice PSE has currently.

SA 101c2, Fish Propagation

Doug reported the analysis of the caloric samples collected in 2013 is still pending. In the meantime the samples are being held in a freezer. Doug is coordinating the logistics with Stan, as we assume this will occur again this year.

MEETING EVALUATION

Went Well:

- LYNC system worked (finally!)
- Full house
- Sense of humor

Do Differently:

- Missed Stan

June 10 Agenda Topics:

- Usual ARG welcome and standard updates / reports
- Update from USACE re: Skagit GI (approx. 30 min.)
- Update on Unit 4 (flow management after October, 2013)
- Standard updates on hatchery and fish passage

- Other license implementation updates
- Little Sandy Creek project budget (?)
- Sauk-Suiattle adult sockeye tagging study