# BAKER RIVER PROJECT RELICENSE

## Aquatic Resources Working Group

October 17, 2002

10:00 a.m. – 7:00 p.m.

Baker Lake Lodge

## AGENDA

1. Review Agenda and Minutes
2. Review Relicensing Schedule
3. Fish Passage Technical Working Group Report
    - 2003 Downstream Fish Studies
4. Instream Flows Update (A9)
5. Studies: A14, A16, A20, A25, A26a, A26b, 29, (36 and 17), 37
6. HYDROPS model demonstration
7. Action Items
8. Update from Solution Team Meeting
9. Additional Issues?
10. Set next agenda
11. Evaluate meeting

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## MEETING NOTES

***Aquatics Working Group Mission:*** *"To identify issues and develop solutions and recommendations addressing fish and aquatic resource interests related to the Baker River Project and its operations, leading to a settlement agreement."*

**Fish Team Leader**: Arnie Aspelund, 425-462-3442, arnie.aspelund@pse.com

**PRESENT:** Arnie Aspelund (PSE), Nick Verretto (PSE), Cary Feldmann (PSE), Bob Barnes (PSE), Arn Thoreen (Skagit Fisheries Enhancement Group), Sue Madsen, Emily Greenberg and Phil Hilgert (R2), Bill Reinard (Wildcat Steelhead Club), Steve Fransen (NOAA Fisheries), Margaret Beilharz (USFS), Gary Sprague and Mark Downen (WDFW), Chuck Ebel (USACE), Dean Grover, Jon Vanderheyden and Greta Movassaghi (USFS), Ruth Mathews (Nature Conservancy), Stan Walsh (Skagit System Cooperative), Rod Sakrison by phone (DOE), Curtis Koger and Jenny Hilden (AESI), Lyn Wiltse and Sarah Sturing (PDSA Consulting, Inc.).

**FUTURE DATES AND LOCATIONS:**
Nov. 14, Dec. 12 from 8:30-3:00 at USFS Office in Mountlake Terrace.

**Tentative October 17 Agenda**
**10:00 – 7:00 p.m. at Baker Lake Lodge**
1. Review Agenda and Minutes
2. Review Relicensing Schedule
3. Fish Passage Technical Working Group Report
   - 2003 Downstream Fish Studies
4. Instream Flows Update (A9)
5. Studies: A14, A15, A16, A20, A25, A26a, A26b, 29, (36 and 17), 37
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**NEW ACTION ITEMS**

- Sue – Get 1913 topographical map to Jenny
- Greta – Get Carrie Paulson map to Sue
- All – Get comments to Arnie regarding A14a -draft erosion mapping & photo documentation by Oct.31
- All – Get Nick feedback on A25 by end of the day Oct.31
- Mark – Get Emily juvenile density for multiple age classes in the Sauk
- Greta – Get Emily density info on Little Park Creek (collected by USFS & SSC)
- Phil – Check with Pete Castle regarding chopping the tails off fish carcasses

**CONTACT LOG FORM**

We discussed how to use this form. A copy of the form was included in our packets. Members will use this form according to the protocol called out in the Communications Protocol. Where you wish to record an off-line conversation you had with someone re: this relicensing process, use this form to capture salient points and route it around to everyone who participated in the discussion and once they have all approved it, send the form to Connie Freeland. She will put it in the Public Document Room. This form will be put on the website in the near future.

**REVIEW LICENSE SCHEDULE**

Arnie distributed a single summary sheet of the relicensing schedule and the schedule for aquatics studies. He will update the schedule to include the FERC meetings at the end of the month. There will be a meeting to discuss schedule and process for Section 18 and ESA at the Forest Service Building in Mountlake Terrace from 9-3 and the 31st at the Department of Ecology in Bellevue to discuss process and schedule for 401 Water Quality Certification and CZMA.

Arnie posted the detailed Graphic representation of the schedule for all to review.

**FISH PASSAGE TECHNICAL WORKING GROUP REPORT:**
**2003 DOWNSTREAM FISH STUDIES**

Nick reported that the Technical Working Group met on Oct. 8 and reviewed study results to date. They will meet again on Nov. 5. They will be going on a field trip to see the Howard Hanson model at ENSR in (Redmond) on Dec.11.

The PIT tag and the kelt radio telemetry studies are yielding preliminary results.

**REPORT FROM INSTREAM FLOWS TECHNICAL WORKING GROUP**

See A9 in matrix below.

**STUDY REQUEST SUBMITTALS/STUDY PLAN DEVELOPMENT**

| Study # Title | Notes/Next Steps |
|---|---|
| A01.A Reservoir Tributary Habitat Surveys | Linked to A26b. ACTIVE |
| A01.B Reservoir Tributary Biological Surveys | ACTIVE |
| A01.C Reservoir Tributary Delta Surveys | The results of the spring 2002 field efforts will be incorporated with A-01a, A-01b and A-26b into a single report. ACTIVE |
| A02 LB River Habitat Mapping | ACTIVE |
| A03 Reservoir Fish Population Characteristics | Links to A19 and A26a. |
| A04 LB/Skagit River Flow, Gaging | Links to A9. ACTIVE |
| A05 Water Quality Sampling | ACTIVE |
| A06 UB Passage Design Baffle Modification | Complete. |
| A07 Lower Baker Forebay Bathymetric Survey | Complete. |
| A08 UB Passage System Evaluation | Complete. |
| A09A Skagit River Flow and Habitat Assessment | **Mainstem Flow Transects:** Things are on track to get high flows. So far we have measured our 24 transects at 4k cfs (low) and 11k cfs (medium).<br>**Off Channel Habitats:** We are measuring habitat conditions and velocities at three side channels and six sloughs as described in the handout describing field procedures distributed at the September meeting. So far we have measured all sites at 4k cfs (low) and all but 3 sloughs at 11k cfs (medium). |
| A09B Salmonid Redd Selection and Maintenance in the Middle Skagit in Response to River Fluctuation from Hydropower Peaking | Phil to provide a record of the recent conference call where A-09b was discussed. If it rains following a spawning survey, R2 will immediately conduct a follow up survey to assess behavioral response to flow change. |
| A09C Distribution, Timing and Depth of Salmonid Redds | Spawning surveys are continuing approximately every two weeks. Modifications to survey protocol – do not place green bricks on all redds, only on chinook redds at risk (at a depth of less than 2 feet). Place blue bricks on all chum redds. |
| A09D Distribution, Timing of Salmonid Fry | Not discussed at this meeting. We just got the NMFS collection permit (August 2002). ACTIVE |
| A10 Baker River Delta Habitat Assessment-Char | Complete. Note: USFW is concerned with impacts to char and indirectly to bald eagles through chum and also to cutthroat. |
| A11 Nutrient Addition | Tie to A26. |
| A12 Instream Flows for Bio-diversity | Split between R-A21 & R-A09. |
| A13A Water Quality Impacts of Human Uses of the Reservoir and Adjacent Shorelines. | Removed from list of studies this group will address, reported by Brady in September. Gretta reported the USFS will pursue this in the recreation working |

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| | group. |
| A13B Water Quality Impacts on Aquatic Habitat | Removed from list of studies we will address. Tabled for now. Awaiting results of A14a. |
| A14A Reservoir Shoreline Erosion | Jenny (AESI ) reported that the aim of this study is to document existing erosion and deposition features along Baker and Shannon shorelines. They are also working on how to estimate annual bank retreat. (Acreage lost for high and severe areas.) They started by doing a remote sensing analysis – were surprised to find that not much geologic mapping had been done. Field inventory was conducted at the reconnaissance level. She had 3 days to do Shannon (at levels between 422-424) and 5 days to do Baker (at levels between 680-692). She noted several landslides. She discussed the maps that she included in the handouts. Hoping to complete this work by December. Members were asked to provide input to Jenny on the mapping. ACTIVE |
| A15 UB Delta Scour | Currently doing field work to support this study. Put in eight transects and 5 scour monitors, and surveyed thalweg profiles in the Delta Left and Delta Right distributary channels. Lost all the scour monitors in the first week. Data gathered this year will be useful for isolating the effects in the drawdown zone since flows have remained steady this fall. |
| A16 Lower Baker River Alluvial Fan Assessment | Sue discussed the proposed approach with Devin Smith of the SSC. Sue and Devin will also be meeting with the ACOE (re: Little Baker project) next week to discuss linkages between the two studies and coordinating work efforts. Next step will be development of a study plan |
| A17 Tributaries Surveys Upstream of Barriers | Study request pending from USFS. This is related to A36. Brady is in the process of re-working it. |
| A18 Baker River Survey Upstream of 1 km. | Merged into A01a and A01b. ACTIVE. |
| A19 Review Limnological Information | This study has been combined with A26. |
| A20 Large Woody Debris Management | Phil reported that they are using three different methodologies to gain an understanding of the amount of woody debris coming in, where it goes, and how much might be expected over the term of the license. The first method is using 9 photo sets from 1940-1999 to extrapolate the average amount of LWD in the system over time. The second method involves talking with operators and others with knowledge of the amount of wood coming in over the years and how it has been managed. The third method being used |

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| | involves integrating a Canadian model with a model we have developed to help us predict future LWD based on such attributes such as slope, shoreline retreat, tributary widths, etc. ACTIVE |
| A21 Skagit Wild & Scenic River Values | This is being addressed by A9 and A24. |
| A22 Baker Lake Trout Impacts Evaluation | No longer necessary due to change in management direction in favor of cancellation of non-native trout stocking in the reservoirs. Removed from list of studies we will consider. |
| A23 Baker River Wild & Scenic River Values | This is being addressed through A15. |
| A24 Hydrologic and Geomorphic Analysis | ACTIVE |
| A25 Unnatural Predation | Nick discussed the study plan with Stan and incorporated his feedback into the study plan. Work on this will start in mid January. The primary focus will be predation at collection and release points. |
| A26A Reservoir Limnology-Production Potential | Nick talked with Brady, Stan, Gary and Phil. They came up with a consensus to send this to a new consultant. The scale data is still being entered – will be ready by end of September so we are running two weeks late from the original schedule. All other data are ready to go. Nick is putting together a list of possible consultants for Stan and Gary to review. We should know who the consultant is by our October meeting. |
| A26B Tributary Production Potential | Emily discussed outline: (1) General Calculation, (2) Suitable Habitat in Tributaries for Smolt Production Defined by Spawning and Rearing Distributions and (3) Example Comparison of Available Smolt Production Potential Model Estimates Using Consistent Assumptions of Suitable Habitat. We agreed that 5.5m would be the dividing line between large and small streams. We will look at different life histories for char. Stream gradient categories which are consistent with SSHIAP: 0-1%, 1-2%, 2-4%, 4-8%, 8-20% and >20%. Less than 3-4% typically have pool-riffle or plane-bed morphologies. Between 4-8% typically have step-pool morphology. Greater than 6-8% are typically cascades. Production potentials for every species except native char will be decreased by half for each species in glacial streams in comparison to estimates for non-glacial streams. Increased density estimates of coho and cutthroat will be used for ponded habitat. |
| A27 Middle Skagit Incubation Flows | Addressed in A9. |

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| A28 Fish Passage-Reservoir Management | This is being developed in the Fish Passage Technical Working Group. ACTIVE |
| A29 Estimate Sockeye Production from Different Incubation Sources | We are still awaiting comments on the Study Request. Nick will meet with Stan to discuss. |
| R-A30 Near-Field Smolt Behavior | Coordinated through Fish Passage Tech. Group. 2002 Field effort completed, data analysis underway-preliminary results are being reviewed by the group. |
| R-A31 Fish Passage-Far Field Smolt Migration | Coordinated through Fish Passage Tech. Group. 2002 Field effort completed, data analysis underway-preliminary results are being reviewed by the group. |
| R-A32 Fish Passage-Kelt Radio telemetry | Coordinated through Fish Passage Tech. Group. 2002 Field effort completed, data analysis underway-preliminary results are being reviewed by the group. |
| R-A33 Fish Passage-PIT Tag Migration | Coordinated through Fish Passage Tech. Group. 2002 Field effort completed, data analysis underway-preliminary results are being reviewed by the group. |
| R-A34 Fish Passage-Downstream Run-Timing Correlation | Coordinated through Fish Passage Tech. Group. |
| R-A35 Fish Passage-Upstream Run-Timing | Coordinated through Fish Passage Tech. Group. |
| R-A36 Native & Wild Inland Fish Population Assessments | Mark incorporated feedback from Brady and Dean on this (USFS). The main focus of this study is to compile existing data and do some genetic sampling to determine the genetic makeup of Rainbow trout in Baker Lake. This study would address a conservation issue (protection/support of native species) as well as recreation. There is an opportunity to piggyback onto the genetic research being conducted by Seattle City Light for rainbow stocks elsewhere in the Skagit basin. Mark is the keeper of those samples and is willing to hold them until we have obtained our samples so they could be run together. Many expressed concern that we would be able to get the 100 samples requested to conduct the genetic profile. After considerable discussion, we agreed to have Mark continue to flesh out the details of this in the form of a study plan. Might we consider a phased approach? All agreed that, where possible, we would take advantage of collection efforts in other studies. We will discuss this further at our November meeting to determine next steps. |
| R-A37 Without Project Alternative (evaluation of Aquatic & Riparian Habitat) | Focus of this is to try to quantify aquatic habitats that were historically available in the Baker River Basin. The historical analysis will help us to assess future potential of the Basin in the Without Project condition. Sue and Phil met with Brady, Stan, Gary |

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| | and PSE (incl. Tony Fuchs, team leader of the terrestrial working group), as this ties to T7b. Sue discussed 3 tasks: (1) Classify and map historic aquatic habitats to determine future potential habitats. (2) Define project removal approach. (3) Make predictions regarding future conditions based on 1 and 2. What would channel recovery look like over time (10 year increments) 40 or 50 years? We won't be able to predict future conditions without making assumptions regarding how the project would be removed. We need to make similar assumptions here across all resource working groups so there will be a consistent approach/description for the NEPA analysis.<br>Action Items:<br>• Need to make assumptions regarding historic ecosystems.<br>• Complete mapping of historic habitats. Use same gradient breaks as for A26. Include off channel habitats (wetlands, etc.).<br>• Define approach to get to Without Project condition – will contact Elwa folks, etc.<br>The idea is to enlist participation of someone experienced in this arena to join our effort. It is *not* to do a detailed analysis of every possible scenario of dam removal. We will include Louis-Berger who is the EA contractor hired by PSE to do the NEPA analysis. When we have looked at outcomes from dam removal, incremental vs. "blow and go", we will get endorsement from the solution team before proceeding. After a grueling discussion we agreed to discuss this further at our Nov. meeting. |
| R-A38 Bull Trout Population Assessment & Risk Analysis | New study request submitted by Mark Downen, WDFW. Mark asked for a review and for discussion at the November meeting. |

**HYDROPS MODEL DEMONSTRATION**

Bob gave a HYDROPS model demo and discussed with the group how they might run various scenarios through the model. He also explained the process the Economics Working Group is using to establish a hydrological baseline for wet, average, and dry years. He asked for feedback on sample representative years, where the power costs were equal.

**INTERIM PROTECTION PLAN**

After some discussion the group came to the conclusion that if there is no change, we will check in via conference call at month end. In the meantime, PSE will pulse for 4 hours from 7:00am – 11:00am.

**LITTLE BAKER RIVER RESTORATION PROJECT**

Arn Thoreen gave a powerpoint presentation of the proposed Skagit Fisheries Enhancement Group Project to restore the Little Baker River distributary channel. The proposed project is sponsored by the Town of Concrete with assistance and feasibility funding from the Army Corps of Engineers. The proposal to restore water from the Lower Baker River through the site of the relic distributary channel would add over a mile of channel with areas for chinook and steelhead spawning and incubation and juvenile rearing, adult spawning viewing structure for the public and downstream acclimation pond and refuge.

**REPORT ON OLD ACTION ITEMS**

- Ruth: Talked with Len Barson re: this assignment. Len will bring a draft Interest statements and accompanying issues for the Nature Conservancy to the October 30 Solution Team Meeting.
- Rod: Sent copy of paper to Phil.
- Lyn: Called Mark Downen and invited him to attend our meetings. He attended and we appreciate it!
- Nick: Set up the HYDROPS model demonstration at the Lodge for our meeting.
- Arnie: Sent expense reimbursement form to Dick Raisler.
- Arnie: Brought Contact Log form sample to October meeting.

**SOLUTION TEAM UPDATE**

The Solution Team has delayed their October meeting to October 30 to give Working Groups as much time as possible to come up with ideas for PMEs. FERC representatives will be in attendance.

**MEETING HANDOUTS**

- Agenda for October 17 & 18, 2002, September 12, 2002 meeting notes, updated mail list, contact log form, travel expense reimbursement form, revised study request index
- Summary Schedule – Baker River Relicensing, FERC #2150
- Middle Skagit River Instream Flow Study (A09) - Progress Report: 14 October 2002
- Study Request (A37) – Future Without Project Conditions Proposed Study Approach (October 15, 2002)
- Study Request (A37) – Evaluation of Aquatic & Riparian (low gradient) Habitat Occurring under the "Without Project Alternative" (July 9, 2002)
- Study Request (A26B) - Habitat Suitability Assumptions: Production Potential Estimates Baker River Watershed (October, 2002)
- Study Request (A36) – Native and Wild Inland Trout Population Assessment and Fishery Enhancement (Feb. 24, 2002, Oct. 7, 2002)
- Study Request (A38) – Bull Trout Population Assessment and Risk Analysis (Oct. 7, 2002)
- Study Request (A9b) – Salmonid Redd Selection and Maintenance in the Middle Skagit in Response to River Fluctuation from Hydropower (Oct. 14, 2002)
- Study Request (A25) – Areas of Unnatural Predation Opportunity (August 28, 2001)

- Draft Protection, Mitigation and Enhancement Measures Scoping-Baker River Relicense Aquatic Resources Working Group
- Energy Flow Analysis
- Reservoir Shoreline Erosion and Deposition Study Plan (A14a) – Draft Erosion Mapping and Photo-Documentation, prepared by Earth Sciences, Inc (October 17, 2002)
- *Hydrop results. Table of Energy Inflow Analysis dated October 3, 2002 showing the annual benefits for each of the 57 years of hydrological record. Combined annual benefit table for Upper and Lower Baker ranked by exceedance percentage for 57-yr record. Statistical analysis of high, median and low flow years based on economic values, showing very tight grouping of three to four individual calendar years in category.*

**PARKING LOT**
- State agency presentations re: mandates (agency direction)
- Create a master list of possible studies across all working groups and share with all
- Access to the Baker River Project hourly operational model (Charles Howard)
- Participate in Lower Skagit Work Group for native char
- Create Overall "Study Plan" for Studies that will drive the Relicensing Process
- Address Trap & Haul – other species
- Do we continue to collect Little Park Creek density info? Funding?

**EVALUATION OF MEETING**
**Well-Dones**
- Liked the long day
- Great location
- Addressed a lot of issues

**Opportunities to Improve**
- Needed more people
- Missed Arnie's food
- *LONG* day
- Too much time spent on "Without Project" discussion

**What's Hot?**
- Flood planning leading to drought planning
- "Without Project" approach

**Tentative November 14 Agenda**
**8:30 – 3:00 p.m. at USFS Building in Mountlake Terrace**
1. Review Agenda and Minutes
2. Review Relicensing Schedule
3. Settlement Process - PMEs
4. Fish Passage Technical Working Group Report
5. Instream Flows Update (A9)
6. Studies: A01A, A02, A05, A09A, A09B, A09C, A26A, A26B, R-A37, A38
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