



BAKER RIVER PROJECT RELICENSE

Aquatic Resources Working Group

August 14, 2003

8:30 a.m. – 3:00 p.m.

U.S. Forest Service

Conference Room A/B (425-775-9702)

21905 64th Avenue West, Mountlake Terrace, WA

AGENDA

1. Review Agenda, Minutes, Schedule	8:30 – 8:45
2. Settlement Process- Status of RESOLVE Meetings	8:45 – 10:00
<i>Break</i>	10:00 – 10:15
3. Fish Passage Technical Work Group Report	10:15 – 10:45
4. Report from Technical Scenario Teamlet	10:45 – 11:00
5. Report from Instream Flow Technical Working Group (A09a)	11:00 – 12:00
<i>Lunch (meeting snacks or bring your own)</i>	12:00 – 12:30
6. Review Studies: updates on A9 (b,c,d), Review study schedule for updates (ARWG 7-10-03.doc)	12:30 – 2:30
7. Action Items	2:30 - 2:35
8. Update from Solution Team Meeting	2:35 - 2:40
9. Additional Issues	2:40 - 2:50
10. Set Agenda for September 11 th 2003 (NOAA-Sandpoint)	2:50 - 2:55
11. Evaluate Meeting	2:55 – 3:00



June 12, 2003

Driving Directions to US Forest Service Office:

- 1) Driving North from Seattle (or South from Everett) on I-5, take the 220th St. SW exit (exit 179).**
 - 2) Turn west (right if from southbound I-5, left if from northbound I-5) onto 220th St. SW.**
 - 3) Drive west about a block and turn right onto 64th Ave W.**
 - 4) The office building is about ¼ block down the street on the right side of the road.**
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BAKER RIVER PROJECT RELICENSE

Aquatic Resources Working Group

August 14, 2003
USFS Building
Mountlake Terrace, WA

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, Paul Wetherbee, and Doug Bruland, (PSE), Arn Thoreen (Skagit Fisheries Enhancement Group), Phil Hilgert and Sue Madsen (R2), Chuck Ebel (USACE), Lorna Ellestad (Skagit County Public Works), Scott Lentz (by phone) and Greta Movassaghi (USFS), Gary Sprague (WDFW), Gene Stagner (USFWS), Steve Fransen (NOAA Fisheries), Dick Raisler (Fidalgo Fly Fishers), Rod Sakrison (DOE), Stan Walsh (SSC), Ruth Mathews (The Nature Conservancy), Bill Reinard (Wildcat Steelhead Club), Marc Daily (Meridian Environmental, Inc), Lyn Wiltse, facilitator and Mary Jean Bullock, note taker (PDSA Consulting, Inc.).

FUTURE WORKING GROUP DATES AND LOCATIONS (2nd Thursday of each month): September 11 (SEE LOCATION BELOW), October 9, November 13, December 11, 2003 from 8:30-3:00 at USFS Office in Mountlake Terrace.

NOTE: Our next meeting (September 11) will be at NOAA, 7600 Sandpoint Way NE, Building 9, Room A. Directions were distributed at the meeting. When asked at the gate for a contact person, say: ARNIE ASPELUND and that you are there for the Baker Relicensing Aquatic Resources Working Group Meeting in Room A of Building 9.

AGENDA

Mount Lake Terrace -8:30 – 3:00 p.m.

8:45 – 9:00 Review Agenda, Minutes, Schedule

- 9:00 – 12:00 Technical Working Group Reports:
- RESOLVE Meetings
 - Fish Passage
 - Expert Workshop Report
 - Technical Scenarios Teamlet
 - Instream Flows/HYDROPS
- 12:00 – 12:20 LUNCH
- 12:20 – 1:20 Finish Discussion of Instream Flows/HYDROPS
- 1:20 – 1:20 BREAK
- 1:20 – 2:00 Other Studies:
- A37: Without Project
 - A16: Lower Baker Alluvial Fan Technical Working Group Report
 - A14a: Shoreline Erosion: Cross Resource Reactions- Next Steps
- 2:00 – 2:05 Action Items
- 2:05 – 2:10 Update from Solution Team Meeting
- 2:10 – 2:15 Additional Issues?
- 2:15 – 2:25 Set agenda for September 11, 2003 Meeting
- 2:25 – 2:30 Evaluate meeting

NEW ACTION ITEMS

- ALL: If you can't attend a RESOLVE meeting, please get your interests to a colleague or to Dee ahead of time.
- Arnie: Touch base with Mark Downen re: his participation in this group.
- Mizan: Bring an overview of floating surface collector model to our next meeting.
- Mark: Check with Rob Mohn to see if the fall PDEA will be noticed by FERC.
- Paul: On the HYDROPS Summary Model output, change the order of months to reflect the energy year (August through July) rather than as they are currently displayed (the normal calendar year).
- Paul: See that the HYDROPS Input Form is available on the relicensing website.
- Arnie: Verify that the Terrestrial Working Group Report on Without Project (T7b) is posted to the relicensing website.
- Sue: Work with Stan and Doug to flesh out the schedule and locations for fall scour surveys (other than what Doug is doing on Channel Creek). Include what areas, frequency, and when to start.
- Arnie: Get peer feedback on Asit's limnology report.

ANNOUNCEMENT

Ruth Mathews made available for members copies of a recently published article which she co-authored *Ecologically Sustainable Water Management: Managing River Flows For Ecological Integrity*. She will miss our next meeting because she will be presenting on this topic at a conference in Virginia.

INTRODUCTIONS

We welcomed Paul Wetherbee, Team Leader of the Technical Scenario Teamlet (TST).

SETTLEMENT PROCESS -RESOLVE SESSIONS

There have been a couple of RESOLVE meetings, so far. Tentative agreement has been reached on some issues such as connectivity, upstream fish passage, etc. Many details remain to be worked out. We are working on editing the May 9 draft of PMEs.

Remaining RESOLVE meetings:

- August 25 at PSE Office in Bothell
- September 12 at Mountlake Terrace
- September 19 at Mountlake Terrace

All meetings will begin at 9:00 a.m.

All were reminded that if they can't make a RESOLVE meeting, please get your interests to a colleague or to Dee ahead of time so they can be represented in their absence.

FISH PASSAGE TECHNICAL WORKING GROUP

This team is continuing to work on the design for the Floating Surface Collector. A number of teamlets have been meeting on various design components.

At the Expert Workshop on July 22, 23 there was much discussion on the attributes of a “silver bullet” for downstream juvenile fish passage at Baker.

After two days of “turbulent” talks including the pros and cons of various entrance module designs, (significant) and a description of other fish passage facilities, we left confident that we have the proper expertise on our team. We also feel confident about going “downstream” with the Floating Surface Collector.

We are now in the process of fleshing out performance standard criteria and corresponding methodology. The BAG is currently meeting to discuss these criteria. Their current thinking is that the FSC will start at 500 cfs capacity with capability to go up to 1000 cfs.

FLOOD CONTROL UPDATE

At the Economic/Operations Working Group meeting August 13, it was announced that currently, two separate flood control feasibility studies are underway. Both PSE and Skagit County are working with the USACE on these. In these studies the initial phase/focus is on economic feasibility. Only if it passes this test, will environmental factors be considered. In the meantime, FERC will honor the Corp's request that in our process, we use the existing 74K acre feet.

There was some confusion around which of these studies was “inside” this relicensing process. The study request was initially put forth by Skagit County. At the ~~last~~ June 24 Solution Team meeting PSE announced that they were collaborating with Skagit County and the USACE on doing this study. The notes from the July 29 Flood Control Teamlet meeting describe the study being done by PSE as inside the relicensing process. A key point in this determination seems to be agreement on consultants used. The Process Document states that all consultants used for any Baker relicensing study must be approved by working group members. This process was not

followed by the County with respect to Pacific International Engineering (PIE), who is conducting the separate study commissioned by the County.

TECHNICAL SCENARIO TEAMLET (TST) UPDATE

Paul Wetherbee, team leader for this teamlet, gave us an update on their accomplishments to date.

They have established “recent conditions” and draft actions for purposes of the PDEA. They have established five energy years (August through July) in their suite of analysis tools. These years represent the full range of hydrologic conditions.

They have also defined four distinct levels of analysis for the output packages. Paul distributed a sample of the Standard Input and Output package (Level 2A) for the recent conditions run and draft action runs.

He invited anyone to submit requests for HYDROPS runs to the TST. The input form will be available on the relicensing website. Contact Paul, Mark Killgore of any Technical Scenarios Teamlet member if you need help with submitting a study.

INSTREAM FLOWS TECHNICAL WORKING GROUP

Phil reported that R2 has developed and distributed the Middle Skagit River Flow Routing Model. This model has been sent to TST members and others who have requested it. It is also posted on the e-Room as established by the TST. R2 will be using this model to calculate hourly flow and stage levels at the 23 instream flow transects in the middle Skagit River. He also discussed a memo displaying the wetted width vs. flow relationship for all 23 individual middle Skagit River transects and an analysis combining all 23 transects. These data have been sent to all Aquatics Working Group members. Phil reported that now that the HYDROPS output are available, completion of the hourly model is progressing quickly.

By the end of August, they will be using hourly habitat models (varial zone, ramping rates, sediment scour and salmon incubation) to quantify effects of flow changes on environmental factors. In September, they will be concentrating on the daily flow Physical Habitat Simulation model.

STUDY REQUEST SUBMITTALS/STUDY PLAN DEVELOPMENT

Study #	Title	Notes/Next Steps
A01a	Reservoir Tributary Habitat Surveys	Phil reported that the final report for this will be out very “shortly”. He is performing the final edit.
A01b	Reservoir Tributary Biological Surveys	See A01a. Are now also including native non-salmonids in the data tracking. There aren’t a lot of data. ACTIVE
A01c	Reservoir Tributary Delta Surveys	See A01a. ACTIVE
A02	LB River Habitat Mapping	The draft report will be out for review by our September Working Group Meeting.

A03	Reservoir Fish Population Characteristics	Not discussed. No action yet. PSE will review existing information for the PDEA.
A04	LB/Skagit River Flow, Gaging	Not discussed. This is being incorporated into A09a hourly flow routing model. ACTIVE
A05	Water Quality Sampling	Nothing new to report.
A06	UB Passage Design Baffle Modification	Complete.
A07	Lower Baker Forebay Bathymetry	Complete.
A08	UB Passage System Evaluation	Complete.
A09A	Skagit River Flow and Habitat Assessment	Phil distributed a memo on the number, magnitude and frequency of freezing events in the Middle Skagit River. Re: ramping rates, the question is how long a redd can be dewatered and remain viable? We have the opportunity to consider the effects of freezing events when we establish our preferred flow management regime. All were invited to send Phil your ideas on this.
A09B	Salmonid Redd Selection and Maintenance in the Middle Skagit in Response to River Fluctuation from Hydropower Peaking	Nothing new to report.
A09C	Distribution, Timing and Depth of Salmonid Redds	Phil passed out a short memo describing the methodology proposed for the 2003 salmon spawning surveys in the Mid-Skagit River this fall. Feedback from meeting participants included: <ul style="list-style-type: none"> • PSE should be attempting to “do whatever is logistically possible” – that is conduct extended surveys when the conditions allow it. • Field crew should record the locations of shallow Chinook redds to allow them to be monitored over the season. • Noting (after a freshet, if possible) instances of root bound carcasses • Phil reported that a draft report including re-calculations of percent redd dewatering using the new stage:discharge relationships will be out by our September Working Group meeting
A09D	Distribution, Timing of Salmonid Fry	Draft report and proposed juvenile periodicity to be out for review by September meeting.
A10	Baker River Delta Habitat Assessment-Char	Complete. Note: USFWS 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.	Not discussed. Removed from list of studies this group will address, reported by Brady in September. Greta reported the USFS will pursue this in the recreation working group.
A13b Water Quality Impacts on Aquatic Habitat	Removed from list of studies we will address.
A14a Reservoir Shoreline Erosion	We are moving toward a final draft on this report. This will be addressed through the RESOLVE process.
A15 UB Delta Scour	<p>Sue walked us through a PowerPoint presentation outlining work done on the scour analysis to date.</p> <p>For high flow events, there were lots of lateral shifts with variable <u>levels of</u> scour and fill depth across transects.</p> <p><u>Immediately following</u> For drawdown, they found <u>the-observed</u> vertical incision <u>at the delta transects</u> as <u>the channels</u> transition from lake to river <u>to reservoir environments.</u> erosses site. There was consistent incision across the wetted channel.</p> <p>Secondary channels were abandoned.</p> <p>It is difficult to link scour to incubation effects.</p> <p>The results of redd mapping show<u>ed</u> no apparent relationship between number of fish released<u>s</u> and the number of fish spawning on-in the margins<u>drawdown zone.</u> <u>The potential relationship between timing of reservoir drawdown and the proportion of salmon spawning in the drawdown zone is not very robust.</u> The two years with the highest proportion of redds in the drawdown zone were years when drawdown started before Oct. 1. Coincidence or cause and effect? We're not sure.</p> <p>We know spawning occurs <u>in the drawdown zone</u> <u>and that both reservoir drawdown and high flow events</u> and does appear to negatively <u>affect survival of eggs from</u> fish spawning on the delta. We aren't sure how.</p> <p>Data from SSC, PSE, NPS, and USFS (1994- 1998 and 2001) sockeye spawning starts Sept. 15 and peaks Oct 1-15 and is 95% complete by Nov. 15.</p>

	<p>This is inconsistent with the Sassi <u>SASSI</u> report which shows spawning from Sept. to December with a peak late Oct to early-late November. <u>The discrepancy could be due to changes in spawn timing from the 70s and 80s to recent years.</u> We need to keep this in mind as we consider decisions around reservoir management.</p> <p>She then reviewed pros and cons (from aquatic resource perspective) associated with <u>both early and late</u> drawdown.</p> <p>Outstanding Issues: We need to confirm the lack of relationship between the number of fish and habitat utilization. We also need to try to figure out <u>ifs</u> early drawdown (will happen this year as per the IPP) encourages spawning in the drawdown zone</p> <p>All were asked to get feedback to Sue re: proposed field work as soon as possible. Doug reported that he will be doing some survey work in Channel Creek on this starting in early September. We need help with coverage on the tributaries and the Upper Baker River, (possible from the Corps?). In the meantime, Sue will work with Stan and Doug to flesh out schedule and locations for scour surveys other than channel creek include what areas, frequency and when to start.</p>
<p>A16 Lower Baker River Alluvial Fan Assessment</p>	<p>Technical subcommittee met July 28 to discuss initial results of phase 1 analyses, meeting record was distributed. They reviewed the preliminary conceptual design sketches and analysis results and identify selected alternatives to recommend for further analysis. They reviewed these 5 alternatives.</p> <ol style="list-style-type: none"> 1. Placement of sufficient gravel to increase the lower Baker River slope such that riverine habitat conditions suitable for spawning are maintained at low flows 2. Placement of anchored LW or rock structures within the existing lower Baker River channel to increase hydraulic complexity. 3. Construct a series of weirs or steps within the lower Baker River channel to increase

	<p>hydraulic complexity and maintain retain placed gravel. (decided not to pursue this alternative)</p> <p>4. Reconfigure lower Baker River channel (Mike to present options for doing this at future Working Group meeting).</p> <p>5. Develop Little Baker area and southwest portion of the Baker River alluvial fan as a backwater slough.(decided not to pursue this option, except as a fall-back)</p> <p>They will be putting together a comparison matrix to highlight biological advantages and disadvantages associated with each of these <u>two</u> options. They will bring this to our next meeting. This will help us with our discussions of PMEs. .</p>
A17 Tributaries Surveys Upstream of Barriers	Steps 1 through 7 (from 3/11/03 outline document) to be completed by September ARWG meeting.
A18 Baker River Survey Upstream of 1 km.	Merged into A01a and A01b.
A19 Review Limnological Information	This study has been combined with A26a.
A20 Large Woody Debris Management	The final draft report was distributed..
A21 Skagit Wild & Scenic River Values	This is being addressed by A9 and A24.
A22 Baker Lake Trout Impacts Evaluation	Cancelled when non-native trout stocking in the reservoirs was discontinued.
A23 Baker River Wild & Scenic River Values	This is being addressed through A15.
A24 Hydrologic and Geomorphic Analysis	<p>Comment period on draft Part 1 report now closed. A Final Draft Part to be submitted by November ARWG meeting. (The Forest Service indicated they will be providing belated comments to part 1 to Arnie to be appended to the Final Draft.)</p> <p>A draft addendum to Part 1 (reporting IHA statistics for selected period of record for Baker and Skagit gages using updated hydrology) will be transmitted by August ARWG meeting.</p> <p>Comments on Part 2 are due July 15. Schedule for revising Part 2 dependent on scope of comments.</p>
A25 Unnatural Predation	Arnie provided updated effort and catch data (see handouts). Field studies are continuing until the end of July/early August (depending on the out migration). Efforts are already complete at fry releases and are ongoing at smolt releases. Stay tuned...
A26A Reservoir Limnology-Production Potential	The comment period for this study report ended today (August 14). Asit will be incorporating these

	into the report and getting it out in the near future. Arnie will pursue opportunities to get some peer review/feedback on this paper.
A26B Tributary Production Potential	See A01 above.
A27 Middle Skagit Incubation Flows	Addressed in A9.
A28 Fish Passage-Reservoir Management	Active: Now addressed in Fish Passage subcommittee.
A29 Estimate Sockeye Production from Different Incubation Sources	On hold for 2003.
R-A30 Near-Field Smolt Behavior	Completed.
R-A31 Fish Passage-Far Field Smolt Migration	Completed.
R-A32 Fish Passage-Kelt Radio telemetry	Completed.
R-A33 Fish Passage-PIT Tag Migration	Completed.
R-A34 Fish Passage-Downstream Run-Timing Correlation	Completed.
R-A35 Fish Passage-Upstream Run-Timing	Completed.
R-A36 Native & Wild Inland Fish Population Assessments	Revised study request pending from Mark Downen-WDFW.
R-A37 Without Project Alternative (evaluation of Aquatic & Riparian Habitat)	<p>Sue distributed a summary of assumptions and results for this study. She worked with Marty Vaughn of the Terrestrial Working Group (T7b) to ensure the assumptions used for the without project analysis <u>for the Aquatic Resources Working Group</u> were consistent <u>with the Terrestrial across the Working Groups</u>. We are attempting to project what the habitats would look like over a 40 years analysis period. —We are unable to predict as accurately as the Terrestrial Working Group what types of aquatic habitat would become available over the 40 years.</p> <p>The scenarios outlined are: 1. Projected de-commissioning; 2. Operate for flood control only 3. Ongoing operations.</p>
R-A38 Bull Trout Population Assessment & Risk Analysis	We have deployed temperature sensors and have been sampling at the power houses. Will revise a draft study plan and will have it out by our September meeting.
R-39 Native Non Salmonid	<p>Phil walked us through the <u>identification</u> key to set-up for PSE folks and others to use in an attempt together to gather more information about native non-salmonids. It contains some sculpin species that have never been seen in these parts. We are starting to collect these data.</p>

REPORT ON OLD ACTION ITEMS

- Arnie: Added RESOLVE sessions to the Aquatics schedule.
- Arnie: Checked on availability of a conference room for August 25 RESOLVE session.
- Arnie: Ensured that the Technical Scenarios Teamlet minutes, etc. are posted on the website.
- Arnie: Sent out Phil's high level draft of some of the potential biological implications of increased flood control.
- ALL: Got comments to Arnie (to send to Asit) on A26a by August 14 meeting.
- Stan: Prepared a slide show presentation of Alaska trip for August 14 meeting.
- ALL: Reviewed all associated documents in preparation for July 29 RESOLVE session
- Lyn: Buttoned up with Dee re: RESOLVE agenda.
- Arnie: Let Dick know of topics for upcoming RESOLVE meeting agenda.
- Arnie: Emailed Connie Phil's Study Schedule so she can send it out to Solution Team Members.

UPDATE FROM SOLUTION TEAM MEETING

There was no Solution Team meeting in the month of July. Instead, an email update was sent out by Solution Team Leader Connie Freeland.

HANDOUTS

- 8-14-03 agenda and minutes from 7-10-03 Aquatics Resources Working Group Meeting
- Updated Participant Contact List
- Schedule of Study Plan Reports, July 10, 2003
- Final Minutes Scenario Teamlet
- Technical Scenario Teamlet (TST) Functional Flow Diagram
- TST: Block 1, Scenario Requests (PSE.01) and (PSE.02)
- Aquatic Working Group RESOLVE Meeting Draft Notes, August 12, 2003
- Fall 2003 Proposed Study Effort Middle Skagit River Salmon Spawning Surveys
- Memorandum August 7, 2003 Middle Skagit River, Freezing Index Analysis –prepared by R2
- Draft – Field Key to Sculpin Species in the Baker River Watershed –prepared by R2
- Final Draft Report on Aquatic Study A-20, Large Woody Debris Budget
- A37:; Future Potential Aquatic Habitats in the Baker Project Area (Summary of Assumptions and Results)
- Final Meeting Notes, July 29, 2003 Flood Control Feasibility Teamlet Meeting (and Project Tour)
- Lower Baker Technical Subcommittee, July 28, 2003 Meeting Notes

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

- PSE agreed to take over the Little Park Creek smolt trapping effort this year. Implementation is underway.

EVALUATION OF MEETING

Well-Dones

- Good slide presentations- Thanks Stan and Sue!
- Paul's update on TST accomplishments
- Most productive/best meeting yet!
- Happy to have Mark Dailyhere
- Arnie does great job with the food – it's a love thing!
- Got out early
-

To Do Differently Next Time

- More breaks in the a.m.
- Sorry we had to lose Olympia contingent early

What's Hot?

- 20,000 record sockeye fish return (more than 6 times the historic average!)
- Paul's presentation HYDROPS Status/TST Report
- We are in the *Golden Age of Collaborative Modeling*
- A9a (Instream Flows) just about ready
- Settlement Process
 - PME's – making progress – still need the details
 - Uncertainty introduced by dueling flood control studies

Studies Update for Solution Team

- A9a – going great!
- Scour Upper Baker spawning surveys ongoing
 - First year we get to test the early drawdown with sockeye in the reservoir (as per the IPP)
- Alaska Stream Surveys
- Large Woody Debris Report is complete!

Tentative September 11, 2003 Agenda

NOAA, 7600 Sandpoint Way NE, Building 9, Room A

8:30 – 3:00 p.m.

8:45 – 9:00 Review Agenda, Minutes, Schedule

9:00 – 10:00 Technical Working Group Reports:

- RESOLVE Meetings
- Fish Passage Technical Working Group Report
 - ~~Mizan's Floating Surface Collector Model~~
- Technical Scenarios Teamlet
- Instream Flows

- Solution Team Report
 - Status of Flood Control Studies

10:00 – 12:00 Study Updates:

- A9a: Middle Skagit River Habitat Models
- A9b: Salmonid Redd Selection and Maintenance in Middle Skagit River in Response to River Fluctuation from Hydro Power Peaking
- A9c: Distribution, Timing and Depth of Salmonid Redds
- A9d: Distribution, Timing of Salmonid Fry
- A01a: Reservoir Tributary Habitat Surveys (includes A26)
- A01b: Reservoir Tributary Biological Surveys
- A16: Lower Baker Alluvial Fan Technical Working Group Report
- A20: Large Woody Debris Management
- A26a: Reservoir Limnology-Production Potential
- A37: Without Project Alternative

12:00 – 12:20 LUNCH

12:20 – 2:20 Finish Discussion of Studies (see list above)

2:20 – 2:30 BREAK

2:30 – 2:40 Action Items

2:40 – 2:50 Additional Issues?

2:50 – 2:55 Set agenda for October 9, 2003 Meeting (from 8:30 to 3:00 at USFS Building in Mountlake Terrace)

2:55 – 3:00 Evaluate meeting