



BAKER RIVER PROJECT RELICENSE

Aquatic Resources Working Group

December 11, 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 – 9:00
2. Fish Passage Technical Working Group Report	9:00 – 9:15
3. Study Updates: <ul style="list-style-type: none">• A16: Lower Baker River Alluvial Fan Assessment• A9a: Middle Skagit Habitat Models• A9b: Salmonid Redd Selection & Maintenance• A9c: Distribution, Timing & Depth Salmonid Redds• A9d: Distribution, Timing of Salmonid Fry <i>Break at 10:30</i>	9:15 – 12:00
<i>Lunch (meeting snacks or bring your own)</i>	12:00 – 12:20
4. Review of Study Report: <ul style="list-style-type: none">• A01a: Reservoir Tributary Habitat Surveys (includes A26b)• A01b: Reservoir Tributary Biological Surveys	12:20 – 1:30
5. Other Studies? Review study schedule for additional updates	1:30 – 2:25
6. Action Items	2:25 - 2:30
7. Additional Issues	2:30 - 2:35
8. Set Agenda for January 8, 2004 (8:30-3 USFS Mountlake Terrace)	2:35 - 2:45
9. Evaluate Meeting: What's Hot and Studies Summary for Solution Team	2:45 – 3:00



December 11, 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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December 11, 2003

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ANNOTATED AGENDA

1. Review Agenda, Minutes, Schedule	8:30 – 9:00
2. Fish Passage Technical Working Group Report	9:00 – 9:15
3. Study Updates:	9:15 – 12:00
<ul style="list-style-type: none"> • A16: Lower Baker River Alluvial Fan [<i>A16-Dec11-2003.ppt</i> - available on eRoom] • A9a: Middle Skagit Habitat Models Spawning Weighted Usable Area (WUA) [<i>WUA-Spawning-121103.xls</i>] Rearing WUA [<i>WUA-Rearing-121103.xls</i>] • A9a: Reservoir Refill Reservoir Refill Volumes [<i>BakerInflowVolumeTables-111703.xls</i>] [<i>ShannonInflowVolumeTables-111703.xls</i>] Euphotic Zone Calculations [<i>Euphotic Volume_111403.doc</i>] • A9b: Salmonid Redd Selection & Maintenance 	
<i>Break at 10:30</i>	
<i>Lunch (meeting snacks or bring your own)</i>	12:00 – 12:20
<ul style="list-style-type: none"> • A9c: Distribution, Timing & Depth Salmonid Redds 2003 Field Activities [<i>MSkagitSurvey vs Q-fall 03.xls</i>] Salmonid Spawn Timing [<i>SalmonSpawnTiming-111403.doc</i>] Transect Spawning Suitability [<i>SpawnSuitabilityTR1-24color121003.xls</i>] • A9d: Distribution, Timing of Juvenile Salmonid • A01a/A01b/A26a: Reservoir Tributary Habitat Surveys and Production Potential • A-24: Hydrology and Geomorphology of the Middle Skagit River: Part 1–Hydrology Supplemental analyses proposed as Part 1 addendums [<i>AddendumAnalyses_120703.doc</i>] • A-38: Native Char Study Final Draft Study Plan (handout, no electronic file) 2003 Status Report [<i>Study A38ProgressReport112403.doc</i>] • Baker IPP – 1-hour On/Off Investigation [<i>Hourly Operation Cycle-112903.doc</i>] 	12:20 – 1:30
4. Action Items	2:25 - 2:30
5. Additional Issues	2:30 - 2:35
6. Set Agenda for January 8, 2004 (8:30-3 USFS Mountlake Terrace)	2:35 - 2:45
7. Evaluate Meeting: What's Hot and Studies Summary for Solution Team	2:45 – 3:00



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Aquatic Resources Working Group

December 11, 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, and Cary Feldmann, (PSE), Arn Thoreen (Skagit Fisheries Enhancement Group), Bill Reinhard (Wildcat Steelhead Club), Phil Hilgert, Mike Ramey and Sue Madsen (R2), Chuck Ebel and Doug Knapp (USACE), Ruth Mathews (Nature Conservancy), Jeff McGowan (Skagit County Public Works), Dick Raisler (Fidalgo Fly Fishers), Margaret Beilharz (USFS), Stan Walsh and Derek Smith (Sauk-Suiattle Indian Tribe/Swinomish Tribal Community), Derek Marks (Upper Skagit Tribe), Lyn Wiltse and Mary Jean Bullock, note taker (PDSA Consulting, Inc.).

2004 Baker Aquatic Meetings: January 8, February 12, March 11, April 8, May 13, June 10, July 8, August 12, September 9, October 14, November 11, December 9.

December 11, 2003 Agenda

USFS Office, Mountlake Terrace, WA

8:30 – 3:00 p.m.

8:30– 9:00 Review Agenda, Minutes, Schedule

9:00 – 9:15 Fish Passage Technical Working Group Report

9:15 – 12:00 Study Updates:

- A16: Lower Baker River Alluvial Fan Assessment
- A9a: Middle Skagit Habitat Model
- 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
- 12:00-12:20 LUNCH
- 12:20-1:30 Review Study Report:
- A01a: Reservoir Tributary Habitat Surveys (includes A26b)
 - A01b: Reservoir Tributary Biological Survey
- 1:30 – 2:25 Other Studies?
- 2:25 – 2:30 Action Items
- 2:30 – 2:35 Additional Issues?
- 2:35 – 2:45 Set agenda for January 8, 2004 meeting (from 8:30 to 3:00 at USFS Building in Mountlake Terrace)
- 2:45 – 3:00 Evaluate meeting: What's Hot and Studies Summary for Solution Team

NEW ACTION ITEMS

- ALL: Send your comments to Arnie on A14 Erosion Memo to Greta by 12/19.
- Phil: Check with Emily re: how she defines "high zooplankton abundance" on Baker Lake Surface Water Temperature Chart. Also, look at developing a similar chart for Lake Shannon.
- Arnie: Put Bull Trout Draft Final Study Plan on website.
- Phil: Create normal operations chart to use to compare with the on/off scenario chart (IPP).
- ALL: Get questions re: Tributary Habitat and Production Report to Arnie by the end of the year.
- Phil: Finish updating Study Plan Report Schedule referencing document file names.
- Scott: Let PSE know if A17 was a priority to pursue.
- Arnie: Get peer feedback on Asit's limnology report by end of January.

QUOTES OF THE DAY

There were a couple of them!

FISH PASSAGE TECHNICAL WORKING GROUP REPORT

This group met December 3rd and 4th, 2003. The first day, they came to consensus on design criteria for the Floating Surface Collector (FSC). Design criteria will be developed for the replacement guide net and transition structure scheduled for installation in March 2004. They also finished up the characteristics of stress relief ponds. They are developing a numerical model for reservoir forebay hydraulics.

The second day, they reviewed the overall schedule, especially the construction sequencing of the Floating Surface Collectors at Upper Baker and Lower Baker. They agreed to shift construction of Lower Baker by eleven months to allow for time to incorporate learnings from the installation at Upper Baker. They also finished up the wording for PME's around the stress relief ponds. They made good progress on definition of performance standards, particularly the reasonable progress sequence.

STUDY REQUEST SUBMITTALS/STUDY PLAN DEVELOPMENT

Study #	Title	Notes/Next Steps
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A01a Reservoir Tributary Habitat Surveys	The final draft report was out in October. No further activity at this point.
A01b Reservoir Tributary Biological Surveys	See A01a.
A01c Reservoir Tributary Delta Surveys	See A01a.
A02 LB River Habitat Mapping	(The draft report is close to being out.)
A03 Reservoir Fish Population Characteristics	Not discussed. Existing information was reviewed for the PDEA.
A04 LB/Skagit River Flow, Gaging	Incorporated into A9a. 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	<p>The Instream Flows Teamlet met November 17. Recommendations of that group to this group were as follows (for a detailed outline of their recommendations, see their meeting notes):</p> <ul style="list-style-type: none"> • Made minor changes to transect weightings • Set the critical ramping flow at 30Kcfs. • Made some changes in analysis: <ul style="list-style-type: none"> • Number of excursions and WDFW ramping • How to look at varial zones (from 12 hrs. to 7 days). • Spawning de-watering index • Spawning • Weighted usable area vs. discharge relationships.(examples of daily habitat models) <p>This teamlet will meet again to continue these discussions on December 15.</p> <p>Re: Reservoir refill. Phil pointed out the graphs and tables produced to show how quickly the reservoir can be refilled and how different refill scenarios would affect the euphotic zone volume on a month-by-month basis. All were asked to consider if they want to use these data and if so, what weighting factors may be appropriate. We will continue this discussion at the In stream Flows meeting on Monday.</p>
A09b Salmonid Redd Selection and Maintenance in the Middle Skagit in Response to River Fluctuation from Hydropower Peaking	Did not discuss at this meeting. Nothing new to report. ACTIVE.
A09c Distribution, Timing and Depth of	The draft interim report looks at dewatering of

Salmonid Redds	redds. Phil reported that the current turbid conditions are not suitable for spawning surveys. Stan suggested that we conduct a high-level survey at known high-density sites. We agreed to do this between now and the end of the year. We are also looking at peak spawning areas, by cell, by transect, by species.
A09d Distribution, Timing of Salmonid Fry	Did not discuss at this meeting. Nothing new to report. ACTIVE.
A10 Baker River Delta Habitat Assessment-Char	Complete.
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.
A13b Water Quality Impacts on Aquatic Habitat	Removed from list of studies we will address.
A14a Reservoir Shoreline Erosion	Sue and Doug ground truthed these sites since the last meeting. The final draft report was sent out November 13 th . All were asked to, by December 19, send your comments to Arnie on the erosion memo that Sue drafted to Greta.
A15 UB Delta Scour	Did not discuss at this meeting. ACTIVE
A16 Lower Baker River Alluvial Fan Assessment	<p>Mike Ramey of R2 walked us through a presentation outlining the costs, benefits, and disadvantages associated with various alternatives. Arn suggested we might want to focus on the Little Baker and not the mainstem. Chuck expressed doubt that the USACE could fund Option A. Below is a summary of the report findings:</p> <p>Summary of Spawning Habitat Alternative A</p> <ul style="list-style-type: none"> • Cost would be \$3.8MM capital cost and \$385K annual cost • Would provide restoration of natural habitat features • Would negatively impact barrier dam, power production, be susceptible to flow fluctuations; would require frequent replenishment, may impact flooding • 44,000 yards of fill would be needed • Velocities and depths acceptable over wide range of flows • Would need to replace upper layer of gravel approx. every other year

	<ul style="list-style-type: none"> • 2-3 feet reduction in barrier height at fish facilities • Would not provide water source to Little Baker River channel <p>Summary of Alternative B: LWD & Boulder Clusters</p> <ul style="list-style-type: none"> • Cost would be \$230K capital cost and \$7K annual cost • Would increase habitat complexity and improved holding habitat • 2500 feet total approx. length • Assume 1 LWD and 1 Rock Structure per 100 ft of channel • 25 anchored LWD structures within reach • 25 rock structures within reach <p>Summary of Alternative C: Skagit River Backwater Slough</p> <ul style="list-style-type: none"> • Cost would be \$50K capital cost and \$10K annual cost • Would provide low flow juvenile habitat that is scarce in that section of the Middle Skagit • Would provide periodic reconstruction <p><u>Alternative Options to Provide Water Source to Little Baker:</u></p> <p>1a: Little Baker Water Supply – Elevate Lower Baker Channel</p> <ul style="list-style-type: none"> • Cost of Alternate Objective 1a would be \$2.4MM capital cost and \$140K annual cost • Use 13k yd³ course fill to get the water level high enough to supply Little Baker • Would negatively impact the barrier dam, power production, and possibly flooding <p>1b: Little Baker Water Supply – From Barrier Dam</p> <ul style="list-style-type: none"> • Cost of Alternate Objective 1b would be \$1.75MM capital cost and \$35K annual cost • May cause migration delays <p>Next Steps: The USACE will continue to evaluate their proposed options, which are similar to 1a and 1b. Working Group members will discuss these options with their policy-level folks. We also agreed to have R2 flesh out this report so it exists as a stand-alone document that will support our decision downstream. This will include a coarse analysis of the biological impacts of each</p>
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	alternative, and look at the Skagit System regulated, Baker unregulated unless we tell them differently by December 17. R2 will also meet with the Upper Skagit Tribe re: Option B. We'll get an update on all this at our January 8, 2004 meeting.
A17 Tributaries Surveys Upstream of Barriers	Scott will look into this to see if there is energy to pursue it.
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	Complete.
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	Sue reported that the hydrology portion of this report is complete. Addenda to the report were updated to reflect the datum shift and the shorter period of record to reflect current operations. Sue walked us through a table she put together suggesting various scenarios for inclusion as addenda to the final report, which she expects to get out by year-end.
A25 Unnatural Predation	Not discussed at this meeting.
A26a Reservoir Limnology-Production Potential	Arnie reported that he has talked with Asit about how to incorporate additional data into the report. We will get a revised version of the report at our February meeting.
A26b Tributary Production Potential	See A01 above.
A27 Middle Skagit Incubation Flows	Addressed in A9.
A28 Fish Passage-Reservoir Management	Now addressed in Fish Passage subcommittee.
A29 Estimate Sockeye Production from Different Incubation Sources	On hold for 2003. (We will discuss future plans at our November ARWG meeting.)
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)	Completed.
R-A38 Bull Trout Population Assessment & Risk Analysis	The draft final Study Plan was distributed, along with a status report on 2003 field activities. This will guide our 2004 actions. We need to be thinking about how we define gene pools.
R-39 Native Non Salmonid	Scott reported that he and Ruth are working on blending this into the connectivity PME.

BAKER INTERIM PROTECTION PLAN (IPP)

There was a meeting on November 20 with the Services re: the Interim Protection Plan. They discussed an operational on/off scenario, with one hour in between, with amplitude of 4K cfs (approximately 4K to 400 cfs). Phil and Cary are putting together a protocol for this. Testing of this scenario will take place January 14 and 15th. We will stay tuned...

REPORT ON OLD ACTION ITEMS

- Phil: Came up with a set of questions for folks to consider to prime the discussion of varial zones and ramping at the last Instream Flows Meeting.
- ALL: Reviewed Phil's questions to consider what appropriate statistics might be to measure ramping and varial zones and gave Phil your suggestions prior to the next meeting.
- Lorna: Saw that Phil got a copy of the recently issued "Limiting Factors Report".
- Sue: Copied all on our response to Greta's request for the Aquatic Resource erosion concerns.
- ALL: Let Sue know if you had any other erosion concerns from an aquatic resource perspective.
- ALL: Let Lorna know if you had questions re: Skagit County position on using Lake Shannon for flood control.
- Stan: Emailed two new PMEs to Arnie to distribute to working group members.
- Sue: Presented results of progress on Phase 2 of A16 at the December meeting.

ADDITIONAL ISSUES

There were none.

HANDOUTS

- 12-11-03 agenda and minutes from 10-09-03 Aquatics Resources Working Group Meeting
- Updated Participant Contact List – December 5, 2003
- Long term Aquatics Schedule December 11, 2003
- Baker Inflow Volume Plots Tables-111703.xls
- Euphotic Volume 111413.doc
- Hourly Operation Cycle-112903.doc
- MSkagit Survey vs. Q fall 03.xls
- Salmon Spawn Timing-111403.doc
- Shannon Inflow Volume Plots Tables-1117903.xls

- Final Draft Report on Aquatic Study A-14a, Reservoir Shoreline Erosion and Deposition

PARKING LOT

- (No issues currently)

EVALUATION OF MEETING

Well-Dones

- Lower Baker Alluvial Fan Presentation
- “Unquotable quotes”
- Cleaned up Parking Lot
- Festive decor
- Discussion of strategy to come up with a proposed flow regime.
- Lots of data shared
- Welcome Jeff

To Do Differently Next Time:

- Ran over
- Missed Services
- Not all members can speak for their policy folks
- Phil re-opened Chuck’s char wound

What’s Hot?

- Strategy to come up with consensus flow regime proposal

Studies Update for Solution Team

- **Analysis decisions on A09a Middle Skagit Habitat Models output processing to be made at December 15, 2004 Technical Sub-committee meeting on Instream Flows**
- **A16 –Lower Baker Alluvial Fan Assessment-Potential PME measures for the Lower Baker alluvial fan will undergo coarse analysis of the biological impacts of each. Working group members are to discuss the options with their policy-level staff.**

TWO DAY INSTREAM FLOWS WORKSHOP SCHEDULED IN LIEU OF REGULAR JANUARY AQUATICS MEETING!

**January 7, 2004
PSE, Bothell, WA
9:00 a.m. – 3:00 p.m.
(Agenda not confirmed yet)**

**January 8, 2004
USFS Office, Mountlake Terrace, WA
8:30 a.m. – 3:00 p.m.
(Agenda not confirmed yet)**