BAKER RIVER PROJECT RELICENSE

Aquatic Resources Working Group

July 10, 2003

8:30 a.m. – 3:00 p.m.
WA Department of Ecology
Room 1B/1C
3190 160th Ave. SE, Bellevue, WA

AGENDA

1. Review Agenda, Minutes, Schedule	8:30 – 9:00
2. Study A26.a -Reservoir Production Potential Report	9:00 – 10:00
Break	10:00 – 10:15
3. Continue A26.a -Reservoir Production Potential Report	10:15 – 12:00
Lunch (meeting snacks or bring your own)	12:00 – 12:20
4. Fish Passage Technical Work Group Report	12:20 – 12:35
5. Report from Instream Flow Technical Working Group (A9a,b,c,d)	12:35 – 1:30
6. Other Studies: updates on A01a/b (A26b), A14a, A24, A25, A37, A39, Others?	1:30 – 2:35
7. Action Items	2:35 - 2:40
8. Update from Solution Team Meeting	2:40 - 2:45
9. Additional Issues	2:45 - 2:50
10. Set Agenda for August 14th 2003 (USFS Building-Mt. Lake Terrace)	2:50 - 2:55
11. Evaluate Meeting	2:55 – 3:00

July 10, 2003

Driving Directions to Dept. of Ecology Office (Bellevue):

1) **Eastbound on I-90 from I-5 or I-405: Take exit 11A, Keep left, drive past the 150th Ave. SE exit and take the 156th Ave. SE exit.**
2) **Cross over the freeway and move one lane to the left to avoid the 'exit only' lane.**
3) **At the first light, turn right onto Eastgate Way. Follow Eastgate to 160th Ave. SE (3rd light) and turn left.**
4) **Once on 160th Ave. SE, turn into the third driveway on the right. Beige two story building. Parking in front of the building or one block on the opposite side of 160th Ave. SE.**

BAKER RIVER PROJECT RELICENSE

Aquatic Resources Working Group

July 10, 2003
Dept. of Ecology
Eastgate-Bellevue 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, Nick Verretto, Michele McGrady, Kristen Kearnes, Doug Bruland, Mike Ficklin, and Cary Feldmann (PSE), Arn Thoreen (Skagit Fisheries Enhancement Group), Phil Hilgert (R2), Lorna Ellestad (Skagit County Public Works), Scott Lentz and Greta Movassaghi (USFS), Bob Wright (DOE), Gary Sprague (WDFW), Ruth Mathews (The Nature Conservancy), Bill Reinard (Wildcat Steelhead Club), Dr. Asit Mazumder (Univ. of Victoria), Mizan Rashid (ENSR), Lyn Wiltse, facilitator and Mary Jean Bullock (PDSA Consulting, Inc.).

FUTURE WORKING GROUP DATES AND LOCATIONS (2nd Thursday of each month): August 14, September 11 (TBD), October 9, November 13, December 11, 2003 from 8:30-3:00 at USFS Office in Mountlake Terrace.

July 10, 2003 Agenda
WA Dept. of Ecology, Bellevue
8:30 – 3:00

1. Review Agenda, Minutes, Schedule
2. Study A26.a. Reservoir Production Potential Report
3. Fish Passage Technical Working Group Report
4. Instream Flows Technical Working Group Report (A9a, b, d)
5. Studies
   - A01a/b, and A26 (b) – Reservoir Tributary Surveys

- A14a – Reservoir Shoreline Erosion
- A24 – Hydrologic & Geomorphic Analysis
- A25 – Inventory of Unnatural Predation Opportunity
- A37 – Evaluation of Aquatic/Riparian Habitats (Without Project Alternative)
- A39 – Native Non-Salmonids

6. Action Items
7. Update from Solution Team Meeting
8. Additional Issues?
9. Set agenda for August 14, 2003 meeting USFS Building at Mountlake Terrace
10. Evaluate meeting

NEW ACTION ITEMS

- Arnie: Add RESOLVE sessions to the Aquatics schedule.
- Arnie: Touch base with Mark Downen re: his participation in this group.
- Arnie Check on availability of a conference room for August 25 RESOLVE session.
- Arnie: Ensure that the Technical Scenarios Teamlet minutes, etc. are posted on the website.
- Arnie: Send out Phil's high level draft of some of the potential biological implications of increased flood control.
- ALL: Get comments to Arnie (to send to Asit) on A26a by August 14 meeting.
- Stan: Prepare a slideshow presentation of Alaska trip for August 14 meeting.
- Mizan: Bring an overview of floating surface collector model to our next meeting.
- ALL: Review all associated documents in preparation for July 29 RESOLVE session
- Lyn: Button up with Dee re: RESOLVE agenda.
- Arnie: Let Dick know of topics for upcoming RESOLVE meeting agenda.
- Arnie: Email Connie Phil's Study Schedule so she can send it out to Solution Team Members.

INTRODUCTIONS

We welcomed presenter: Dr. Asit Mazumder, Dept.of Biology at the University of Victoria, Mizan Rashid of ENSR, Kristen Kearnes, PSE intern, and Mike Ficklin, who works at the Baker River Plant and has assisted with the data collection.

UPDATE FROM SOLUTION TEAM MEETING

RESOLVE Sessions

The majority of the meeting was spent discussing how the RESOLVE sessions were going. The Solution Team agreed to change the process so that the Working Groups get a chance to review/approve the license article language (drafted by the Louis-Berger Group) before it is sent to the Solution Team.

Flood Control

Lloyd reported that a teamlet of the USACE, Skagit County and PSE has been formed to address the issue of the flood feasibility study (approach and scope). They agreed that Tetra Tech will be writing the feasibility study and the Washington Group will be addressing any associated

physical changes to project works. If the benefit/cost ratio isn't compelling, no future action would be taken.

The initial emphasis will, therefore, be on economics. By early September, we will know if the economics pan out. If they do, the Economics/Operations Working Group will review the findings and agree on next steps. Next steps might include a comprehensive environmental costs/benefits assessment which would begin in the November time frame.

At their June meeting, the Economic/Ops Working Group reviewed a preliminary paper put out by R2 outlining some of the environmental impacts associated with flood control. (Arnie will see that Aquatics Working Group members get copies of this paper.)

Solution Team members expressed concern about a possible resource drain on already scarce resources supporting other parties of the re-licensing process.

Schedule of Study Plan Reports
Phil walked us through the draft schedule he put together for study plan reports. This schedule will be sent to Solution Team members.

Presentation by Dr. Asit Mazumder-Baker Lake Aquatic and Sockeye Salmon Productivity
Dr. Asit Mazumder started his presentation of the report for this study with an overview of the nutrient foodweb dynamics and juvenile sockeye production. He reviewed productivity relationships learned in other systems. He showed the relationships between algal biomass, daphnia size, fry and smolt size and density to fry stocking and fertilization. Asit then reviewed the specific objectives of the Baker productivity study. Based on Asit's analysis of data for nutrients and zooplankton, Baker Lake productivity is currently not limited by nutrients or resources and the concentration of nutrients is at or above average levels observed among some of the most productive sockeye systems. He noted the large Baker smolt sizes and high biomass of large zooplankton and his interpretation is that the Baker population is lower than the system's current carrying capacity and fertilization would not be the best enhancement practice at this stage.

Data from 1984 to 2000 indicate that zooplankton and daphnia biomasses are very positively correlated to smolt size. Large smolts are associated with high smolt-to-adult survival. However, he noted that in the Baker System, we are seeing a smaller percentage of fry surviving to smolt than is observed in other sockeye systems (Washington, BC and Alaska). We are also seeing a lower percentage of adult returns than would be expected given the large smolt size. Something seems to be happening down stream that is affecting adult returns.
Asit finished his presentation by listing the following results/interpretations:

- Based on data for nutrients and zooplankton, Baker Lake productivity is currently not limited by nutrients or resources.
- The concentration of nutrients is at or above average levels observed among some of the most productive sockeye systems.
- Given the high biomass of large zooplankton and large smolt size, fertilization will not be the best enhancement practice at this stage.

- Given the significantly larger than optimal size (80-90 mm) of smolts and abundant large zooplankton, Baker Lake sockeye population appears to be significantly lower than its current carrying capacity.
- Beach spawning seems to be very efficient in producing large number of fry, but the percent of fry surviving to smolt is much lower than average sockeye lakes in Washington, BC and Alaska

He listed what he saw as major data gaps. Major gaps included data for smolt age structure and size distribution; zooplankton data (samples were taken only from top 10 meters); depth profile of nutrients; the percent of phosphorus that is due to glacier flour; trophic roles of coho, rainbow, kokanee in determining productivity of sockeye smolts; and, causes for low fry to smolt survival. He ended with a list of suggested one-to-two year studies which might address these gaps.
In summary, the Baker Lake System (including Lake Shannon) does not seem to be a good candidate for fertilization. It appears that it would be able to sustain higher numbers of smolts without doing any fertilizing. Asit's sense is that predation loss could be a large contributor to the system.

After the report is finalized, it will be available on the web. In the meantime, all were asked to let Arnie know if they'd like a hard copy of Asit's presentation.

FISH PASSAGE TECHNICAL WORKING GROUP REPORT
Nick reported that the first Floating Surface Collector is scheduled to be installed at Upper Baker in 2007 and Lower Baker in 2008. Many distinct technical working groups (focusing on design details, performance standards, etc.) will be meeting over the next several months. The scope and schedule for the fish passage facilities will be reviewed by this group before going to the Solution Team.
The actual cash outlays resulting from the schedule will begin once we know we have a settlement.
There will be an Expert Workshop July 22 and 23 at the Baker Lake Lodge.

INSTREAM FLOWS TECHNICAL WORKING GROUP REPORT (A9)
The Instream Flows Technical Working Group met on June 30. Minutes from this meeting should be out next week. There are three main components to the Middle Skagit River Habitat Models: hourly flow routing; (expected to be complete by July 18), hourly habitat (expected to be complete by August 15), and daily habitat (expected to be complete by September 19). The team was in agreement to going forward with the proposed models. HYDROPS hourly output will be supplemented by tables showing stage and flow for each of the 24 transects. Phil announced that there will be an executable program available as of July 18, that will allow you to create your own tables. Let Phil know if you'd like a copy of this program.

STUDY REQUEST SUBMITTALS/STUDY PLAN DEVELOPMENT

Study #	Title	Notes/Next Steps

A01a Reservoir Tributary Habitat Surveys	The draft report will be out for review at our August Working Group Meeting.
A01b Reservoir Tributary Biological Surveys	See A01a. Are now also including native non-salminods 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	See Instream Flows Technical Working Group report (above).
A09B Salmonid Redd Selection and Maintenance in the Middle Skagit in Response to River Fluctuation from Hydropower Peaking	Phil reported that this draft report should be out by our September Working Group meeting.
A09C Distribution, Timing and Depth of Salmonid Redds	Chinook redd dewatering analyses to be redone using transect stage: flow relationships by July 18. Revised report and proposed spawning periodicity to be out for review by August meeting.
A09D Distribution, Timing of Salmonid Fry	Draft report and proposed juvenile periodicity to be out for review by August 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	This report has been shared across the Terrestrial, Recreation and Cultural Working Groups. Comments will be addressed in the "final" version of the report. Arnie will remind the team leaders of the other Working Groups that we need their

	resource-specific concerns around this report and the next steps document that Greta drafted. We'll discuss this at our August meeting.
A15 UB Delta Scour	An initial draft will be submitted by September 2 to provide time for review before the September. ARWG meeting; a decision on whether to collect additional redd data must be made at the September meeting
A16 Lower Baker River Alluvial Fan Assessment	Technical subcommittee meeting July 28 to discuss initial results of phase 1 analyses, meeting record will be distributed by August ARWG.
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	Comment period closed, final draft report in preparation, low priority but out by September ARWG meeting.
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	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.) 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. Comments on Part 2 are due July 15. Schedule for revising Part 2 dependent on scope of comments.
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	Dr. Asit Mazumder gave his presentation of the report for this study (see discussion above and presentation handout). His presentation addressed comments that have been received on the A26a study report. All were asked to let Arnie know if

	they'd like a hard copy of Asit's presentation and to get final comments to the A26a report to Arnie (to send to Asit) by the August 14th meeting. We will be moving towards a revised draft, after then.
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)	Initial results will be distributed at the August meeting for potential use in PME development.
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	Ruth and Scott will be writing a PME (to sample) for this. This will be ready for review before the September 19 RESOLVE meeting.

July 29 RESOLVE Draft Agenda 8:30 at Mountlake Terrace.

1. Review of RESOLVE process
2. Finalize PMEs:
   3.2.1 Upstream Passage
   3.4.1 Sediment Management
   3.4.2 Large Woody Debris
   3.1.2 Propagation (circumstances/scope for use)
3. Draft agenda for next RESOLVE meeting

REPORT ON OLD ACTION ITEMS

- Arnie: Made double-sided copying for handouts.
- Arnie: Sent out Shared Resources section for the fall PDEA to working group members.
- Phil: Provided a list of all studies and when they are expected to be complete.
- Cary & Phil: Put together 1st RESOLVE agenda (button up with Dee on this).
- Lyn: Shared RESOLVE dates with Roma Call (Lewis River).

- Arnie: Sent out updated contact sheets with new PSE mailing address and Arn's corrected phone number.
- ALL: Reviewed "Short Course on RESOLVE Method for Collaborative Negotiations" prior to the first RESOLVE session. (July 29)

HANDOUTS
- Agenda for 7-10-03 meeting
- Updated Participant Contact List
- Final Minutes from 6-12-03 meeting
- Long-term Aquatics Schedule
- A25 Unnatural Predation Summary of Results as of 6-26-03
- Preliminary Comments for Discussion from Stan Walsh on *Baker Lake Aquatic and Sockeye Salmon Productivity*
- Summary of Intent and Scope of Reservoir Production Potential Development
- Copy of Asit Mazumder's Presentation: Study A26.a. Reservoir Production Potential Report

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 for 2003.

EVALUATION OF MEETING

Well-Dones
- Asit's presentation was informative and raised many questions.
- DOE – Thanks Bob for hosting!
- Phil's study schedule
- Got our early!
- We left feeling full- Thanks Arnie!
- Mike's presence
-
-

To Do Differently Next Time
- Lost several folks part way through
- Meet at Mountlake Terrace
-

What's Hot?
- RESOLVE
- September 30 deadline!
- Diminishing resources to do the work
- Baker Lake productivity –many questions to be answered

Studies Update for Solution Team

- See Phil's handout.

Tentative August 14, 2003 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
  - Model Presentation
  - 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 Aluvial 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

BAKER RIVER PROJECT RELICENSE

Aquatic Resources Working Group

SCHEDULE OF STUDY PLAN REPORTS

July 10, 2003

Study # Title	Anticipated Schedule
A01a Reservoir Tributary Habitat Surveys	Draft report will be transmitted at the August ARWG meeting.
A01b Reservoir Tributary Biological Surveys	See A01a .
A01c Reservoir Tributary Delta Surveys	See A01a.
A26b Tributary Production Potential	See A01a.
A02 LB River Habitat Mapping	Draft report to be submitted at September ARWG meeting
A03 Reservoir Fish Population Characteristics	PSE will review existing information for the PDEA.
A04 LB/Skagit River Flow, Gaging	Incorporated into A-09a hourly flow routing model.
A05 Water Quality Sampling	
A06 UB Passage Design Baffle Modification	Complete.
A07 Lower Baker Forebay Bathymetry	Complete.
A08 UB Passage System Evaluation	Complete.
A09a Middle Skagit River Habitat Models • Hourly flow routing model • Middle Skagit hourly habitat models (wetted surface area, varial zone, redd dewatering, scour) • Middle Skagit daily habitat models (PHABSIM, side-channels, backwater sloughs)	• executable program to be transmitted by July 18 • initial results by August 15, multiple scenario outputs to follow as requested. • PHABSIM and side-channel results by September 19, multiple scenario outputs to follow. • Backwater slough results by August 15.
A09b Salmonid Redd Selection and Maintenance in the Middle Skagit in Response to River Fluctuation from Hydropower Peaking	Draft report by September ARWG meeting.
A09c Distribution, Timing and Depth of Salmonid Redds	Chinook redd dewatering analyses to be redone using transect stage:Q relationships by July 18. Revised report and proposed spawning periodicity

	to be transmitted by August ARWG meeting.
A09d Distribution, Timing of Salmonid Fry	Draft report and proposed juvenile periodicity to be transmitted by August ARWG meeting.
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.	Moved to the Recreation Working Group.
A13b Water Quality Impacts on Aquatic Habitat	Cancelled.
A14a Reservoir Shoreline Erosion	Schedule dependent on comments received at the July ARWG meeting.
A15 UB Delta Scour	An initial draft will be submitted by September 2 to provide time for review before the September ARWG meeting; a decision on whether to collect additional redd data must be made at the September meeting.
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A25 Unnatural Predation	Field studies continuing through end of July.
A26a Reservoir Limnology-Production Potential	Draft report was distributed at the June ARWG meeting; schedule for final draft dependent on comments received at the July ARWG meeting.
A26b Tributary Production Potential	See A1 above.
A27 Middle Skagit Incubation Flows	Addressed in A9.
A28 Fish Passage-Reservoir Management	Active – 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)	Initial results will be distributed at the August ARWG meeting for potential use in PME development.
R-A38 Bull Trout Population Assessment & Risk Analysis	Implementation proceeding. If requested, final study plan can be distributed by August ARWG meeting – otherwise incorporated into report on results of 2003 studies to be distributed at January 2004 ARWG meeting (to allow for 2004 plan modifications).
R-39 Native Non Salmonid	Being pursued as PME; meanwhile native non-salmonid identification keys will be developed and distributed to on-site biologists (both PSE and contractors) to accelerate collection of site-specific data.