
BAKER RIVER PROJECT RELICENSE

Aquatic Resources Working Group

April 11, 2002

8:30 a.m. – 3:00 p.m.

US Forest Service Office
21905 64th Avenue West
Mountlake Terrace, WA 98043

AGENDA

1. Review Agenda and Minutes
2. Review Study Plans and Requests
A1, A25, A29, A9, A9C, A26
3. Approve Study Plans: A14a, A20
4. Charles Howard Model Preview/Demo (1.5 hrs.)
5. Update from Solution Team Meeting
6. Reports from Fish Passage Technical Working Group
7. Additional Issues?
8. Set agenda for May 9, 2002
9. Evaluate Meeting



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8:30 a.m. – 2:30 p.m.
USFS Office
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, aaspel@puget.com

PRESENT: Arnie Aspelund, Nick Verretto, Tony Fuchs, Doug Bruland, Joel Molander, Wayne Porter, Lloyd Pernela (PSE), Sue Madsen and Phil Hilgert (R2), Thom Hardy (Utah Water Research Laboratory), Dick Raisler (Fidalgo Fly Fishers), Chuck Howard, (Senior Consultant and former president of CHAL), Tung Van Do (President, Powel Ltd.- formerly CHAL), Mark Killgore (Louis Berger Group), Gary Sprague (WDFW), Bill Reinard (Wildcat Steelhead Club), Don Schluter (Trout Unlimited, by phone), Bob Wright (DOE), Lyn Wiltse and Mary Jean Bullock (PDSA Consulting, Inc.)

Note: If unable to attend meetings, please notify Team Leader. If something comes up on the day of the meeting, call Lyn at her new cell phone number: 425-890-3613.

FUTURE DATES AND LOCATIONS

April 11, May 9, June 13 from 8:30 to 3:00 at USFS Office in Mountlake Terrace unless otherwise specified.

INTRODUCTIONS

We welcomed Charles Howard and Tung Van Do who is now the President of Powel Ltd.

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U. S. Forest Service Office
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1. Charles Howard Model Preview/Demo
2. Review Agenda and Minutes
3. Review Study Plans and Requests
A25, 29, 36, A9c, A9, A14a, A20; A24, A26
4. Action Items
5. Update from Solution Team Meeting
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NEW ACTION ITEMS

- All: Let Lloyd know if you want to attend the June 12 all-day Hydrops Model Workshop.
- Don: Send what information you have re: cut throat passage to Phil by April 30.
- Nick and Bob: Meet with Brady and Greta re: A13.
- Sue: Send out prioritization strawman and schedule.
- Ruth: Draft Interest statements and accompanying issues for the Nature Conservancy.

HISTORY AND SUBSTANCE OF THE CHARLES HOWARD HYDRO OPERATIONS MODEL

Joel Molander explained that PSE underwent a very rigorous model selection process. He expressed great confidence in the optimization model they have selected. This Working Group will be using the Study Model which is essentially the same as the Operations Model as is has a static database and better suited for our purposes.

Charles Howard & Associates, Ltd. (CHAL) has been providing hydrologic and water resource consulting and modeling services since the mid-1970s and has conducted over one hundred twenty analyses and modeling efforts specific to hydroelectric-related projects. HYDROPS™ represents the culmination of CHAL's experience in hydroelectric planning, project optimization and operations modeling and provides a flexible, reliable tool for incorporating real-time operational data into the optimization of the Baker River Project.

WHAT FERC LOOKS FOR IN MODELS

Mark Killgore, consultant (Louis Berger Group) hired by PSE to assist in implementing the Charles Howard Model, gave a comprehensive presentation about the application of models and economics to FERC Relicensing. He distributed copies of handouts of his presentation. He covered how models are used in relicensing, models that are currently available, characteristics of good models, and an overview of FERC's Economic Evaluation Methodology. He discussed how results from operations models can be linked to model used in evaluating other resource areas. His presentation will also be posted on the PSE website. He also distributed relevant

FERC regulations from the Code of Federal Regulations (CFR) on the contents of a license application. Material on relicensing and links to the CFR are available on the FERC website at www.ferc.gov. The Mead decision, which implemented the current FERC policy on economic analysis, is also on this website under CIPS. Search on Project P-2506 for 1995 for a copy.

HYDROPS HISTORY, APPLICATIONS

Chuck Howard (retired a year ago from CHAL and now consulting with BPA) explained that his organization has been around since the 1960's. They started out doing water quality work on the Great Lakes. For the last 30 years, they have been working on hydro optimization models. They have worked on over 150 hydroelectric-related projects, 129 of which have been modeling assignments. He described the Charles Howard Hydrops Model as a deterministic optimization model of a probabilistic issue.

WATER RESOURCES SYSTEMS PLANNING (CALIBRATION AND FLEXIBILITY)

Tung Van Do walked us through the purposes, limitations, and procedures involved in water resources systems planning. He explained features of the Planning and Studies Model which is essentially the same model as what is used for operations. He also described the Optimization and Simulation Models. He also presented an overview of the Functional Interactions in HYDROPS. His presentation will also be posted on the PSE website.

REPORT ON OLD ACTION ITEMS

- Carl: Send Nick study plans A25 and A29 to distribute for team members to review.
- Carl: Reported that otoliths can be read by next spring. (PSE will arrange with Fish and Wildlife)
- Sue: Set up Instream Flow technical Workshop (in Bellevue on April 22).
- Don: Provided references on information on cutthroat and char passage through Cascades to Arnie. He will send everything he gets to Phil by the end of the month.
- Tom: Emailed power point presentation to Nick so he can burn CDs to distribute to team members.

STUDY REQUEST SUBMITTALS/STUDY PLAN DEVELOPMENT

Study #	Title	Notes/Next Steps
A01.A	Reservoir Tributary Habitat Surveys	The Tributary Habitat Work Report will be ready for our May meeting. Production Potential Study Plan (density of various species by habitat type) will be ready for our review at our May meeting.
A01.B	Reservoir Tributary Biological Surveys	We will have a draft report this spring.
A01.C	Reservoir Tributary Delta Surveys	These surveys are continuing and will be looking at resident trout spawning. Don't expect to start seeing fish until mid-May. These surveys are specific to tributary deltas.
A02	LB River Habitat Mapping	No changes since last meeting.

A03	Reservoir Fish Population Characteristics	No changes since last meeting.
A04	LB/Skagit River Flow, Gaging	No changes since last meeting.
A05	Water Quality Sampling	No changes since last meeting.
A06	UB Passage Design Baffle Modification	Complete.
A07	Lower Baker Forebay Bathymetric Survey	Complete.
A08	UB Passage System Evaluation	The study report from R-2 is complete.
A09A	Skagit River Flow and Habitat Assessment (HIGH PRIORITY)	There will be a technical Working Group meeting on April 22 in Bellevue. This will address flow and ramping issues.
A09B	Salmonid Redd Selection and Maintenance in the Middle Skagit in Response to River Fluctuation from Hydropower Peaking	Not discussed at this meeting. A copy of a report was provided to Stan Walsh on a Seattle City Light study looking at the behavioral response of salmon on redds.
A09C	Distribution, Timing and Depth of Salmonid Redds	Phil addressed Dick Raisler's comments regarding the modification of the plan to conduct spring steelhead surveys. R-2 will be doing an aerial flight this spring. Went out March 27, with flow of 12K cfs. Circled any potential redds. Saw 2 fish nosing around one area. Went out April 8. Flows were up to 16K cfs – too much sediment/turbidity to see much. Will try to go up on a Saturday - or try mornings to reduce the likelihood of low visibility conditions. Will get an update at our May meeting.
A09D	Distribution, Timing of Salmonid Fry	Still waiting for NMFS collection permit. Will give a report at April 22 meeting. Thom Hardy gave a preview of the presentation on Aerial Photography And Soft-Copy Photogrametry that he will deliver in more detail at the April 22 meeting.
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	Not Discussed. Parking Lot.
A12	Instream Flows for Bio-diversity	Not Discussed. Split between R-A21 & R-A09.
A13A	Water Quality Impacts of Human Uses of the Reservoir and Adjacent Shorelines.	Not discussed at this meeting. Arnie will follow up with Recreation Working Group re: existing data and possible PMEs. Nick, Brady, and Bob (DOE) will discuss this offline with

	Greta.
A13B Water Quality Impacts on Aquatic Habitat	Not discussed at this meeting. Nick and Arnie will discuss this offline.
A14A Reservoir Shoreline Erosion	We agreed to move this from Study Plan to study implementation. This survey is being conducted now (field and photo work). We will get preliminary study results to all Working Groups by June.
A15 UB Delta Scour	Not discussed at this meeting.
A16 Lower Baker River Alluvial Fan Assessment	Not discussed at this meeting.
A17 Tributaries Surveys Upstream of Barriers	Not discussed. Request pending; not for 2001.
A18 Baker River Survey Upstream of 1 km.	Not discussed at this meeting. Status as of October meeting: Merged into A-01.A habitat surveys conducted Aug & Sept 2001.
A19 Review Limnological Information	Not discussed at this meeting. Status as of October meeting: PSE is talking to a University of Washington researcher to review existing data.
A20 Large Woody Debris Management	We agreed to move this from Study Plan to study implementation. Work will begin as soon as possible.
A21 Skagit Wild & Scenic River Values	Not discussed at this meeting. Status as of October meeting: Study Request is under review.
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.
A23 Baker River Wild & Scenic River Values	Not discussed at this meeting. Status as of October meeting: Study Request needs clarification.
A24 Hydrologic and Geomorphic Analysis	Not discussed at this meeting. R2 reviewed and provided a response to Stetson Engineer's comments to final study plan.
A25 Unnatural Predation	Carl Hadley is continuing to develop this Study Plan. We will start the field work next week and go through the middle to the end of May. We did a preliminary look on March 29. Didn't see anything of consequence. Nick will forward the revised Study Plan when he receives it. He welcomes additional comments.
A26A Reservoir Limnology-Production	Nick will be meeting with Dave Beauchamp

Potential	next week to discuss how to resolve Study Plan details. We'll get an update at our meeting in May.
A26B Tributary Production Potential	Production Potential Study Plan (density of various species by habitat type) will be ready for our review at our May meeting. Don will provide information on cutthroat and bull trout passage to Phil by April 30.
A27 Middle Skagit Incubation Flows	Not discussed at this meeting. Status as of October meeting: Covered in A9.
A28 Fish Passage-Reservoir Management	Not discussed at this meeting. This is being further developed in the Fish Passage Technical Working Group.
A29 Estimate Sockeye Production from Different Incubation Sources	Carl is also working on fleshing out this study. This involves otolith examination. Nick and Carl did some night-time sampling by setting fyke nets. In Channel creek they caught 113 sockeye fry, 147 coho fry, 6 rainbow trout, 12 sculpin and 1 cutthroat. In Baker River (left braid on channel) caught 73 fish – all were coho fry/ They'll go out again Wednesday – Friday of next week with hand nets, searching through all braids of Upper River channels. They need a minimum of 25 fish in order to have a statistically significant sample in order to compare with the other groups.
R-A30 Near-Field Smolt Behavior	Not discussed at this meeting. Coordinated through Fish Passage Tech. Group.
R-A31 Fish Passage-Far Field Smolt Migration	Not discussed at this meeting. Coordinated through Fish Passage Tech. Group
R-A32 Fish Passage-Kelt Radio telemetry	Not discussed at this meeting. Coordinated through Fish Passage Tech. Group
R-A33 Fish Passage-PIT Tag Migration	Not discussed at this meeting. Coordinated through Fish Passage Tech. Group
R-A34 Fish Passage-Downstream Run-Timing Correlation	Not discussed at this meeting. Coordinated through Fish Passage Tech. Group
R-A35 Fish Passage-Upstream Run-Timing	Not discussed at this meeting. Coordinated through Fish Passage Tech. Group
R-A36 Native & Wild Inland Fish Population Assessments	Not discussed at this meeting. . R2 (as part of a modified A1C) is conducting delta spawning surveys for resident trout which addresses parts of this request. The purpose of this study is to identify the origin, status, and potential for preservation and enhancement of native and

	<p>wild rainbow trout and cutthroat trout populations in the Baker Lake drainage. Mark (WDFW) reviewed the purpose. Arnie suggested that the connectivity issues related to this study are already being addressed in fish passage studies. After considerable discussion, we agreed the outstanding issues are whether we will do a spring spawning survey in the deltas, decision data needs and identifying the genetic tie to relicensing. If we do the delta spawning, Mark said they would withdraw the request for the genetic study. R2 (as part of A1C) will draft a protocol to do delta spawning surveys this spring and send it out for our review prior to the next meeting. If we go forward with this survey, it will take some money from follow-up surveys above potential barriers. Trout Unlimited expressed a strong desire that the barrier-related surveys be done. The Fidalgo Fly Fishers & Washington Council of Federation of Fly Fishers expressed that it is very important to preserve and enhance a native and wild rainbow and cutthroat trout population in the Baker Lake drainage.</p>
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REPORT FROM FISH PASSAGE TECHNICAL WORKING GROUPS

The Upstream and Downstream Fish Passage Design Groups combined and met April 2nd. They continue conceptual design development and alternatives selection, and focused discussions on 2002 behavioral studies at Upper Baker. April 29, is the start of downstream studies. Conference calls have been set up for each Monday once these four studies are underway. These will facilitate any last minute decisions making which may need to occur.

May 7 and 8 are the next dates for meetings at the Project. They will try to select an alternative to the upstream passage design at those meetings. The selection of the downstream passage design will depend on results of studies. It will be a combined meeting dealing with both upstream and downstream passage.

SOLUTION TEAM UPDATE

May 21 is the date of a public tour of the Baker River Project. Public meetings to review the Initial Scoping Document (ICD) and Scoping Document #1 will follow on May 21 and 22. A 60-day comment period will follow the public meetings. PSE expects to release the Scoping Document #1 within five days. Comments on both documents will be due July 22.

ADDITIONAL ISSUES

Bill Reinard distributed an article on Cultural Oligotrophication. He suggested that Study Request R-A11 on nutrient addition have the description be changed to say “It is worth investigating where nutrients are limiting production in the tributary streams to the Baker River”. It was suggested that data from A26 will be a useful tool.

MEETING HANDOUTS

- Agenda, March 2002 meeting notes, updated mail list, revised study request index.
- Hydro-power Stochastic Forecasting and Optimization (Tung Van Do and Charles D. D. Howard, M. ASCE)
- SSDP Reservoir Models Using Ensemble Streamflow Prediction (ESP) Forecasts Beth Faber and Jerry Stedinger.
<http://www.pse.com/hydro/baker/meetings/2002/economic20020410handout.pdf>
- Mark Killgore’s PowerPoint presentation: The Application of Models and Economics to FERC Relicensing
<http://www.pse.com/hydro/baker/meetings/2002/economic20020410presentation.pdf>
- Tung Van Do’s PowerPoint presentation: Water Resources Systems Planning
<http://www.pse.com/hydro/baker/meetings/2002/economic20020410presentation2.pdf>
- CD: PSE’s Initial Consultation Document
- CD: International Workshop on *Sustainable Riverine Fish Habitat* (April 21-24, 1999, Victoria, BC, Canada) (MP3 format)
- Brady Green’s Response to PSE’s Project Influenced Predation Questionnaire, March 21, 2002
- Aerial Photography and Soft-Copy Photogrammetry (Thom Hardy of Utah Water Research Laboratory)
- Cultural Oligotrophication (Stockner, E. Rydin, and P. Hyenstrand) May, 2000.

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 Traps & Haul – other species

EVALUATION OF MEETING

Well-Dones

- Got out early!
- Great presentations
- Improved focus
- POG
- Raspberry Milanos – Thanks Gary!

Opportunities to Improve

- Get started on time
- Fuller participation

Tentative Agenda for Next Meeting

May 9, 2002

8:30 p.m. – 3:00 p.m.

U. S. Forest Service Office

Mountlake Terrace, WA

1. Review Agenda and Minutes
2. Review Study Plans /Requests
A1, A9, A9C, A26
3. Take stock of all Studies/Prioritize (one hour at least)
4. Action Items
5. Update from Solution Team Meeting
6. Reports from Fish Passage Technical Working Group
7. Additional Issues?
8. Set agenda for June 13, 2002
9. Evaluate Meeting