

MEETING MINUTES
Downstream Fish Passage Technical Working Group

Mission Statement: To develop an efficient fish passage design for the Baker River Project.

Project: Baker River Project
FERC No. 2150

Written By: Dawn Schink

Meeting Date: December 11, 2001

Location: WestCoast SeaTac Hotel, Seattle

Attendees:	Arnie Aspelund, PSE	Wayne Porter, PSE
	Ed Meyer, NMFS	Dawn Schink, PSE
	Doug Bruland, PSE	Don Schluter, TU (by phone)
	Cary Feldmann, PSE	Fred Seavey, USFWS
	Steve Fransen, NMFS	Jim Stow, USFWS
	Phil Hilgert, R2	Nick Verretto, PSE
	Kim Lane, PSE	Stan Walsh, SSC
	Mort McMillen, MWH	Lynn Wiltse, PDSA
	Ed Meyer	

Purpose: The purpose of the meeting was to continue development of conceptual design alternatives for replacement of downstream fish passage facilities at the Baker River Hydroelectric Project, and to review study needs required for evaluation of downstream fish passage options and to develop a course of action.

Future meeting dates:

January 7, 2002 (downstream passage), 9:00 to 3:00, at the WestCoast SeaTac Hotel;
January 8, 2002 (upstream passage), 9:00 to 3:00, at the WestCoast SeaTac Hotel;
February 5, 2002 (upstream passage), 9:00 to 3:00, at the WestCoast SeaTac Hotel;
February 6, 2002 (downstream passage), 9:00 to 3:00, at the WestCoast SeaTac Hotel.

December 11th Agenda:

Objective: Review downstream fish passage studies and designs options and develop course of action.

- Review minutes & agenda (Wiltse)
- Review action items list (Wiltse)
- Review Charles Howard Model (Barnes)
- Review Downstream Alternatives (McMillen)
- Review Filter Process (McMillen)
- Apply Filter to Downstream Alternatives (McMillen)

Review Downstream Studies (Verretto)
Project Schedule (Lane)
Evaluate Meeting (Wiltse)
Review assignments (Wiltse)
Schedule Next Meeting & Agenda (Wiltse)

Review Minutes:

The minutes were accepted as written.

New Action Items:

- Don – Put together white paper on cut throat passage
- Kim Lane/Bob Barnes – check with Charles Howard regarding possibility of tech review of model. Kim will find the format of model output E.I. weekly, monthly, and give to Mort.
- Kim – further refine schedule
- Mort – form teamlet to address filter process. Teamlet will consist of Ken, Fred, Cary, Kim & Wayne. Will meet on 1/3/02, at MW
- All – Review list of evaluation criteria.

Report on Completed Action Items:

- Nick – coordinate with Bob Barnes for presentation of reservoir operations model (i.e., Charles Howard model) at next downstream design meeting (Tuesday, December 11). **Result**
- Nick – coordinate fish passage studies consultant identification and studies development subgroup meeting (Tuesday, November 13). **Result** – [Studies being developed – met at meetings on November 15, 2001, and December 3, 2001](#)
- Mort – review downstream passage options and history of decisions to direct options reduction and continuing development, complete by December 11th.
- Dan – develop upstream passage footprint conceptualls and costs, as well as biological cost-benefit template for discussion purposes at next meeting, complete by December 12th.
- Phil – complete draft report of baffle study results by December 11. **Result** – [draft report not completed.](#)
- Cary – review communication protocol and present to the group December 11. **Result** – [under review.](#)

Review Charles Howard Model:

Bob Barnes discussed . . .

- Model is hydro operational model, that considers constraints, and unit characteristics.
- Delay for the past 3 months has come from Baseline Hydrology. We have data going back 75 years. For data older than 23 years ago, not known how this older data was collected or stored. Model was not used for operation, just flood control.
 - Now we have to model each individual project.
 - In past, LB was the difference of total flow minus Upper Baker, instead of being measured separately.
 - All data has now been reviewed, day by day, making sure of flow consistency. 10,000 days were reentered.
- Water Resource Model is supposed to be up and running this month, the Hydro Model in Jan or Feb.
- Charles Howard will do resource model results

- Fred wants to know when model will be available. Bob said at the end of December, and then sent out in January or February with the working groups to be reviewed and demonstrated. Fred also wants agency engineers to look at the model to agree and approve it, for peer review. Doesn't feel it is helpful to have at working groups. Thinks Kim/Bob should coordinate this.
- Fred wants to evaluate the model, to use it as a tool, and would like an approval from agencies. Will be content with technical review by Charles Howard.
- Cary asked model to give him minimum range we can operate without spill as test, during migration, March 1st to July 15, 2002.
- Phil - does PSE have the corrected data entered? Corrected data set will be available next week. He would like a set of the corrected data.
- Bob – the data most critical during very low flows. Much of reconstructed data sets from the 1960's were incorrect.

Review Downstream Alternatives:

Mort presented . . .

- reviewed the fixed, adjustable and floating alternatives(these are explained in handout)
- LB1 – fixed screen system
- UB1A –Challenge because very steep
- UB1A –Will have to be anchored. Could be attached to newly built tower.
- UB1B –Concrete walls would have to be 8 to 10 feet thick
- UB2 – same as 1B, except 67 feet deep
- UB6 – oat would be 50 feet deep, 300 feet long.
- UB7 – gulper approach, same as with Lower Baker
- Don – are they volitional for downstream? YES.
- Phil – There were other alternatives not in this packet, Such as 3 fixed horns with 2 large on the bottom. Higher capital cost, lower operational cost. Single MIS screen handle 1200 cfs, total 5,000 cfs total. Would replicate natural lake movement. PSE concerned about reregulating flow in front of the dam.
- Fred has concerns about keeping screens clean, but might not be a worry with water flowing on both sides. Jim asked if multiple would be that more expensive than single. Mort says not necessarily. Also concerned on filtering screens.

Review Filter Process:

Mort presented a process to filter out non-optimal concepts.

- Flow is as follows:
 - Brainstorming ideas
 - Filter Media #1 – Fatal Flaw - example: 10 mile long channel fish passage. Study cannot be developed to prove it's effectiveness. Also construction, like in landslide areas, and environmental, like crossing streams. Document rejected alternatives, review by core team & file reasons for rejections.
- 1. Construction
- 2. Environmental
- 3. Species effectiveness
- 4. Operation
- 5. Collection efficiency
- 6. Monitoring & evaluation

7. Design
8. Biological
9. Cost
 - Filter #2 - Species Effectiveness, Operation, Collection Efficiency, Design Issues, biological & Cost
 - Paragraph written up for each idea that has been cut, for documentation later on that all ideas were thought of and why rejected.
- Jim requested specific reasons for cuts
- Mort said he and Kim are wanting to come up with a decision making model or matrix. Fred agrees that this would allow weighing options. Kim is hoping to make a lot of progress weeding out in the early stages.
- Fred wants flexibility in ranking for filters.
- Jim requested a tweak column, instead of just throwing out options.
- Mort said the fish studies will help some of the options to drop off. A firm timeline is very important in the process.
- Ed doesn't have problem throwing Fatally Flawed options out.
- **First cut:** Identify options that more than 2 people consider fatally flawed. Then go through all that are checked and see if there are alternatives, or if it should be dropped altogether.
- Jim thinks cost should be taken out of filter #1, and even filter #2.
- Jim has worked on 30 foot deep, with screens that went down deeper. There are alternatives that work with less fluctuation.
- Jim – flood control is an issue to be looked at as criteria, as safety issue.
- Ed - Spill control is an issue, because you lose control and flexibility with it.
- Jim thinks it is a possibility is do all screening at UB, and do pipeline all the way around. It would be about 17 hour travel time. Cary said there are major constructability issues with landslides and depth of canyon.
- Jim wants to reduce pool fluctuations and reduce spills.
- Fish passage at LB in case of uncontrolled spilled into Lake Shannon
- Ed thinks the existing system is not conducive to chinook. Missing data, such as what is the smallest chinook? Are they able to grow in reservoir?

Apply Filter to Downstream Alternatives:

Mort presented . . .

- **Options to Filter or Concerns at LOWER BAKER:**
 1. F.1 – Jim concered there would be no movement for fish in front of screens
 2. F.2 – same concern as F.1
 3. F.6 – concern on attracting in enough fish
 4. F.8 – concern on attracting in enough fish
 5. F.9 - Potentially Flawed - concern is unproven technology. Jim also worried about the cleaning of screens.
 6. F.10 – Potentially Flawed – location & construction issue
 7. F.11 – Potentially Flawed – location issue
 8. A.1 – Potentially Flawed - the jax, mechanical complexity
 9. A.2 - Potentially Flawed – complexity
 10. A.3 - Potentially Flawed - complexity
 11. A.4 - Potentially Flawed – complexity

12. FL.1 - Potentially Flawed – construction and maintenance.
 13. FL.2 – concern regarding the 3000 cfs pump
- Fred wants to know why A.4 would be flawed. Steve and Ed said the physical dimensions. Ed thinks MIS technologies have their place, but not in these situations. Fred thinks it would work with 60% because the screens are smaller. Cary thinks it is more unreasonable.
 - Jim thinks MIS, while cheaper, is too risky when conventional technology would do better. Cary thinks the question is can the fish find the screens in either process
 - Jim thinks a circular penstock around the tower is an option
 - Stan was saying that with the reduction of screening, most of cost is in construction. Combo Full Screen /Limited Reservoir, Range with Gulper
 - Ed thought the 15 foot would save money, at least 15 feet of excavation costs
 - **Options to Filter or Concerns at UPPER BAKER**
 1. F.1 – concern because construction and operation concerns. Cary thinks the 20 pipeline is a problem. Jim wants this investigated closer to the project.
 2. F.2 – F.5– concern because construction and operation concerns.
 3. F.6 – F.8 – Location is potential issue. Viable options
 4. F.11 Comparison for gulper and fixed screens. Viable option
 5. A.1 - A.3 Potentially Flawed, similar to Lower Baker
 6. A.4 Potentially flawed, similar to Lower Baker
 7. FL.1 - Potentially Flawed. Look at building large circular penstock, around the tower. Cary thinks this would be physically impossible to build it. Jim says it has been done by building a dock..
 8. FL.2 - Potentially Flawed, the size of the pump a concern
 9. Keep FL.6 – FL.10. Not same site restrictions as Lower Baker.
 - Wayne wants to keep FL.5, which is the closest to existing, only change to 2%
 - Ed wants to know if an MIS with an restrict forebay has been looked at.
 - Jim has concerns with the guide nets and their size depending on velocity.
 - Cary gave his seed strainer option, a cone with velocity .4. Can clean with backwash.. The whole trap would be screens, and would float. Fred wants to know if moving the intake could keep some of the options from being fatally flawed.
 - **Mort** will put the filter or concerned options in a template and analyze to have ready for next meeting, to do next cut.

Review Downstream Studies:

Nick presented Proposed Studies:

- Met Nov 15th and Dec 3rd to discuss downstream study needs
- Needs were split into nearfield and farfield studies – line between the two is the log boom.
- 2 near field studies and 2 farfield studies.
- Nearfield studies –
 - 3 dimensional, acoustic tags with 3 replicates with 15 fish, one with generation on & one with it off.
 - 3 Ten day study periods. Releases of 15 tagged fish. In parallel with pit tag fish, & scanned upon release.
 - The usual 15,000 release will continue, with the smaller group tagged. Mary Lou at MWH is developing the study plans.
- Farfield – upstream releases.
 - One will be radio tagged to track pathway and one will be numerical.

- Two conditions will be generation on and generation off.
- Sockeye from the trap, in addition to Coho, will be done in both studies. Steelhead adult, Kelts, will be the test species used.
- Fred –if the sockeye were found to be too delicate, then use Coho as a equivalent species.
- Fred will coordinate with Gary Sprague about the steelhead.
- Draft study plan will be distributed after the first of the year. Some will be discussed in Jan aquatics meeting
- Mary Lou will order tags this week.

Project Schedule:

Kim presented . . .

- Project Schedule
- Wayne is worried that there is no contingency in the schedule.

Old Action Items:

- Fred - bring Skagit Chinook length-frequency data.
- Fred - look at statistical variation from year to year in the gulper mark and recovery data.
- Kevin Brink - analyze how fluctuation limits affect spill (# events, amounts, seasons, duration, flow-days by month), to facilitate discussions regarding limits to drawdown range and effects on screening designs. Kevin will report at a future meeting. (The Charles Howard has the capability to address specific operational issues. These will have to be individually addressed once the model is complete)

Parking Lot:

- Hydroacoustic data - Arnie
- Fish species run timing, emergence timing, length-frequency data, meteorological data – Doug, Nick
- Design strategy process
- Conceptual designs as they relate to costs
- Sediment studies

Proposed Agenda for January 8 Downstream Passage Meeting, 9 a.m. - 3 p.m., WestCoast SeaTac Hotel:

Objective: Review downstream fish passage studies and designs options and develop course of action.

9:00 – 9:10 Review Minutes & Agenda

9:10 – 9:20 Review Action Items

9:20 – 9:30 Charles Howard Model Update

9:30 – 10:00 Update downstream studies

10:00 – 10:15 Break

10:15 – Noon Review Evaluation of Potentially Fatally Flawed Alternatives

Noon – 1:00 Lunch

1:00 – 2:15pm Discuss “not cut”

2:15 – 2:30 Project Schedule

2:30 – 2:50 Review Assignments

2:50 – 3:00 Schedule Next Meeting & Agenda