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: January 8, 2002

Location: WestCoast SeaTac Hotel, Seattle

Attendees:

Arnie Aspelund, PSE	Dawn Schink, PSE
Cary Feldmann, PSE	Fred Seavey, USFWS
Kim Lane, PSE	Gary Sprague, WDFW
Mort McMillen, MWH	Jim Stow, USFWS
Ed Meyer, NMFS	Nick Verretto, PSE
Wayne Porter, PSE	Stan Walsh, SSC
	Lynn Wiltse, PDSA

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.

Downstream Meeting - Tuesday 1/8/02

Future meeting dates:
February 4, Monday 9 a.m. - 3 p.m. - upstream design and downstream studies design review at Sea-Tac (note that this date was changed from 02/06 due to several new scheduling conflicts, and the studies discussion was added to expedite their development; the normal order of back-to-back meetings will be for downstream first, followed by upstream the next day)
February 5, Tuesday 9 a.m. - 3 p.m. - downstream design at Sea-Tac
March 5, Tuesday 9 a.m. - 3 p.m. - downstream design at Sea-Tac
March 6, Wednesday 9 a.m. - 3 p.m. - upstream design at Sea-Tac
April 2, Tuesday 9 a.m. - 3 p.m. - downstream design at Sea-Tac
April 3, Wednesday 9 a.m. - 3 p.m. - upstream design at Sea-Tac

Report on Completed Action Items:

- Charles Howard model is to be operational by mid-Feburary
- Cut throat passage is still an open issue - Don

Nick's Update on Downstream Studies

- Mary Lou will have 1st nearfield study plans ready on Jan 15th, and another 3 study plans by month end.
- Nick reviewed tagging studies to be performed this spring:
- Sample size for tagging is 22, taking in account 25% lost to mortality, and another 25 % to assumption of bad data, leaving 11 for good data. Four basic study plans are proposed for the six week study duration.
- F1 – Far Field Study
  - Coho - 1st release, no replicates = 44 tagged
  - Sockeye - n=22, no replicates = 44 tagged
  - Kelts - n=22, 2 replicates, 2 treatments = 88 tagged
- F2 – Far Field Study
  - Coho - n=22, 2 replicates, 2 treatments = 88 tagged
  - Forebay area
- N1 – Near Field Study
  - Coho - n=22, 2 replicates, 2 treatments = 88 tagged
  - Sockeye - n=22, no replicates, 2 treatments = 44 tagged
- N2 – Near Field Study
  - Coho, same as N1 = 88 tagged
- Coordination with PSE's operations will be developed this month. Attendees recommended an in house schedule for outages.
- Fred – requested the studies to include low flow, generation on and off, which is planned.
- Kim pointed out that weather and generation on and off is unpredictable
- Wayne asked about baffle operations, Nick was given an outage from Jan 24th to 27th end of the month to do baffle works and trap tie off.

Downstream Alternatives

- Mort passed out a reduced set of drawings for all alternatives, Figures 3-2 to 4-5. The following comments were made by attendees:
- Figure 3.16 – Lower Baker Fish Lock
  - Jim wants to know how it worked. Mort said it is hydraulic powered. It runs continuous while loading, then stop when emptying the pipeline.
  - Stan asked if one was in use. Mort said not on this scale.
  - Wayne asked if it could be used for upstream as well. Mort believed it could.

Downstream Alternatives (Cont,)

- Figure 4.4 – Intake Baffle Screen Plan and Section Upper Baker
  - Fred clarified - a net will still have to be used. Hydraulics would not be used, flow would be pulled from top.
  - Fred - intake would be split.
  - Gary pointed out this would only work when generation is working

Review / Evaluation of Downstream Alternatives

- Mort presented summary of the consensus for downstream alternatives developed at the last meeting.
- **F.1 – Conventional Screens Full Flow 0.4 fps**
  Retain until next pass
  - Action Item: look at hydraulics of transport & bypass
- **F.2 – Conventional Full Flow 0.8 fps**
  Retain until next pass
  - Action Items:
  - Chinook smolt size determines 0.8 fps. Arnie will review old trap records for smolt size versus time. Based on that decide if gulper is biased.
  - Fred wants to potentially modify gulper to collect smolt. Wants to be sure small fish are being selected by louver.
  - Jim - thinks the screen can be brought down to half screen, using more like a surface screen.
  - Jim - this system could be developed to be adaptive
- **F.3 Conventional Full Flow - Limited Reservoir 0.4 fps**:
  Retain until next pass
  - Ongoing paper study
  - Fred wants Charles Howard model applied to determine flow. This would require development of input parameters for the model.
  - Use of the model to determine frequency and duration of spills, was recommended by Jim and Fred..

  F.4 Conventional Full Flow – Limited Reservoir 0.8 fps
  Retain until next pass
  Action items same as F.3

- **F.5 Conventional 60% Flow/0.4 fps**
  Retain until next pass
  - Action Items:
    - Apply data found at UB to LB.
    - Fish management decisions will effect criteria.
    - Also, it would be useful to know what fish enter through spill times, and how are Chinook effected?
  - Evaluate closure effectiveness of net
  - Fred - how effective is 60% flow in attraction. Recommended that downstream fish tagging study designed with this in mind.
  - Cary - need a bypass system at lower baker.
  - Gary - fish seem to grown and winter better at LB
  - Jim suggested that a less complex system is needed at LB.

- **F.8 Conventional 20% Flow / Limited Reservoir / 0.4 fps**
  Retain Until next pass

  - Cary – one must decide if 100 % of flow is to go through screens. This option is a percentage of volume water run through hard screens.
  - Mort explained 60% flow going through screens, with 40% going through intake tower
  - Fred would like generation to run at 2000cfs during migration. Gary pointed out that would mean spilling would be necessary.
  - Wayne wanted to know how flow would be controlled. No answers yet.

F.9; F.10, F.11; MIS Full Flow High Velocity

Alternative F.10, 60% flow, is being dropped, leaving F.11, at 20% flow and F.9 full for comparison.
Comments:

- Cary suggested this option could be moved out to another location to work.
- Ed would like to keep one the MIS in the line up. Probably the full flows. Feasible. Would eliminate the 60% or 20% options.
- Jim doesn't think moving a MIS out to replace a conventional is viable. MIS are harder to clean. MIS are usually significantly cheaper, but benefits are lost when having to move it around.
- Mort agrees with Ed to keep full flow, for later comparison of MIS and conventional. Marking 20 % and 60% as not necessary to move them forward.
- Ed wants to compare flow and attraction of gulper and MIS. He wants to drop 60% only

- **A.1 Adjustable**
  Fatally Flawed
  - Documented as too massive, mechanically complex
- **A.2 Adjustable**
  Fatally Flawed
  - Jim - same problems as A.1
- **A.3 Adjustable**
  - **Keep as representative of this type of design**
- **A.. 4 Adjustable**
  - **Remove as similar to floating. screens alternative**

- **FL.1 – Conventional Full Flow 0.4 fps**
  - **Fatally Flawed due to massive size**
- **FL.2 – Gulper 60% flow 0.4 fps**
  - **Do not advance. Used for MIS comparison**
    Comments
    Cleaning is a big issue.
    If fish can be attracted at higher percentage, then this option goes away.
    Cary - currently 3% flow attracts 75% fish, with guide net system. So, would the FL.2 size be needed?
    Fred wanted to know if 3000 cfs is feasible.
- **FL.3 Gulper 20% Flow 0.4fps**
  - Keep & Maintain. Study information underway. Possibly modular
- **FL.4 Gulper 10% Flow 0.4fps**
  - Keep & Maintain. Study information underway. Possibly modular
- **FL.5 Gulper 5% Flow 0.4fps**
  - Keep & Maintain. Study information underway. Possibly modular
- **FL.6 MIS FullFlow High Velocity**
  - Keep & Advance
  - Ed had reservations on removal. Would they be floated on a boat? Mort was thinking a new tower.
  - Cary - would have to be pump in large volume of water to float. Screen size would be same size at 40% gulper
  - Fred wants quantify risk to guide net from spill.
  - Cary pointed out likely hood of system compromise.
  - Ed would like ONE of FL.6 through FL.10 developed for comparison
- **FL.7 MIS 60% Flow High Velocity**
  - Keep & Maintain
- **FL.8 MIS 20% Flow High Velocity**
  - Keep & Advance
- **FL.9 MIS 10% Flow High Velocity**
  - **Remove** - Duplicated by gulper at lower velocities

- **FL.10 MIS 5 % Flow High Velocity**
  - **Remove** - Duplicated by gulper at lower velocities

GENERAL COMMENTS ON DOWNSTREAM DESIGN

- Need smaller group of people to look at the field data to see how it applies to the designs. Mort, Nick, Kim, Wayne, Cary and Arnie would take the first stab at Mary Lou's data, then present it to the group. Need to examine flows, reservoir levels and refine the passing designs based on coming studies

- Jim – regardless of how much flow fluctuates, a constant fluctuating screen, or a DBS screen is need to maintain a constant velocity. Mort is to chose and clarifies drawings.

- Jim and Fred want to wait to go forward until biological tests are in.

Comments regarding evaluation of Fatally Flawed Alternatives - Upper Baker

- Mort will wait to present with more study data. Check on these next meeting
- Next meeting he will hand out summary information on Mary Lou's study data
- Jim - under fixed conventional, wants to look closer at construction. All alternatives are feasible to build, but can be very expensive. To build some of these alternatives would require draining entire reservoir. Jim suggested that an approach similar to offshore oilrigs could be taker. Mort will provide more detail as to why this is not feasible.

Project Schedule

- Kim discussed schedule briefly, a few dates have been refined the remainder is the same.

Action Items

- Nick & Arnie - Mail Steve and Fred hard copies, no email
- Kim - Integrate outage plan with project schedule
- Nick - Convene conference call to discuss first near field study after Jan 15th. Get schedule from Mary Lou regarding decision timeline
- Kim - Work with Mort & Wayne to add schedule to Downstream Fish Passage Alternatives
- Arnie - Review old trap records for Chinook Smolt size vs time by February meeting. Suggest size determination protocol
- Nick - check study Baffle Study from Phil Hilgert
- Mort - Update LB matrix. Be consistent with Upper Baker
- Kim - See that notes get emailed out within 10 days.

Feb 4th Meeting Agenda

1. Review Notes and Agenda
2. Action Items
3. Review Charles Howard Model
4. ICD Update
5. Mort's Presentation of Data
6. Review Alternative's Matrix
7. Project Schedule
8. Review Assignments
9. Set next meeting agenda