



BAKER RIVER PROJECT RELICENSE

Technical Working Group - Downstream Fish Passage

July 26, 2000

9:30 a.m. – 4:00 p.m.

West Coast Sea-Tac Hotel
18220 Pacific Hwy S.
Seattle, WA 98188

AGENDA (tentative)

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| 1. Review/revise agenda |
| 2. Review action items |
| 3. Affinitize on data needed |
| 4. Hydroacoustic data |
| 5. Fish species run timing, emergent timing, length-frequency |
| 6. Kevin's description of model and assumptions: <ul style="list-style-type: none">• Variables: market, output, stage-volume relationship, inflow flood control constraints, powerhouse capacity• What trying to do and how? |
| 7. Conceptual study design discussion |
| 8. Strategies for facilities design |
| 9. Other issues |
| 10. Meeting evaluation, set agenda and dates for upcoming meetings |



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MEETNG NOTES

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

Attendees: Ken Bates (WDFW), Ed Meyer (NMFS), Gary Sprague (WDFW), Fred Seavey (USFWS), Steve Fransen (NMFS), Stan Walsh (SSC), Mort McMillen (Montgomery Watson), Arnie Aspelund (PSE), Doug Bruland (PSE), Nick Verretto (PSE), Kevin Brink (PSE), Cary Feldmann (PSE), Lyn Wiltse (facilitator)

Note: Future meeting dates are: August 31, Sept. 28, October 19, November 16, 2000 from 9:00 to 3:00 at the SeaTac Airport West Coast Hotel.

“Old” Action Items:

- Gary Sprague will provide a Corps of Engineers contact to PSE to find reservoir productivity models.
- Nick Verretto will email team regarding plans to gather temperature data in vertical water column. Stan Walsh will represent agencies in his response to Nick’s email
- Nick Verretto to massage temperature data
- Nick Verretto to get Upper Baker spill frequency data
- Kevin Brink to see how fluctuation limits affect spill (# events, amounts, seasons, duration, flow-days by month). What drawdown range and why?

“New” Action Items:

- Fred will bring Skagit Chinook length frequency data.
- Fred will look at statistical variation from year to year in the gulper mark and recovery data (by September)
- Nick will email file on data from gulper pump cycle test to all

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- All members bring interests of your organization
 - All review the affinitized lists of data to be collected

Agenda for July 26, 2000

1. Review Agenda
2. Action Items
3. Affinitize data on data needed
4. Hydro acoustic data - Nick
5. Fish species run timing, emergent timing, length-frequency
6. Kevin's description for model and assumptions,
Variables- market, output, stage-volume relationship, inflow flood control
constraints, powerhouse capacity
What trying to do and how
7. Conceptual study design discussion
8. Strategies for facilities design
9. Other issues?
10. Meeting evaluation set date and agenda for next meeting

Meeting Handouts:

1. Upper Baker Discharge, Spill, Pool Elevation – Mean 1989 – 2000
2. Baker Project Fish Traps – Smolt Length – Frequency Data
3. Upper Baker Gulper Pump Test

How to tie this Team into Fish & Aquatics Resources Working Group:

The team decided to share the meeting minutes from this team as a basis for discussion with the Fish Working Group.

The group was encouraged to review a recent article in The Transaction (AFS) regarding fish behavior. Cary will look at putting the article or a summary of the article on PSE's Website.

Gulper Pump Cycle Test:

Nick shared data collected. There was discussion regarding how to analyze the data to look for correlation. The issue on how to adjust for run timing has not been addressed. Fred suggested the use of a non-parametric approach (e.g., rank sum). According to him, this would not give quantity, but would give direction.

Status of Team:

The question was brought up whether the approach used by this team was truly collaborative. The collaborative approach includes looking at all possible options that might meet the interests of all members on the team. This would include looking at everything from the gulper option to various types of screen alternatives and everything in between. As we narrow the list of viable options, study needs will become better defined. Some studies are on a critical path and will be done concurrent with evaluation of options for solutions.

When this team considers options it will look at a range. What is limited by most economical and by approaching 100% effectiveness. The options will be measured by:

Effectiveness
Risk
Uncertainty
Cost

The purpose of studies is to reduce uncertainty that appears to be risk at times.

Upper Baker Spill Frequency Data:

Nick shared data related to the Upper Baker spill frequency. The purpose of these data is to see if it could minimize fluctuation of the reservoir during salmonid out migration. Another purpose is to assess whether a spill would occur during that period if you constrained reservoir operations. He also shared data regarding the length of species at each trap over time. The team decided to collect more sub yearling Chinook data in 2001. Will increased productivity decrease the size of the “design” fish?

Possible Options for Solution: (to add to existing list)

- Behavioral guidance
- Split intake with a deep and a surface opening

Parking Lot:

- Barrier dam effectiveness -Arnie Aspelund to pass to Fish Working group
- Design strategy/process. As relates to costs.
- Sediment studies
- Separate session for brainstorming options for solution

AFFINITY DIAGRAM FOR COLLECTING AND PASSING FISH

PEOPLE, POLICY & POLITICS

Methodology to trade off risk aversion (Biological uncertainty risk analysis)

Effects on other work groups

Other Basin Studies (research conducted by others)

Agency and PSE Management initiatives/prerogatives

Dam removal (NEPA) (fish passage during deconstruction)

PHYSICAL SETTING

Reservoir level

Debris

Physical information about dams intake levels, trashracks, (facilities) including operations

Reservoir turnover rate

Geo-technical studies (landslides, etc.)

HARDWARE

Fish loading, density, hauling, handling protocol
Production potential (how to size any facility we build)
Relationship to upstream passage facilities

Baffle modification

FISH LIFE HISTORY & BEHAVIOR

Age of migration
Depth
Flow to migration relationship
Size
Attraction queues
Timing
Behavior
Information on origin of fish

EMIGRATION

Harvest of smolts in trout fishery

Predation
Survival through Lake Shannon and Baker Lake
Reservoir level

Species

Variables that affect fish collection
Migration Path (routes through reservoirs)
Survival after release (acclimation/release facilities)
Delay and attractions

Mortality

WATER QUALITY/QUANTITY/TEMPERATURE

Inflow water temperatures (side flows to Upper Baker, etc.)
Inflow/outflow rate
Downstream temp effects
 temp. profiles (lakes) seasonal and at depth
 temp. differential between areas
 temp. model
 temp. effects on operation of facilities (fish /generation)
Impacts of water quality on fish

AFFINITY DIAGRAM FOR OPERATIONAL NEEDS:

O & M

Impacts of fish passage on operations

How facilities affect project economics

Additional O&M cost/constraints (that require training, additional staffing, stock piling...)

Downstream impacts on flood control

Drawdown flexibility

Marketing implications (weekend shutdowns, etc.)

NEW CONSTRUCTION

Environmental effects associated with construction

Additional Powerhouse capacity

Minimum Flows-

 Bypass flow capability

 Ability to provide minimum flows

Construction work windows impacts on operations

Meeting Evaluation:

What Did We Do Well?

 Stan's suggestion we discuss team status

 Group got to discuss more

 Intentional digression from the agenda

 Good candor/meaningful interest-based discussions

 Working through lunch (having it brought in)

What Could We Do Better?

 We got "foggy" in the afternoon

 Take more breaks

 Bring fruit

Tentative Agenda for next meeting - Aug 31, 2000

9:00 to 3:00

1. Review Agenda
2. Action Items
3. Brainstorm list of possible options for solution...
4. Other Issues?
5. Meeting evaluation
6. Set agenda for next meeting