BAKER RIVER PROJECT RELICENSE

Aquatic Resources Working Group-
Instream Flows Technical Working Group

January 8, 2004
9:00 a.m. – 3:00 p.m.
U.S. Forest Service
Conference Room A/B (425-775-9702)
21905 64th Avenue West, Mountlake Terrace, WA

Day 2 AGENDA

To attend by conference call: Dial 1-866-280-6429. Enter participant code 144995#.

9:00 – 9:10	Introductions, review notes, and agenda
9:10 – 9:30	Action Items from January 7 meeting
9:30 – 11:00	Review Output from HYDROPS runs:
	• DFW.01: State Ramping guidelines applied on the Baker River
	• DFW.02: State Ramping guidelines applied on the Skagit River
	• DFW.03: "least Restrictive" Ramping guidelines (PSE proposal on ramping)
11:00 – 11:30	Other Issues:
	• Scott Schuyler: Upper Skagit Proposal
11:30 – Noon	Other Issues:
	• Arn Thoreen?
	• Protocol for on/off cycle test next week?
12:00 – 12:30	L U N C H
12:30 – 12:45	Review data on incubation flow as percentage of spawning flow
12:45 – 2:00	Identify other runs/regimes
2:00 – 2:30	Other Issues?
2:30 – 2:45	Identify next steps
2:45 – 3:00	Set Agenda for January 23 RESOLVE Meeting

BAKER RIVER PROJECT RELICENSE

Aquatic Resources Working Group

Technical Sub-committee on Instream Flows
January 8, 2004
9:00 a.m. – 3:00 p.m.
USFS Building, Mountlake Terrace, WA

FINAL MEETING NOTES (Day 2 of 2)

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 (PSE), Cary Feldmann (PSE), Arn Thoreen (Skagit Fisheries Enhancement Group), Bill Reinhard (Wildcat Steelhead Club), Steve Fransen (NOAA), Phil Hilgert (R2), Chuck Ebel (USACE), Ruth Mathews (Nature Conservancy), Thom Hardy (Utah Water Research) on phone, Jeff McGowan (Skagit County Public Works), Margaret Beilharz on phone(USFS), Gary Sprague (WDFW), Stan Walsh (Skagit River System Cooperative), Jason Shappart (Meridian Environmental), Scott Schuyler (Upper Skagit Indian Tribe), Doreen Maloney (Upper Skagit Indian Tribe), Harry Cheshin (Upper Skagit Indian Tribe Attorney), Gene Stagner (USFW), Mike Stansbury (Skagit County SWM), Irena Netik (Powel Group), Paul Wetherbee (PSE), Lyn Wiltse and Dawn Schink, note taker (PSE)

2004 Baker Aquatic Meetings: February 12, March 11, April 8, May 13, June 10, July 8, August 12, September 9, October 14, November 11, December 9.

January 8, 2004 Agenda
USFS Office, Mountlake Terrace, WA
9:00 – 3:00 p.m.
9:00 – 9:10 Review Notes, Agenda, Minutes
9:10 – 9:30 Action Items from yesterday
9:30 – 11:00 Review HYDROPS Output

- DFW01: State ramping/Baker

- DFW02: State ramping/Skagit
- DFW03: Least restrictive ramping (PSE prop)

11:00-11:30 Other Issues:
- Scott Schuyler: Upper Skagit Proposal

11:30-Noon Other Issues:
- Arn Thoreen
- Protocol for on/off cycle test next week

12:00–12:30 **L U N C H**
12:30–12:45 Review data on incubation flow as percentage of spawning flow
12:45 –2:00 Identify other runs/regimes
2:00 – 2:30 Other Issues?
2:30 – 2:45 Identify next steps
2:45 – 3:00 Set agenda for January 23rd Resolve Meeting

REPORT ON OLD ACTION ITEMS (from previous day)

√ Phil: Follow up with Clair re: Ruth's additional HYDROPS runs. **Doing new Level 2 formatting – will be done on Monday or Tuesday.**
- Phil: Follow up with Stan re: re-running his 50% and 67% incubation flow runs, based on new criteria. **Not done.**
- Phil: Talk with Stan re: complex habitat data. **Not done.**
- Phil: look at providing information on seasonal reservoir inflow volumes. **See meeting handouts.**
- Phil: Run DFW.01 through the middle Skagit River effective spawning/incubation analysis **Not done.**

√ Paul: Follow up with Steve re: HYDROPS capabilities. **Paul brought HYDROPS machine to meeting.**

RESERVOIR LEVEL INTERESTS
- Jeff indicated that Skagit County will be asking that FERC consider enhanced flood control as part of relicensing – Oct 15th to March 1st, wants 100K acre-feet at Upper Baker and 40K acre-feet at Shannon
- USFS – May 23rd to Sept 7th wants min. 724.8 feet with .5 foot fluctuation at Upper Baker each day**.** May 9th to Oct 15th 713.8 feet

HYDROPS RUNS:
Energy year – August 1 – July 31st
- 1995 (Average Year)
  1. Constraints include: reservoir elevation, instream flows, ramping and amplitude
  2. The dip in Baker River Streamflow is the maintenance period.
  3. Reservoir is drawn down in anticipation of spring run off in June and July.
  4. Frequency Curves: solid line is proposal, dotted line are current conditions
  5. Larger difference found in Lake Shannon numbers
  6. Stan would like to rerun this with minimum flow running through Maintenance time
  7. Everything treated as soft constraints, and numbers tallied.

8. Operation buffer is what is shown as violation.
9. To meet these instream flows of DFW.01, it would cost $42 million for 2 additional units + $15.7 million in lost revenue over 30 years.
10. Is this the right time to discuss what is not DOA as far as PSE is concerned?
11. Is the 1000 cfs a deal breaker? It would cost to much to build up infrastructure to meet that. Same with the draft action. There PSE will lose $2,000,000 in revenue over 30 years, and then add $17 million cost in equipment.
12. Gary reminded people that the WDFW proposal is a starting point, up for discussion, not a line in the sand.
13. Ruth wants PSE to look at the single unit option that gets us to the 1000 cfs instead of something higher.
14. Jason thinks it is good idea to run these ideas past a Hydro Engineer.
15. Margaret wants to circle areas of the flow schedule that will raise the costs, such as the 2500 cfs.

- **Joel Molander to answer questions on infrastructure cost questions**:
  1. Proposed 660 cfs unit with $17 million cost in equipment. If you go larger, you have to go to the next penstock.
  2. For a third penstock & 2000 cfs to 2200 cfs will increase cost to $42 million.
  3. There were 3 penstocks in the original facility, original site.
  4. New powerhouse would be built over original site, and old penstock would be tapped.
  5. Cost increases with powerhouse, and potential slide activity.
  6. Prolonged use of unit can cause catastrophic damage to the unit. Ramping was done to minimize time in the zones and vibrations.
  7. The 17 to 42 million costs are assuming buried penstocks are in working order. Repairs or replacements will add to the costs. They were 8 foot, but have been narrowed down to 6 feet.
- 1996 (Wet Year)
- 2001 (Dry year)

OTHER ISSUES:

Scott Schuyler: Upper Skagit Proposal

- Intent is to achieve settlement.
- Can we get more here in this process than if we left it up to FERC? Upper Skagit Tribe thinks so.
- Interest in augmenting Sockeye run on Upper Baker. Is center of their proposal. Includes having PSE build a hatchery on Baker. Would benefit surrounding communities, the tribe and Fisheries Department.
  1. Thinks NOAA Fisheries should be involved from the beginning.
  2. Schedule takes place over 15 years, with final target number of 10,500,000.
- Looks at Puget as an employer, and viability of a project as whole. PSE will want assurances, like no open ended dollar amount.
- Wants fish numbers to drive the flow numbers.
- These are proposed targets, to work back from there to see how to achieve them.
- They envision this to be an economic boom for the whole area, which is depressed, not just the tribe.

- Some of storage Skagit County wants isn't going to happen.
- Arn worries about putting all hopes into 1 area. Has seen many hatchery failures.
- Tribe wants to spend the money on programs, not on litigation
- Jason thinks Baker Hatchery is most innovative process.
- Cary likes the tangible process, a solid proposal. Deals with real, visible numbers. It will be an expensive process. There is also a space problem, like on Beach 5.
- Scott wants the Baker River Coordinating Team (BRCC) to monitor the process.
- Steve thinks plan is do-able. It will be critical to have smolts out to determine adult returns, and fertilizations will be based on absence of shallow water zones.
- This is far more cost effective compared to standard hatchery approach.
- What are the costs? Though they aren't high costs, after infrastructure is in place.
- Stan also thinks we can be more aggressive than the schedule.
- Flow regime is tied to Seattle Light agreement, such as ramping rates. They can down ramp up to 3000 cfs, but rarely exceed 1000 cfs.
- Doreen says they didn't take Seattle Light's ramping rates. They looked at what rates will fit.
- What is the impact of increasing Sockeye will have on other species. Sockeye feed on plankton, so for the other species that feed on other fish, it's good news. It would result in an increase for other species. It would shift from Coho having highest numbers to the Sockeye.
- Increase passage is the only way to reach the 10,500,000 number?
- Issues with multi-species spawning.

ADDITIONAL ISSUES:

Arn Thoreen:

- Highly recommends the book: *King of Fish, the Thousand-year Run of Salmon,* by David R. Montgomery.
- Wants to make off channel areas for food and shelter. No pullover areas exist now.
- Areas that are wet and then dry are unproductive for food.
- Next week's cycle test will be measuring effects on fish and equipment.
- With on/off, 10 miles may be impacted, but could benefit the lower 30 miles.
- Tests will be January 14th and 15th. Doug Bruland will be the contact. PSE needs an email stating NOAA Fisheries position on test.

REVIEW DATA ON INCUBATION FLOW

- Phil reviewed Total Baker Inflow-Fall Handout.
- 74 K acre-foot divided by 2 divided by number of days.
- October 13th = median spawning date.
- Importance of Average Inflow (Pg.4) table shows variability of influx flow.
- Stan thinks information shows results of a large flood event.
- It also means drawing down reservoir down 50% of the time.
- Minimum flow is only not maintained when planning for flood control.
- What is more important increasing spawning flow or incubation flows? Which give the best benefit? Lower spawning flows is more desirable, if the flows are sustained.
- Goal is 74K acre-foot by November 15th.

- Flood pool and spawning incubation are incompatible.
- Looking at spawning populations and what flow protects the majority of them. Aim to protect X% of peak spawning periods 80% of the time.
- Vary protection levels for different portion of spawning beds.
- What is the flow that protects incubation at a range of spawning?
- Under operational conditions, spawning season is high flow, low percent conditions.

IDENTIFY NEXT STEPS

- Definition of spawning flow
- ID what percentage of redds will be protected through the incubation period at different flow levels.
- Look at running operational scenario that provides 100% Chinook, 95% Pink/Chum protection or 95% Chinook protection & 90% Pink/Chum protection. (How much protection we can provide through flow regimes?)
- Matrix analysis: Costs/Benefits
- BIG ISSUE: How do we achieve those releases? (Some options are cost prohibitive)
- Can we take advantage of the existing situation?
- Production constraints need to be looked at also.
- Run viable HYDROPS runs through Level 3 (include biological implications)
- Design a run that is economically feasible and then compare biological implicating with other proposed runs (WDFW)
  - ♦ 700 MIF year round
  - ♦ 9110 – 12/31 MIF=3200
  - ♦ 1/1
- PSE01 Recent Conditions (use these for comparisons)
- PSE02 Draft Actions (use these for comparisons)
- Flesh out matrix – All 5 years economic/biological & cost/benefits. Have a weighted average for all 5 years.
- Level 3 analysis (include biological implications).

HANDOUTS

- *Level 2 HYDROPS OUTPUT Run DFW.01 Energy Year 1995*
- *Level 2 HYDROPS OUTPUT Run DFW.01 Energy Year 1996*
- *Level 2 HYDROPS OUTPUT Run DFW.01 Energy Year 2001*
- *Level 2 HYDROPS OUTPUT Run DFW.01 Energy Year 2002*
- *Level 2 HYDROPS OUTPUT Run DFW.01 Energy Year 1993*
- *Memorandum from Upper Skagit Indian Tribe*
- *Draft Proposal by Upper Skagit Indian Tribe*
- *Total Baker Inflow-Fall Handout*