



## Meeting Minutes

### Fall Chinook Working Group

Tuesday, May 04, 2010  
 9:30 – 5:00 pm

Battelle, Sigma 2, Coho Room  
 Richland, WA

#### Technical Members

Paul Wagner, NMFS  
 Robert Heinith, CRITFC  
 Holly Harwood, BPA  
 Keith Truscott, CPUD  
 Bill Tweit, WDFW  
 Marcie Mangold, WDOE  
 Russell Langshaw, GCPUD  
 Steve Hemstrom, CPUD

Joe Skalicky/Dan Diggs, USFWS  
 Paul Ward/Bob Rose, YN  
 Brett Swift, American Rivers  
 Tom Kahler, DPUD  
 Paul Hoffarth, WDFW  
 John Clark, ADFG  
 Todd Pearsons, GCPUD

#### ATTENDEES: (\*Denotes Technical member)

Paul Wagner, NMFS\* (on phone)  
 Joe Skalicky, USFWS\*  
 Paul Hoffarth, WDFW\*  
 Ryan Harnish, Battelle  
 Marshall Richmond, Battelle  
 Bob Mueller, Battelle  
 Debbie Williams, GCPUD  
 Tracy Hillman, Facilitator

Marcie Mangold, WDOE\* (on phone)  
 John Clark, ADFG\*  
 Geoff McMichael, Battelle  
 Eric Oldenburg, Battelle  
 Brian Bellgraph, Battelle  
 Russell Langshaw, GCPUD\*  
 Alyssa Buck, Wanapum (on phone)

#### Action Items:

1. **Mangold will contact Langshaw with a few grammatical comments on the Study Plan.**
2. **Members will send their comments on the Study Plan to Mangold.**
3. **Members will let Hillman know if they agree with Bernard chairing the expert panel.**
4. **McMichael will refine the list of environmental variables.**
5. **Langshaw will talk to Chris Carlson about past PRH marking.**

6. Williams will send the Icicle Creek LiDAR work to Skalicky.
7. Langshaw will distribute the Flow Fluctuation Report by May 14, 2010.
8. Langshaw will provide weekly updates on project operations.

## Meeting Minutes

- I. **Welcome and Introductions** – Hillman welcomed everyone to the meeting. Members introduced themselves around the table and on the conference line.
- II. **Agenda Review** – Additions to the agenda included several presentations by Battelle on proposed studies. Hillman noted that Bob Rose would like the FCWG to consider, or be aware of, the need to estimate fry-smolt survival rates for hatchery fry.
- III. **Approval of Meeting Minutes**
  - April 06, 2010 – Minutes approved with edits from Langshaw.
- IV. **Review of Action Items** - Action items identified during the April meeting were reviewed and discussed.
- V. **Study Plan Updates** - Langshaw reported that he updated and distributed the Hanford Reach Study Plan. Revisions included a beefed up adaptive management section, transition of phases, how projects will be reprioritized after phase 1 is completed, and the addition of a summary response table. Langshaw explained that the old implementation schedule based on 401 Certification (401) timelines was left in the study plan, but that the cover letter from Tom Dresser includes the new schedule that is proposed to meet the July 30<sup>th</sup> deadline. Additional funding sources still have to be identified.  
**Mangold will contact Langshaw with a few grammatical comments.**

Mangold clarified that the last sentence in Section 5.1 should not imply the study may or may not be conducted, because it will be. Langshaw explained that Grant PUD cannot exceed the criteria. That is, Grant PUD cannot go beyond the constraints of the agreement. Grant PUD could do an experiment to determine when certain flows will occur, as long as it stays within the bounds of the agreement. Skalicky asked if an experiment can be conducted if signatory approval is granted. McMichael asked about moving the experiment outside of the reach and upstream to Wanapum. Wanapum reservoir has flat flows where fish are entrapped. All stakeholders would have to be in agreement that results from studies outside the Hanford Reach (HR) would be transferable to the HR. There are no protection program constraints for fish in Wanapum reservoir. **If anyone has issues with the Study**

**Plan, they are to send them to Mangold this week, as she will be providing her responses to the Study Plan soon.**

Langshaw noted that the Small Group developing stranding and entrapment plans has been tasked with identifying which studies could be incorporated into the HRSP. The intent is to maximize efficiencies by collecting data, when possible, to support multiple studies in a cost effective way. Data on the web will be available to all public entities.

**A Packet for Expert Panel Participants** - On April 9, 2010, Hillman sent the expert panel letter to invitees. Hillman identified those who have agreed to participate on the panel. They include Howard Schaller, Steve Haeseker, Richard Hinrichsen, Charlie Petrosky, David Bernard, Rishi Sharma, and David Hankin. So far, Ray Hilborn and Rick McNicol have declined. Hillman noted that many experts cannot receive compensation for participation; however, they would like to have their expenses (room and board) covered. Hillman also reported that David Hankin would not be able to chair the panel. Clark suggested that Bernard would be an excellent chair. **Members will let Hillman know if they agree with Bernard chairing the expert panel.**

Hillman asked what information should be provided to the experts. Members identified the following items (the person identified in parentheses is responsible for providing the data or report).

- The productivity study plan being prepared by Pearsons (Langshaw)
- List of environmental variables to be correlated with the residuals (Hillman)
- Clark's survival estimates (Clark)
- Meta analysis survival data (McMichael)
- WDFW 2009 annual report (Hoffarth)
- Methods for estimating fry and parr abundance (Langshaw)
- CRITFC LOA report (Hoffarth to get report from Jeff Fryer)
- HRFPPA Annual Report (Langshaw)
- Population simulation information (McMichael)
- Annotated bibliography on Hanford Reach studies (McMichael)
- Parken report on coast-wide Chinook productivity (Clark)

Each individual identified in parentheses will send the information to Williams, who will upload it to the FCWG Expert Panel website. A CD with all the information will be sent to experts as well as the link to the website.

Hillman noted that some of the experts have indicated that 40 hours will probably not be enough time to complete the task. It will certainly take more than 40 hours to chair the panel. Langshaw noted that he spoke to the Grant PUD Auditor and the PUD will be able to fund the experts. The PUD will cover time and expenses. Langshaw will talk with Hillman about how to contract with the experts.

- B** Hillman provided a brief overview of the results from the Small Group meeting on developing robust studies on stranding and entrapment. See the Small Group meeting notes for a complete description of the outcome of the meeting. The Small Group will next meet on 2 June in Portland following the FCWG. At that time the Small Group will review action items, estimate costs, and figure out how to combine the stranding and entrapment work with other studies. The goal is to have the study plan complete by the middle of summer. The MASS 1 model should be complete by mid-January. MASS 1 is a cross sectional average of water surface elevation and velocity.

Clark asked how the data from the stranding and entrapment studies will be used. Skalicky indicated that the estimates will be put into a population context. They will be used to estimate the total number of fry lost due to stranding and entrapment. Hoffarth noted that they hope to have better knowledge of flow fluctuations, which will allow better adaptive management in the protection plan.

- C** **Fry Marking** – In a message from Bob Rose, Hillman indicated that the Working Group may be tasked to try to figure out fry-smolt conversion rates for 1 million fry that will be released from the hatchery program. McMichael noted that research conducted at Spring Creek Hatchery shows that fry survival was about 3%. Currently the issue of releasing fry is being considered at the policy level. It is assumed that fry will be released when Priest Rapids Hatchery modifications are complete.

- D** **Environmental Variables to Include in Productivity Analysis**  
Members discussed five approaches to determine the influence of environmental variables on fall Chinook productivity: correlate pre-determined metrics with the residuals, examine the effect of the highest and lowest values of environmental variables on productivity, include all environmental variables in a data mining exercise, develop productivity models that include

environmental variables and use information-theoretic approaches to identify the best model.

Hillman shared with the Working Group a spreadsheet that categorized the environmental variables according to life stage and environmental category. The next step is to identify specific environmental metrics and the associated data. Langshaw noted that effects of stream flows on flow fluctuation, area dewatered, and vertical feet dewatered will vary with distance downstream from the dam. WDOE gauges can be used to identify magnitudes of effects. **McMichael agreed to refine the list of environmental variables.**

- E Updates on Egg-Fry Studies** - Eric Oldenburg, Battelle, gave results of the last (second) egg take. They pulled the last group of egg baskets from the river last Sunday. Mean egg-fry survival was low. The early conclusion is that low survival was likely related to poor fertilization success and early handling. There may be benefit in using eyed eggs in future studies. No alevin mortality was found in the CETs. A comparison of WDFW and Battelle methods was described by McMichael. WDFW survival was in the 50-80% survival range. Survival in the W-V boxes was lower, but similar to the two types of containers.

A conceptual model was developed to understand productivity (see PowerPoint Presentation). Oldenburg believes it is possible to determine how many eggs are deposited in the HR. This requires knowing how many eggs are in a redd. Then one can estimate egg-fry survival and survival from hatching to emergence.

Proposed design:

Objective 1 - Determine the relationship between flow fluctuations and fall Chinook salmon egg-to-fry survival.

Skalicky noted that dewatering in the reach does not appear to be a large issue. Langshaw commented that it is more important to know the proportion of high elevation redds and the number of eggs in each redd. Near-bed water velocity at redd locations was discussed.

Objective 2: Estimate the percentage of eggs that are fertilized and not killed by mechanical damage in natural redds.

Langshaw suggested sampling 30 eggs from each of 30 natural redds. One could collect samples on Sundays when flows could be dropped to 36k. Hillman suggested taking a larger sample (100 eggs per redd) from redds. This would provide a better estimate if redds contain a few thousand eggs. Eric thought it was important to get eggs deeper within the pocket to compare with eggs higher in the pocket. Members agreed that getting as

many eggs as you can from a redd is best. McMichael voiced concern about an unequal amount of sampling effort per redd. Hoffarth stated that he has not seen any dead eggs in an egg pocket.

Members questioned how many eggs are eaten by peamouth, whitefish, sculpin, and other fish when female Chinook discharge their eggs. How many are washed away or eaten before they are buried? Snorkel surveys or video recordings would give some indication of the level of predation on eggs. In addition, stomach contents of local fish could be examined to determine egg consumption.

Members agreed that at least 100 eggs should be sampled within each redd.

**F Adult Fall Chinook Fallback at Priest Rapids** - Bob Mueller, Battelle, presented a proposal to address study 2.8 in the Fall Chinook Study Plan (see PowerPoint presentation). The fall Chinook salmon fallback conceptual model was shown to members. The fallback study conducted in 2001 using acoustic and optical cameras indicated that fallback was high (rates up to 40% were documented). Fallback rates were correlated with the number of fish that pass the dam and fish that fallback have a lower survival rate than those that don't. It was noted that fish caught in the Wanapum fishery are typically from PRH. Battelle will review recent studies at McNary and Ice Harbor. The ladder at PRH was outfitted with PIT-tag detectors in 2004. Battelle released PIT-tagged fish from PRH in 2006, so there should be additional PIT-tag data available. PRH isn't currently wired for PIT-tag detection. It would be ideal to have PIT-tag detection at the entrance to the hatchery.

**G Productivity Assessment** - Ryan Harnish, Battelle, gave a presentation on the effect of Priest Rapids operations on productivity of Hanford Reach fall Chinook salmon: stock-recruit analysis (see PowerPoint Presentation). This would cover studies 6.1 & 7.1 in the study plan. The objective is to use stock-recruitment models to determine the effect of PR operations on productivity.

The intent is to find environmental variables that correlate with the stock-recruitment residuals. Clark noted that environmental variables not influenced by project operations (e.g., ocean conditions and other global variables) will not be useful. The focus should be on what is going on in the river, and not to incorporate too many variables. There are large differences in dam operations between the late 60's to early 70's. There are CWT data back to 1975. CWT marking started in 1964 at PR Hatchery (longest marking program on the West coast).

**Langshaw will talk to Chris Carlson about past PRH marking.** The marking of wild HR fish began in 1986.

The last objective of the study is to estimate maximum sustainable yield.

**H Hydraulic Modeling** – Marshall Richmond, Battelle, gave a presentation on hydrodynamic and thermal modeling to evaluate effects of Priest Rapids Project operations on Hanford Reach habitat. This addresses study 5.1 in the Study Plan. The goal is to provide an integrated hydrodynamic and water quality modeling platform (data and models) for HR analyses that is accessible through a web-based delivery system. The objectives of the study are to update MASS1 and MASS 2 models, collect field data (velocity, water elevation, and temperature) for model validation, and to evaluate the quality of existing DOE HR water elevation gages. Battelle will perform model simulations of historical PRP operations to document effects on HR water elevation time histories, habitat, and affected habitat area. They will upload model outputs and supporting field data to the web. Richmond also noted that they may be able to do forecasting with MASS2. Cross sections will be updated with new data. **Williams will send Icicle Creek LiDAR to Skalicky.**

**I** Brian Bellgraph, Battelle, gave a presentation on Hanford Reach fall Chinook salmon life-cycle production simulation modeling (see PowerPoint Presentation). This addressed study 6.2 in the study plan. The approach is to use individual-based modeling. The objectives are to parameterize the life-cycle conceptual model, build computer simulations, and produce software interface with parameter toggles. The intent is to validate the model using empirical data. Clark noted that the coast-wide adult Chinook model has already done a lot of this work.

**VI. Update on Flow Fluctuation Report** - Langshaw stated that he has completed the Flow Fluctuation Report, except for the summary response table. **Langshaw will distribute the Flow Fluctuation Report by May 14, 2010.**

**VII. HRWG Activities -**

**A Review and Approve April Meeting Minutes** - HRWG members will send their comments on the draft notes to Hillman.

**B Updates on Operations** – Langshaw noted that the protection flows should be done by the end of the month based on water temperatures. Flows started picking up on the 19<sup>th</sup>. Flows are currently at the 100 k range, with 20 k daily deltas. We are into the 4<sup>th</sup> weekend of protections. There was a potential problem this weekend. The weekend minimum is based on Monday

through Thursday operations; however, flows dropped off on Thursday and Friday, which set the weekend minimum relatively high. They were drafting for four days. Langshaw will work with Joe Taylor to try to keep flows above 80 k. Langshaw asked if it is better to keep at minimum and drop quickly, or make small drops on Saturday and Sunday. The speed and magnitude of the flow reductions are issues. It would be useful to develop pre-operational criteria that have signatory consent.

Weekly updates have not been sent to the FCWG. **Langshaw will provide weekly updates on Fridays.** Wagner commented that flow management went pretty well this year.

**C Website Development** – The website should be completed by mid- to late-May.

**VIII. Next Meeting:** Monday, June 1, 2010 at NOAA Fisheries in Portland, OR.