

FINAL - Meeting Summary Notes
Lewis River License Implementation
Merwin Trap Engineering Subgroup
August 30, 2005
Merwin Hydro Facility, WA

Subgroup Participants Present: (8)

Arnold Adams, PacifiCorp
 Brent Denham, PacifiCorp
 Frank Shrier, PacifiCorp
 Eric Kinne, WDFW
 Curt Leigh, WDFW – via teleconference
 Bryan Nordlund, NOAA Fisheries
 Dana Postlewait, R2 Resource Consultants
 Will Shallenberger, PacifiCorp

New assignments (from August 30th Meeting):	Status:
PacifiCorp (Shrier): Follow-up with Ed Weiss regarding his emailed comments regarding why two of the trap entrances were closed – specifically, what did he mean with the statement “...some of the fallout of the design of Merwin Hatchery also affected the decision”.	Pending – Frank will follow up by the next meeting.
PacifiCorp (Lesko): Contact Erik Kinne to work out fish truck lease.	Complete – 9/19/05
PacifiCorp (Shrier): Email Abernathy Labs paper on electro-anesthetics to the group.	Pending (include title and abstract)
PacifiCorp/WDFW (Shrier/Kinne): Schedule a visit to the Bonneville Hatchery after September 19, to view the electro-anesthetic system in operation and interview hatchery staff regarding its performance. Goal is to view the system in operation with the fall fish runs.	Complete – Visit conducted on 10/10/05. See Note 1 in 11/15/05 meeting notes.
R2 (Postlewait): Contact Smith Root and summarize available electro-anesthesia options. To be performed in the future during facility design layout.	Pending
Subgroup (Kinne, Nordlund, Leigh, Shrier): provide one last critical review of the final “Facility Design Criteria” document. Desire is to finalize this document and recommend it for approval to the ACC. Please email comments to Kim McCune, with a cc to Dana Postlewait.	Pending
R2 (Postlewait): Criteria Document. Update Table 1 and Page A-5 with noted revisions.	Complete - 9/19/05. Also incorporated in Rev 1 of Criteria Document.
R2 (Postlewait): Contact Jim Stow to discuss his recommendation for adoption of the criteria document.	Pending
WDFW (Kinne): Technical Memo. Review and confirm brood take numbers provided for Attachments 5-7 in the technical memorandum.	Pending
R2 (Postlewait): Make edits to the Technical Memorandum noted in these draft notes, and distribute to the group through Kim McCune.	Pending
WDFW (Kinne), PacifiCorp (Shrier): Review Technical Memo edits with	Pending

Dana prior distribution to the full subgroup.	
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Report on previous assignments (from May 4th Meeting):	Status:
PacifiCorp: Send Curt Leigh copy of Table 1 and Attachment A from Criteria document handout.	Done via email – 5/6/05
PacifiCorp: Continue investigation and report background if available on why two of the trap entrances were abandoned in 1980.	Complete – see May 4th meeting record
R2 (Postlewait): Call Jim Stow at USFWS and determine engineering subgroup input protocol for their agency.	Complete 5/6/05
R2 (Postlewait): Confirm ¾” bar spacing for pickets within trap and sorting features to accommodate bull trout with Jim Stow as USFWS.	Complete 5/7/05
WDFW (Kinne): Provide daily fish run numbers to PacifiCorp (Shrier) and R2 (Postlewait), including 2002 coho run numbers, and 4-year average numbers.	Complete – 5/11/05
PacifiCorp (Shrier): Analyze and provide summary data for the incomplete portion of the 2003 trap counts to R2 (Postlewait).	Complete – 5/10/05
R2 (Postlewait): Provide summary of design fish numbers by species for existing trap data. Provide analysis and basis for adjustment factor to project Settlement Agreement run goals with available data. Complete daily fish load run numbers for Table 1, and distribute ASAP when fish run data available.	Complete – handed out at 8/30 meeting.
Fish numbers are also needed to assist with evaluating truck procurement options. PacifiCorp desires to order a new fish truck that will be available in time for the fall runs.	Provided with submittal of above assignment.

Handouts (Distributed August 25, 2005 via FedEx):

- Agenda
- Draft Meeting Summary Notes for May 4, 2005 Meeting
- Facility Design Criteria Document – Final (dated August 24, 2005)
- Technical Memorandum: Merwin Trap, Fish Sorting Facility Design, Sorting Tank Sizing Calculations (dated August 15, 2005)

Administrative

Welcome of attendees and review agenda.

Update on WDFW personnel replacement for Pat Powers. Curt Leigh reported that a new engineer has been assigned to replace Pat, but it is not yet clear whether they will have time to participate in the Engineering Subgroup meetings and/or review. The State is basically in a holding pattern for now. Curt and Eric Kinne will continue to take the lead to represent WDFW in the Engineering Subgroup meetings, with support from John Weinheimer.

PacifiCorp has hired a new engineer who will replace Brent Denham’s lead position for the upstream passage project. He will start work on September 19th. He will lead the trap and sorting facility projects. Will Shallenberger will continue to lead the Swift downstream effort, and the Upper Release Point project.

Review of last meeting's action items – see status summary above. The following items were also discussed.

- Ed Weiss's emailed comments on why the two trap entrances were closed. It appears that the bottom line is that the decision was made based on difficulty of operating the trap entrances with the current configuration during high flows, due to maintenance issues, and based on the decision that enough fish were entering the single entrance to meet the hatchery needs. Frank Shrier will follow-up with Ed to obtain more information on what he meant by the "hatchery fallout" comment.
- Fish truck purchase status. Purchase of the fish truck will take place next year by PacifiCorp. Erik Lesko will be contacting Eric Kinne to work out leasing a truck from WDFW for the interim period.
- Picket spacing for bull trout. It was agreed that 3/4" spacing is appropriate for bull trout, to avoid gilling.
- Electro-anesthetic research. Frank Shrier and Eric Kinne reported on their research on electro-anesthetic systems.
 - Frank spoke with Todd at Smith-Root (S-R), who reported that S-R has made major modifications to the original electro-anesthetic system, which S-R had purchased from Cofelt. Apparently they "tweaked" the Cofelt system for years, and then made the decision to re-engineer the entire product. The newer version is supposed to be more sensitive and adjustable to accommodate multiple fish sizes, and generally work better.
 - Frank spoke with the manager at the Carson National Fish Hatchery. They report that the electro-anesthetic system is good for some uses, but not for all. They feel it is good for sorting, but not as well for inoculations, as it doesn't knock the fish out enough. They used to use CO₂ for sorting, but their opinion was that the fish struggle too hard with the CO₂, gasp and thrash around violently. The electro-anesthetic is quicker acting and easier to use for sorting.
 - Abernathy Labs have published a paper on electro-anesthetics. Frank will email the paper to the group.
 - Eric K. spoke with Lauren Jensen at Bonneville Hatchery, which has a new (2-yr old) Smith-Root electro-anesthetic system. Jensen reports that the system works well. Eric suggested a tour of the facility to observe the system in action during this fall's run. Goal is to schedule a visit to Bonneville after September 19th so PacifiCorp's new engineer can attend. Eric and Frank will coordinate on scheduling this trip.

Facility Design Criteria – Final. SA 4.2 Merwin Trap, and SA 4.3 Merwin Upstream Collection & Transport Facility. Dated August 24, 2005.

Dana Postlewait summarized the updates made to the Design Criteria Document, and the desire to finalize this document so it can be recommended for approval to the ACC. Updates included:

- Incorporation of all comments from the previous drafts and meetings. Revision bars have been turned off for this version with the intent of presenting a final document.

- Completion of Table 1:
 - includes the “Design Peak Daily” fish run numbers, and
 - shows broodstock collection periods in the Run Timing columns.

Curt Leigh questioned a few items in Table 1, which the group discussed and agreed on the following revisions:

- S-Coho, Wild. Change destination of Merwin Return Pipe to River from Yes to No.
- S-Coho, Jacks, Wild. Change taking of Hatchery Brood for wild fish from No to Yes. Change destination of Merwin Return Pipe to River from Yes to No.
- N-Coho, Wild. Change taking of Hatchery Brood for wild fish from No to Yes.
- N-Coho, Jacks, Wild. Change taking of Hatchery Brood for wild fish from No to Yes.

These changes also created the need to revise the S-Coho Adult Fish Handling Process Diagram (Page A-5). The group agreed that the 4-way sort of unclipped fish with no coded wire tag should be changed to a 3-way sort, and that these fish should not be shown with a return pipe to the river.

An updated Table 1 and a copy of the edits to be made on Page A-5 are included with these draft meeting notes for review.

The subgroup members requested one last chance to review this document in detail, prior to their recommendation for adoption to the ACC. Additional comments should be emailed to Kimberly McCune, with a cc to Dana Postlewait at R2. (Emails: Kimberly.McCune@PacifiCorp.com, DPostlewait@R2usa.com).

Dana will contact Jim Stow (USFWS) to address how they will provide comments.

Technical Memorandum: Merwin Trap, Fish Sorting Facility Design, Sorting Tank Sizing Calculations (dated August 15, 2005)

Dana P. explained that the intent of publishing this technical memorandum (TM) was to document the calculations used to arrive at the recommended tank numbers and sizes. Due to the unknowns and assumptions associated with projecting future returns of each species to the hatchery, the goal of the analysis was to provide a facility with adequate capacity, and the flexibility to adjust to future management decisions, without being too conservative which could result in an oversized facility. As such, this TM is a working, calculation document, not intended for general public distribution. We expect technical experts from the various agencies to review the document as needed to support the Engineering Subgroup members.

The TM provides a step-by-step summary of the calculations and results. Dana walked the group through the document. The following items were notable discussion items, or items requiring further action.

- Memorandum: Two suggestions were agree to for the TM.

- Add more text in the introduction stating that this is a technical calculation package that contains several interim work products.
- Add a step 13 that provides a “back-calculation” of the facility capacity, following the recommendation section. This section will summarize:
 - Facility capacity with trip/day assumptions stated.
 - Number of fish/day sorting needs.
 - Compare these numbers with the SA language for current runs, and future projections.
- Attachment #1: Page 3 of 3, typo - change heading to “2001” from “2003”.
- Attachment #2: The primary issue with this attachment was the need to be sensitive to potential concerns for harvest rates, and assumptions made to help compare SA Ocean Recruit numbers to trap returns. Curt suggested that some stakeholders would be particularly sensitive to the Spring CH numbers. It was agreed that the following edits would be made to Attachment #2.
 - Add a header titled “Interim Work Product”.
 - Revise rows 64-65 (or add additional rows) to back-calculate harvest rates based on the “fish planning document” (PacifiCorp and Cowlitz PUD. 2004. Final Technical Reports for the Lewis River license applications. Portland, OR and Longview, WA). Frank cited the following values to be used from the document:
 - Spring CH: 50% harvest rate, $\pm 25\%$
 - Coho: 63% harvest rate, $\pm 25\%$
 - Winter SH: 34%, $\pm 25\%$
 - The summary will be spot checked to confirm that the additional 20,000 S-Coho are accommodated.
 - To address the Ocean Recruit assumption concerns, it was suggested that a new spreadsheet be provided that shows the anticipated distribution of the total Ocean Recruits, as the sum of: Harvest, Lewis River Hatchery, and Merwin Trap numbers. It was agreed that this won’t be necessary, as described below for Attachments #5-9.
- Attachment #3: This is Table 1 for the Criteria Document. Changes to be made include:
 - Same changes noted above for the Criteria Document Table 1 (page 4)
 - Correct typos caused by replacement of the right parenthesis by the number “6”.
- Attachment #4: No changes.
- Attachments #5 – 9: The following items were discussed:
 - Change title of Column “R” to “Design Total Run at Merwin Trap” – all sheets.
 - The group discussed adding a column that identified estimated harvest numbers. After much discussion, it was agree to leave this out of this attachment, and provide the new “Step 13” that back-calculates total facility capacity based on the recommended tank numbers and sizes.
 - Eric Kinne stated that he wanted to double check the brood take numbers he provided in Attachments 5 – 9.

- Attachment #10: OK as is, unless brood take numbers are changed. Make appropriate edits if brood numbers change.
- Attachment #11: This sheet presents the results of the calculations as a tank programming plan by month for the sorting facility. This summary may be appropriate to distribute to the ACC for adoption. Changes discussed for this attachment include:
 - Make edits if necessary if brood take numbers change.
 - Eliminate the tank size and design information for the surplus station, as this is somewhat misleading. See the comments below relative to the design of the Surplus station.
- Attachment #12 (New item): Add a new spreadsheet that back-calculates the facility capacity based on the recommendations for six 1,800 gallon tanks, and six 500 gallon tanks. D. Postlewait will prepare a draft for E. Kinne's and F. Shrier's review prior to full subgroup distribution.

Surplus Station

Details and configuration needs were discussed at length for the fish surplus station. Surplus fish will be distributed to food banks, and will be used for Lewis River nutrient enhancement. Many groups may be involved in taking these surplus fish. WDFW currently maintains contracts with groups to haul the fish away (current contract is with the American-Canadian Fisheries Corporation). The following features were recommended for the facility design:

- Provide access for killed fish to be delivered directly into plastic totes.
- No water tank is necessary for the surplus fish station.
- Assume kill station would be provided at or downstream of the anesthetic station.
- Totes hold about 100 coho each.
- Provide paved surface and space, circulation routes for fork lifts to move totes around.
- Provide parking near the site (if possible) for small trucks (typically hold 12-totes each), and for large tractor-trailer vehicles. This site could be across the bridge if space doesn't allow.
- Tote storage is not needed at the site, as trucks typically bring the totes with them during peak run periods. However, some space should be provided to accommodate moving the totes around the facility.

More development work will be performed for the surplus station and for the overall facility during the next phase of development. A facility program will be developed describing needs for each project feature prior to conceptual design layout.

Merwin Fish Tracking Study

Frank Shrier presented an update of the tracking studies currently underway.

- Hydroacoustic Study. A hydroacoustic array was installed by HTI in May, and has been collecting data daily. The purpose of this study is to help enumerate the number of fish approaching the dam, and to gain an idea of the existing trap efficiency.

- Transducers are located on both sides of the river just upstream of the no entry buoy line.
 - Data is being collected, but still needs analysis.
- Radio Tag Study. The purpose of the radio tag study is to help confirm the hydroacoustic study results for fish enumeration, and to gain an idea of how fish behave as they approach Merwin Dam.
- 7 radio receivers were placed in and around the tailrace: one just upstream of the hydroacoustic array, two along the wall of the downstream side of the powerhouse, one in front of the trap, two along the wall (and rock) of the control room, and one in the gallery behind the powerhouse.
 - 50 steelhead were tagged during the week of August 15. As of August 30:
 - 27 fish have been detected
 - 10 had entered the trap
 - 10 were still holding near the dam
 - 2 were holding along the powerhouse wall
 - 1 was caught by a fisherman
 - A mobile survey indicates that other fish were holding in deep pools in the river.
 - 23 fish had not yet been detected within the array.
 - All 10 fish that are sitting by the dam have traveled through all three receiver zones. No fish were detected by the gallery receiver behind the powerhouse.
 - Efforts to catch fish in the tailrace by gillnetting and angling were unsuccessful; therefore fish caught in the trap were tagged and released. The effects of bias may be a consideration in this approach as the fish may have learned to negotiate the tailrace and enter the trap. However, the study was designed to compare the behavior of fish in tag group with Unit 1 on and off, and both tag groups will be collected from the trap. Thus, differences in behavior between the tag groups will be used to determine how fish use the tailrace and trap under different operating scenarios.
 - Additional radio tag studies are planned for Coho, Winter Steelhead, and Spring Chinook.
- Video Study at intake. (Note, this update was not provided at the meeting).
- A time-lapse video camera has been mounted by R2 at the existing trap entrance.
 - Tapes are being recorded for 24-hrs/day to view fish entering, and attempting to enter the trap.
 - Initial analysis has indicated that there is a daily pattern to fish movement. Further analysis will refine the pattern of movement and subsampling of the trap to enumerate entries, fallback, etc. will be initiated.

Sorting Facility Siting Study Update

Brent Denham briefed the group on progress made with the sorting facility siting study. An analysis is being performed using a schematic facility layout with the recommended six 1,800 gallon tanks to determine the most appropriate location to place the sorting facility. The design team is working to better quantify costs and operational issues/benefits of the potential six locations. Additional updates will be provided at the next meeting.

Upper Release Project

Will Shallenberger provided an update on the upper release project, to provide the minimum flows to the bypass reach from the Swift #2 canal. The preferred site for a release point is near the Swift powerhouse, with the release directed to the spillway plunge pool. There are two issues currently being studied:

- How to configure the outfall as a barrier that will block upstream fish migration, given the low head available between the canal water surface and the plunge pool elevation.
- What is the best way to construction the facility without dewatering the canal? Ideas to address this construction issue are:
 - Build a new canal wall with the release structure outside of the existing canal wall, then divert the flow into the new structure and demolish the existing wall in the wet.
 - Construct a cofferdam around the release facility site, and remove the cofferdam after construction is complete.

The current goal is to present a preferred conceptual layout to the Engineering Subgroup for this item (perhaps up to 30% design) by November, 2005 to meet the SA commitment. Once an agreement is reached for the preferred alternative, PacifiCorp will proceed with a permit submittal, with the goal of starting construction on this facility by LY 1. Obtaining permits for this facility is seen as the critical path. All work must also be coordinated with the Cowlitz PUD.

Other issues to address with this project include adding a bridge across the canal to access the site, which is being coordinated with the Swift 2 rebuild project. The goal for the bridge is to construct it this year.

Schedule Update

The processing of the FERC license appears to be delayed, based on correspondence with FERC. PacifiCorp expects an update on a projected license date from FERC within the next couple weeks. The schedule update will also provide for target dates for the DEIS, and the BA.

At this time, for planning purposes a 4 month delay is expected. This would result in a license issuance date of July, 2006.

Next Steps and Other Items

The next design priorities will be development of the facility programming and layout for the sorting facility, and the hydraulic analysis to define the improvements for the three trap entrances (located in their existing location). Should a 4th entrance be recommended following the biological studies, it would be dealt with separately from the existing entrances.

All water sources used for the trap and sorting facility should be screened with criteria fish screens.

Future Meeting Dates

The group agreed to hold the following dates for future meetings:

- October 4th (cancelled)
- November 15th, Olympia, WA
- January 10th, Merwin Hydro Facility
- February 7th, Merwin Hydro Facility
- The 1st Tuesday of every month following February 7th

Meetings will continue to be held at the Merwin Hydro Facility conference room. A dial-in phone line will be provided for each meeting.

Meeting was adjourned at 1:30 pm