

**Weber Hydroelectric Project Relicensing
Draft Fisheries Work Group Meeting Notes
UDWR, Northern Regional Offices
Ogden, Utah
July 13, 2016**

Meeting Participants

Eve Davies, PacifiCorp
 Frank Shrier, PacifiCorp
 Ben Gaddis, Gaddis Consulting (Facilitator)
 Dawn Alvarez, U.S. Forest Service
 George Weekley, U.S. Fish and Wildlife Service
 Paul Badame, Utah Division of Fish and Game
 Paul Thompson, Utah Division of Fish and Game
 Paul Burnett, Trout Unlimited
 Fred Reimherr, Trout Unlimited (morning only)
 Bill Damery, Utah Division of Water Quality (morning only)
 Jesse Waldrip, Kleinschmidt Associates
 Lindsey Kester, SWCA
 Stewart Edwards, PacifiCorp

Participating by Phone

John Mudre, Federal Energy Regulatory Commission (9-10:30 a.m. only)

Purpose of This Meeting

- For the Fisheries Working Group (FWG) to provide input concerning details (no more than 30% design) of the recommended fish passage alternative (traditional vertical slot fishway).

Action Items from the July 13, 2016 Meeting	
All	<ul style="list-style-type: none"> • Interested FWG members are invited to take part in the fish entrainment study, Tuesday, July 19 on the Weber River. RSVP to Davies. • Provide comments on Kleinschmidt’s alternatives memo for fish passage design by July 23. • Take part in follow-up meeting to discuss results of the fish entrainment study, Friday, July 29. • Continue discussion of fish trap capacity via email. Provide information to Waldrip no later than August 13. • Comments on Conceptual Design Report (to be distributed August 12) due from FWG September 9. • Keep October 19 date open for possible meeting.
Davies	<ul style="list-style-type: none"> • Speak with Weber-Davis about sending minimum flow down the river during the entrainment study rather than down their ditch to prevent dewatering of river.

	<ul style="list-style-type: none"> • Reserve conference call line for Friday, July 29, 11 a.m. • Speak to PacifiCorp operators about review of fish ladder design drawings.
Shrier	<ul style="list-style-type: none"> • Provide result from fish entrainment study to FWG as soon as available (for discussion July 29). • Email the FWG information from St. Anthony's (Henrys Fork) on size and how many fish the trap will hold.
Waldrip	<ul style="list-style-type: none"> • Speak with Edwards about review of fish ladder design drawings. • Draft Conceptual Design Report due to FWG August 12.
Hugentobler	<ul style="list-style-type: none"> • Distribute Kleinschmidt's final design criteria memo to FWG.

Decisions Made at This Meeting

- **Consensus Decision:** PacifiCorp is committed to license language to keep the low-level outlet at Weber open and has agreement from management to ensure that the low level canal stays open. This will be integral and part of the new license. The FWG agrees this will be the plan going forward.
- Agreed that recapture of 30 fish of each size class would be sufficient for the fish entrainment study. If fewer fish are recaptured, the FWG will reconvene to discuss and decide on next steps.
- Accept Kleinschmidt's updated final design criteria memo and alternative memo (end of 30-day review for the latter is officially July 23).
- Eliminate proposed viewing window from the fish passage design.

Welcome and Review of Agenda

Gaddis opened the meeting with introductions and reviewed the day's agenda.

Action Item Review

Action items from the last meeting were reviewed. Outcomes are detailed below.

Davies

- *Discuss commitment to keeping low level outlet open with PacifiCorp management.*

Davies said PacifiCorp is committed to license language to keep the low-level outlet open and has agreement from management to ensure that the low level canal stays open. This will be integral and part of the new license. The FWG agrees this will be the plan going forward.

- *Clarify proposed change in operation of north and south gates with PacifiCorp management.*

Davies said PacifiCorp Management has agreed to make this operational change.

- *Inform FWG of PacifiCorp management's decision on the fish passage preferred alternative.*

Davies said PacifiCorp management was supportive of the FWG decision in favor of traditional vertical slot and is good with going forward. She said 30 percent design will be part of the license application.

Note: Check with the three counties on permitting.

Waldrip

- *Complete additional hydraulic calculations on pool and weir function under different flows in the 34-50 cfs range (should this alternative be chosen).*

Waldrip said it was decided to put constant flow through the new fishway (20 cfs) and the remainder through the existing fishway (ice chute). This was discussed and agreed upon during the FWG's June 2 conference call.

- *Prepare conceptual drawings of traditional vertical slot*

Waldrip said this is complete.

- Update design criteria memo, including completion of item 12.

Updates

Federal Energy Regulatory Commission (FERC) Staffing

Davies said a change has been made to FERC staffing of the Weber relicensing process. John Mudre will do the fisheries portion, while Quinn Emmering will be the overall coordinator. Davies noted that Emmering attended the project scoping meetings in May 2015.

Sonde Loss

Davies reported that one of the water quality sondes had been lost. She said the missing sonde was the one put in place to capture tailrace flows. This area was much more turbulent than expected. She said the sonde had been wired on inside a PVC tube. When consultants went to check it last week, it was gone. Currents apparently wore through and broke the cable. She said personnel will continue to look for the sonde, but meanwhile it is being replaced immediately. Davies said 5 weeks of data at most were lost. Kester noted there are two additional sondes upriver and another sonde very nearby. She said it is hoped that the sonde will be found when the divers are in the river next week. Kester said Utah Division of Water Quality has been informed.

Technical Reports

Davies said draft technical reports for cultural and terrestrial threatened, endangered and sensitive species will be completed soon and will be out for review in early August. A supplemental survey for Ute ladies'-tresses surveys will take place later in August; results will be reported to the interest group by email. Davies said the draft recreation technical report will be complete in September or more likely October. Intercept surveys are underway and going well, she said. The consultant is getting a lot of good

information. There is lots of fishing in the area, as expected. The water quality report will be done in spring and the fisheries report will be done by the end of this year.

6-Month Report Progress Report

The next 6-month progress report on the Alternative Licensing Process (ALP) is due to FERC August 13. It's a FERC requirement, Davies said, and it will be brief. A notice will be issued from FERC when it is available.

Fish Entrainment Study

Davies said the fisheries study plan included 1) ladder design; and 2) an entrainment study. It is not known whether entrainment is a problem at the Weber plant, she said, so we decided to do a study. As part of the study, hatchery fish of various size classes will be forced down the intake pipe to see what happens. Results will guide whether we go to phase 2 (i.e., are fish going in of their own volition?). Phase 1 will answer the question, 'If fish go in, what happens to them?' Phase 2 would cause the study go into next year, Davies said, and she would prefer to not go to phase 2 because of the relicensing timeline. The entrainment study plan lays it all out, she said.

Davies said what PacifiCorp personnel have seen is that big fish sit on top of the grate (trash rack), feeding. She said it is easy to view fish in the water column at this time of year. For the entrainment study, 3-, 6-, 12-, and 16-inch fishes were proposed. The 16-inch size class was later dropped, as they would not fit. The remaining three size classes of fish will be put through one at a time, she said, possibly with dye. Engineers are building a plunger to force fish through tube, she said. Fish will go through the turbine, which has wicket gates. Shrier showed a picture of the Francis turbine at Weber. Davies said she anticipates some, but not all, fish will be fine. In regard to recapture, she said it is unknown how many fish will be recaptured. There is an area of quiet water on the other side where fish may go to recover, she said. Block nets will be set up on both sides of the outflow, creating an alley, to capture the fish as they exit. But, she noted, water in this area is turbulent and recapture may prove difficult. Davies said a trial run is being conducted Monday.

Davies asked for discussion on the following points: 1) What is an acceptable number of fish to get back and what does it mean? 2) What is the trigger on condition of fish? She asked whether the FWG could agree that fish recaptured will be the universe (i.e., not counting from 100 [of each size class]). Shrier noted this is a pilot study, not a rigid scientific study.

The following points were noted as the discussion proceeded (from easel):

- Don't get large numbers of fish back – what does that mean?
- What is an acceptable number of fish to retrieve?
- Do FWG members agree that the "universe" of fish for the study is the fish that come out at end that we can find?
- Number of fish in poor condition
 - 10 percent descaling
 - Fresh trauma
 - "popeyes"

30 percent (note of the at least 30 percent)

Gaddis asked whether there was anything new from the study plan noted above. Davies said only some detail. Shrier said these points were being raised in order to develop *a priori* agreement.

Weekley asked if some fish swim out (i.e., don't go through), will they be counted? Davies said that information would be valuable, but is phase 2 information. Alvarez said it would still provide good information, for instance, for mitigation.

Shrier said he agrees we should watch for released fish swimming upstream. However, we probably won't try to net them, as it would be very difficult. Thompson said the fish could be stunned just before releasing. But that would mean losing bonus information on fish swimming upstream, Gaddis said. Shrier noted that live fish were being used for the study, rather than dead fish, because live fish will try to navigate and avoid injury. However, fish are being put in above the plant, so they could have a chance to recover somewhat.

In regard to number of fish that need to be recaptured, Shrier said this is not a scientific study but when pushed to decide how many fish are enough for a decision point he would say 30 of each size. If we can get that many, we can make some inferences, he said. Davies noted that larger fish are more likely to be injured; smaller fish may be harder to recapture.

Shrier said poor condition will be defined as 10 percent damage to scales, fresh trauma such as a lesion or lost fin that would lead to mortality. Injured fish are likely to get fungus and die, he said, especially in this system with warmer water, etc.

Davies noted that all fish would be removed from the net capture area prior to putting the hatchery fish in. Once clear, the project will be shut down and industrial divers will be sent in to retrieve dead and injured fish not responding to electrofishing. The study is going to be expensive, she said, and it can't be done more than once.

Alvarez asked whether electrofishing injury can readily be distinguished from trauma. Shrier said yes. Pressure damage can also be distinguished as "popeyes." Weekley asked whether fish would be held over to check for later mortality. Thompson questioned whether later mortality could be attributed to trauma vs other things.

Reimherr asked where divers will be located. Davies said in the alleyway and turbine pit. Thompson said UDWR will also have a diver in the pool.

Thompson said if we get 30 and 30, we're good to go forward. If not, we will reconvene. Shrier said there is some question of whether a 12-inch fish can get through the pipe. Davies said we will plan to get consensus on the results regardless, by the end of the month. Alvarez asked if it was possible to be comfortable with less than 30 percent. Thompson said we just don't know what to expect, but we do know if we get 30 and 30 we can agree. Davies will notify the FWG of results as quickly as possible. Weekley said he thinks recovering 30 fish is optimistic.

Gaddis checked in with Mudre, participating by phone. Mudre said it is good the group had this conversation, no comments otherwise. Mudre said If you don't recapture 30 fish, consider that a trigger for phase 2 studies. He said the group should decide what to do if 30 fish are not recaptured.

Gaddis asked if the group was ok with these thresholds. There were no objections. If fewer fish are recaptured, the FWG will reconvene and decide what to do. Weekley noted that redoing the study would not be an option.

Thompson said he is going to use clove oil on the fish and give them an ad clip. He asked if there were any objections. None were noted. He asked whether study leaders wanted the fish groggy or top notch going through. Shrier noted that the pipe is clean and round (no sharp edges). It was agreed fish would be groggy. Thompson asked about holding the fish—he said the group should decide what mortality will mean because the fish will be repeatedly shocked, netted etc. Thompson suggested going with physical attributes described by Shrier. Some fish will be held for observation. The 12-inch fish will go first, he said. They are the most likely to be injured and are the easiest to retrieve. So the largest fish will be in holding the longest. Weekley said that sounds ok. Study leaders invited all interested FWG members to attend. Davies noted that fish should be checked for injury as they go in.

Thompson clarified that fish will be held for a few hours but not 24 hours. This is not a stocking event, he said, and fish will be removed after. Burnett asked whether capture opportunity could bias the sample. He noted big fish would be released earlier, small fish later. Davies said the study will go later, as needed.

Davies said she has coordinated with the canal company. They had planned to flush the canals on the same day or the day before the entrainment study but have now confirmed they are going to wait until after. Thompson asked when plant shuts down during the entrainment study, will dewatering the river be a concern with Weber-Davis taking water below. Davies said she will speak with Weber-Davis about sending minimum flow down the river rather than down their ditch to prevent possible dewatering of the river.

A follow-up meeting (conference call) to discuss results of the entrainment study was scheduled for 11 a.m., Friday, July 29 and is expected to take about an hour. Davies will arrange a call in line. Shrier will distribute a data summary to the FWG by email prior to the call.

Design Criteria Memo Update – Waldrip, Kleinschmidt Associates

Waldrip noted that some changes have been made to the design criteria memo and these changes have already been emailed to the group. It was distributed as a clean copy, so Waldrip reviewed a redline of the changes. The FWG had no objections to the changes. Davies noted that some additional information was requested during internal PacifiCorp review and although the memo was distributed as a final before, there will be an updated final to include the information. Waldrip reviewed the additions, which consisted of pool depth and energy dissipation factor calculations. Gaddis asked if the FWG needed a

review period before accepting the new information. The FWG agreed to accept the new information. Hugentobler will distribute the updated final memo to the group.

Alternatives Memo

A draft alternatives memo was distributed to the FWG for 30-day review prior to this meeting. Davies noted that the memo was essentially a capture of the last FWG meeting. Davies had asked for email replies regarding any deal breakers prior to this meeting. None were received, she said. Gaddis asked whether all agree—there are no deal breakers in the alternatives memo. None were noted. Davies said FWG members still have until the end of the 30-day review period (July 23) to send in comments. The memo will then be final. She asked if there were any questions. Thompson said he would like to discuss the viewing window and trap.

Waldrip briefly reviewed the content of the memo. He noted an editorial change on p 6 as well as the FWG discussion/agreement by phone of putting 20 cfs through the new fishway, with the remainder of flow through the ice chute. Gaddis asked if the FWG was in agreement. There were no objections.

Waldrip said he will take the three memos, including the August 12 – conceptual design report (comments due Sept 9) and put them into a final report, due October 7.

Note: Reimherr, Damery and Mudre were not present for remainder of the discussion.

Gaddis said the viewing window, fish trap, and location of exits will be the main points of discussion. Waldrip began with a review of drawings. He noted that the new design will help preserve the parking lot. The fishway smaller under this alternative, he said, and won't have to be so big and wide. It was noted that Edwards was not yet present, and Waldrip said he would talk to him once Edwards has reviewed the drawing. Davies said she will talk to PacifiCorp operators about review of the fish ladder design drawings.

Viewing Window

Davies noted that the site plan does not include a viewing window and requested that the FWG make a decision on it at this meeting. She said the viewing window was left off the drawing because it was significantly more work to dimension it. Waldrip showed the potential location and said it would be below grade by the parking lot, at a turning pool. Waldrip said the window would be below grade and below tailwater level. ADA access would be needed as it is on Nation Forest lands. He said this would significantly increase the construction footprint. Alvarez said she believed the structure would need to be ABA (vs. ADA) compliant. She noted there can be exceptions to the requirement and offered to look into it. Waldrip talked about options for grating. Davies said PacifiCorp also has concerns about access and other problems, including people fishing here.

Thompson said he is ok with dropping the viewing window. He requested that reasons for dropping it be included in the record. The following reasons were noted:

- Because the viewing window would be below grade, it would be a chamber. This would make it difficult to send groups of school children down.
- Because the river is turbid most of the time at this location, it is not certain what can be seen.
- The viewing window would not provide scientific information. The fish trap will provide that.
- PacifiCorp's concerns about maintenance and nuisance attraction.

Gaddis asked FWG members if they were ok with dropping the viewing window. No objections were raised.

Fish Trap

Waldrip said Burnett and Shrier have worked on fish trap specifications since the last FWG meeting. The location is represented on the drawing. Water would pass around, but with flashboards so the trap could be dewatered as needed for collecting fish. The trap would be somewhat permanent. Some components, like the funnel, would be removable. Shrier said in his experience, users would want to be able to remove the trap. In most cases, users would want to remove it during the winter. Waldrip said it could just be lifted out of the water. He asked about level of 'industrialness' needed.

Davies said PacifiCorp will build and install the fish trap, UDWR will operate it, so an entrance may be needed for them. They will split the cost of maintenance. Shrier said PacifiCorp typically maintains fish trap. They should only need some cables every once in a while, he said. Davies asked who would clean it out. Thompson said UDWR will clear it of weeds, etc as a matter of course when operating the trap. He said ultimately it would be nice to use it to find windows of time when fish are moving. He said he would like to run it for a whole season initially. Davies said PacifiCorp could make a trap check part of its daily rounds. Also, if it is found full of fish, workers will be advised to call UDWR. This could be written into the license as a different type of compliance. Badame asked what the ideal gap width is. Thompson said he wants to be able to trap 6-inch suckers, so half inch? Davies asked how it would be cleaned. Shrier said with a brush or rake. Waldrip said he will leave space for cleaning. Waldrip asked about permanence. Davies said she is leaning towards a more durable alternative. Thompson agreed. One that can be lifted out. Edwards asked whether the trap would be manual or electrically controlled. Shrier and Davies specified manual. Shrier noted that at Henrys Fork traps were getting 100 fish per day, up to 12 pounds of fish.

Fish Trap Discussion (from the easel)

- UDWR/Trout Unlimited will run it – PacifiCorp will accompany
- Who maintains? PacifiCorp – structure, with minimal effort
- Frequency of use – initially higher, refine down to time periods when fish are moving
- Operators do daily quick visual checks
- Be able to trap 6-inch suckers (at least)
- Mesh size – ½ inch? 3/8 inch?
- Permanent structure – steel, guides, etc. integrated, but can remove. sloped bottom so can capture fish, hand wench manual control

Shrier said he will email information from St. Anthony's (Henry's Fork) to the group on size, how many fish the trap will hold.

The group agreed to continue discussion of fish trap capacity via email including the entire group. Waldrip said he will need this size for the next deliverable. Davies said it would be ok to leave a placeholder for trap size. The group agreed to shoot for no later than about August 13 for trap size determination.

Location of Fishway Exit

Gaddis said he wanted to check in with the group on exit location. Is there any reason to move the exit? Is everyone good with the location of the exit as shown on drawing? No objections were raised to the locations shown on the drawing. Waldrip briefly discussed various ways the exit could be moved.

Other Issues

Thompson asked whether there had been discussion about installing an underwater camera as an alternative to the viewing window. Davies said yes, it was discussed. It was noted that fiber optics were recently installed in Weber Canyon, but may not be close enough to be useful for this application. Weekley suggested installation of interpretive signs. He said he believed they would provide better value than a viewing window. The signs could give information on the importance of fish ladders, etc. U.S. Fish and Wildlife Service, Trout Unlimited and UDWR could help develop the signs.

Waldrip asked about grating – he noted it is shown over the access point. Davies said yes, across and by the fish trap. She said there was PacifiCorp internal discussion about the extent of grating. There is no answer as yet. She said it's a security vs. access issue.

Next Steps

- Shrier to distribute fish trap data
- Draft conceptual design report due to FWG August 12; FWG comments due September 9.
- Conference call July 29 to discuss results of fish entrainment study, will know if going on to phase 2 by then.
- Keep October 19 date open for potential meeting.