

**Weber Hydroelectric Project Relicensing
Draft Conference Call Notes
Results of Fish Entrainment Study, Phase 1
July 29, 2016**

Call Participants

Eve Davies, PacifiCorp (participating onsite¹)
Frank Shrier, PacifiCorp
Lindsey Kester, SWCA (participating onsite)
Dawn Alvarez, U.S. Forest Service (participating onsite)
Keri Lundeen, Utah Division of Water Quality
Paul Burnett, Trout Unlimited (participating onsite)
George Weekley, U.S. Fish and Wildlife Service

Purpose of This Call

- Review results of the Fish Entrainment Study, phase 1 and decide whether to proceed with phase 2.

Action Items from the July 29, 2016 Conference Call	
Davies	<ul style="list-style-type: none">• Order camera for phase 2 studies. Goal is to have it operating week of August 1.
Shrier	<ul style="list-style-type: none">• Provide camera specs to the fisheries work group.
Hugentobler	<ul style="list-style-type: none">• Poll fisheries work group for a follow-up call/meeting date in October when data availability is known.

Decisions Made During this Call

- Proceed with the Fish Entrainment Study, phase 2 (camera study) as previously scoped.

Davies opened the call with introductions. She said the onsite group had met to view the intake prior to the call. Water is still up, she said, probably from a flushing project upstream. Shrier asked if weeds were a problem. Davies said no, but noted there had been a lot of raking.

Davies asked whether fisheries work group (FWG) members had been able to review the Fish Entrainment Study Phase 1 Progress Report provided by Shrier (distributed to Fisheries Work Group by email July 26, 2016). The progress report included a summary of data collected during the entrainment study carried out July 19, 2016. Call participants indicated they had.

Weekley asked Shrier to describe the injuries that resulted in mortalities (dead fish vs scale loss) to hatchery fish used in the phase 1 study. Shrier said the 12-inch fish were decapitated. Some other fish showed no signs of injury but were still dead, including most of the 6-inch fish. Davies noted that divers

¹ Davies invited interested work group members to meet onsite at the Weber Plant just prior to the call to review conditions in the field. This sub-group participated in the call with Davies from there.

reported seeing smaller fish swimming around outside the outlet but they were not able to catch them. Due to depth of the water, electrofishers were not able to catch them either.

Shrier said he learned that the Weber turbine spins about four times faster than others he is familiar with, so that contributed to mortalities. Alvarez asked whether dye had been released every time fish were released. Davies said yes, but the first couple of times the dye just brightened water, so more dye was used during subsequent releases.

Davies said on the whole, recovery was pretty good; however, she thinks the sample was biased towards injured and dead fish. About 85 percent of the larger fish were recaptured, half of the medium fish, and one-fourth of smaller fish. That puts us to the question of moving forward, she said. Weekley asked what initial thoughts were. Shrier said it seems like we need to move forward [with phase 2]. He said the question is, do we have any endemic fish going down the pipe. He said his gut feeling is that fish don't go down there but the camera would answer that question. Burnett said he thinks fish will go through the grate, and larger fish may not make it. Shrier noted that PacifiCorp operators report seeing fish on the grate quite often, but the fish don't go through. Davies said operators say fish almost never get stuck on the grate—perhaps only once or twice a year.

Davies said she would prefer not to continue with [phase 2] studies, not because she opposes the study but because of the potential impact to the relicensing schedule. Burnett said a 40 percent mortality rate is significant. Davies said there was more mortality during the entrainment study than she wanted to see but because it appears fish are not going through the rack, she believes there is not a problem. She said if the FWG decides to proceed with phase 2 studies, she would like to get the camera in as soon as possible. Weekley asked how the results of this study would change the license application. Shrier said if there's an issue, a proposal would be needed. Alvarez asked what potential mitigation would be. Davies noted that the project cannot afford both a fish ladder and screens, and the company would sell rather than decommission. The ladder will cost millions of dollars, she said, screens would cost more millions. Burnett said he is not ready to take a stance on mitigation. He said Thompson wanted to identify issues, then potentially look for additional sources of funding. Alvarez said phase 2 studies could potentially eliminate the need for mitigation. Davies said she thinks there is value in the information that would be obtained. Burnett said he wonders if there are projects elsewhere that could be used as a model. Davies said she was aware of a recent entrainment study conducted by Idaho Department of Fish and Game on the Bear River at Last Chance diversion, in the bottom of Black Canyon. She said IDFG used PIT-tagging to determine how many fish were being lost at that diversion. The study found almost no fish entered the diversion, she said. Burnett noted that study involved diversion entrainment, this is penstock entrainment. Shrier said most entrainment studies he is aware of are diversion studies. He said he knows of some modeling on the Columbia system, but that system has much more water.

Alvarez asked whether it was possible to get enough information from half a year of study. Davies said in talking with people, it seems the correct half-year would be spring. We need to know when the fish are moving, she said. Weekley said the main concern on the camera study would be timeframe. Davies said yes, and cost. Shrier said the camera needed would cost about \$10,000, but the larger cost would be in data processing. However, visibility would be good with this type of camera and fish could likely be identified to species.

Burnett said a study plan would be needed. He said data from every day may not be needed. It may be possible to just sample the data. Davies said yes, but key timeframes must be included. She noted that the camera would only be running when the plant is running. Shrier noted that the camera has image recognition, so there would be no dead water viewing—it only films when something is there. That will help with review time, he said.

Davies noted that we already have a study plan that includes phase 2 – just not a lot of details. She said study costs could be cut if we could fine tune, based on other ongoing studies on the Weber, etc.

Davie asked if Shrier had specs on the camera. Shrier said not yet. Davies said if we are going proceed with the camera study, she wants it in the water right away to cover August. Davies asked whether everyone was comfortable with the level of information provided so far on the phase 2 study plan. Weekley said yes, he is fine with it, Alvarez said yes. Davies said she hasn't asked Thompson but he seemed agreeable with the study plan so far. Burnett said he is comfortable with the study plan, and is also open to sampling results as well. Davies said to clarify, we will run the camera for two months this year. These data will be preliminary, and won't provide information on spring flows, but we'll see if it's similar to what's going on when streams are re-watered. Burnett said we probably won't see that type of movement until October or November. Shrier said so we probably won't get that [the plant operates seasonally].

Davies said she will get the camera ordered and asked Shrier to get specs to FWG members. She asked if anyone had issues, to let her know as soon as possible. Davies said she will try to get a requisition for the camera done today.

Davies asked if the group had any other thoughts or questions. The question was raised whether there is any other way to address these concerns. Shrier said no, there are not many other alternatives. Maybe a turbine tag test. Shrier said that's the only other way he knows, but it involves a proprietary technique and a specific firm would have to be hired to do it and it's costly. Davies said she thinks that would be like a return to phase 1. She said the next question is do fish go down the pipe or not?

Davies proposed proceeding with the camera study as scoped, with more detail on camera specs to be provided to the FWG by email. She asked call participants to please get any questions, comments, or thoughts to her as soon as possible, as she would like to have the camera running next week, if possible.

Alvarez asked if we will then have follow up in fall. Shrier said yes, around October, after the plant shuts down, we should have a progress report and discuss ways to reduce labor/cost. Burnett asked about conducting a literature search. Davies said yes, and added that consultation with experts, including Phaedra Budy at Utah State University, should also take place. She said that it's good we have so many of the experts in the room. Hugentobler will poll the FWG for a follow up call or meeting as the date approaches. This should be after RedFish has their results.