

**Weber Hydro Relicensing
Fisheries Work Group Conference Call Notes
Phase 2 Fish Entrainment Study
September 14, 2016**

Call Participants

Eve Davies, PacifiCorp
Kari Lundeen, Utah Division of Water Quality
Paul Thompson, Utah Division of Wildlife Resources
Paul Badame, Utah Division of Wildlife Resources
Paul Burnett, Trout Unlimited
Fred Reimherr, Trout Unlimited
Dawn Alvarez, U. S. Forest Service
Frank Shier, PacifiCorp
Ernesto de la Hoz, RedFish
Keith Lawrence, RedFish
Neal Artz, Cirrus
Lindsey Kester, SWCA
John Mudre, Federal Energy Regulatory Commission

Davies opened the Fisheries Work Group (FWG) call with a welcome and asked participants to introduce themselves. She then gave a brief update of Phase 2 studies to date. She said PacifiCorp and the consultant team were eager to start the Phase 2 camera study in early August. Some retrofitting by PacifiCorp staff was needed in order to install the camera. However, when they started to review the video, there was much more turbulence than anticipated and nothing but air bubbles was visible.

Davies said the team re-grouped and moved the camera to another location by the trash rack, immediately in front of the intake gates. She said this area is much larger than the original location, and only a portion of the fish passing by can be seen. In addition, there is still a pretty high degree of turbulence. She said the team ran the camera for one week, aimed toward the intake gates. Shrier said concerns about not being able to see fish continued, so about a week and a half ago (i.e., first of September), additional testing was done using hatchery mortalities obtained from Utah Division of Wildlife Resources (UDWR). The team placed the dead fish directly in front of the camera by various means and but saw only three or four fish out of 100 in the size range of 3 to 7 inches. Artz asked whether the fish were obscured by gasification. Davies said yes—gas, turbulence, and limited depth of field are all problems, so the team is seeing only a very small percentage of the area.

Davies said the question is, are fish going down the pipe? She said she doesn't think PacifiCorp or anyone else thinks fish are getting impinged (i.e., trapped against the rack and sucked through, or otherwise involuntarily going down the flowline pipe to the turbines). Quite a few fish of different size classes have been observed swimming directly in front of the trash racks by PacifiCorp operators and staff, so she doesn't believe fish are getting 'sucked in' involuntarily (larval fish may be an exception but that issue was never intended to be part of this study). So the question is, are fish choosing to go through as a means of migrating, etc.? During Phase 1 studies, a few smaller and midsize fish made it through ok, she said. The larger fish were really beat up. So are any deliberately going through? We can't answer that, she said. We can run the camera and do the study, but will only see a very small portion of the fish, so the study will not work as intended.

Davies said the team came up with the following alternatives:

- 1) Reposition the camera and point it towards the light. However, Davies said, that won't fundamentally answer the question as there will be no total number for statistics, and it won't be known whether no fish observed actually means no fish.
- 2) Put the camera in the air and let it run. However, PacifiCorp can obtain observational data from PacifiCorp staff who are frequently in the area cleaning racks both day and night and who would get similar information.
- 3) Install a PIT-tag antenna. Davies said in discussing this with Thompson, the feasibility is fairly remote, plus there aren't many tagged fish in the system.

Davies asked FWG members whether they had any additional ideas. She said at this point, both she and Shrier recommend ceasing the Phase 2 study because it is not going to answer the question it was intended to answer.

Artz said other possibilities could be 1) use a wider angle lens; 2) carry out population studies; or 3) increase the number of PIT-tagged fish. Davies noted that the camera being used does have a wide angle lens, and options including use of an infrared camera were tried to no avail. Thompson said UDWR currently monitors PIT-tagged Bonneville cutthroat trout and bluehead sucker above and below the Weber plant, but they are larger fish and may not chose to go through. He asked if Artz was suggesting putting tags in trout and putting them through. Artz said yes. Shrier asked Thompson what type of tags UDWR uses. Shrier said the size of the pipe would be a problem, as would access and keeping an antenna fastened down. He said he doesn't believe PIT tagging is an option. Thompson agreed.

Davies noted that the bars on the trash rack are spaced 1½ inches apart. Yes, a larger fish could squeeze through, she said, but they go down tail first and she doesn't think they will. She said larger bluehead sucker may even be too big. She said it seems unlikely that fish are going through. Shrier said larval fish are the only ones that can't navigate and go through.

De la Hoz said there is some literature on larval endangered fish that suggests they can enter and exit currents looking for backwaters. He also noted larval fish drift on the surface and would not swim down 4 feet to enter the intakes, so it is very unlikely they would go through that way. He said the group could continue to brainstorm, but it appeared most Phase 2 options were very challenging, time consuming, and expensive. He said he recommends a qualitative assessment instead.

Alvarez said, even if we got the answers, what would we do to mitigate? Davies said during the scoping meeting, the fish entrainment study was discussed only as providing information we were interested in knowing. She said she was not sure, but operational changes could be possible if entrainment had become a known issue. The only standard fix for entrainment is to screen it, she said, and the project can't support both upstream fish passage and screens. Alvarez said for the agencies to consider is, if our question [regarding fish entrainment] were answered, would it affect what we do in regards to the outcome of relicensing? She said she hears Davies' statement that there is a limit to what mitigation the project can handle. Davies added that because of the importance of the Weber project to other water rights in the Weber system, an unsuccessful outcome for PacifiCorp's relicensing effort would not result in decommissioning. She said PacifiCorp has evaluated decommissioning but determined it is not feasible due to additional system constraints (freeway, other water rights, etc.) since the project was originally built. If the project is not successfully relicensed, she said, it would likely be sold instead.

Reimherr asked if there is any chance the trash rack might be changed in the future, resulting in wider spaced slots. Davies said no, PacifiCorp may remove Buck's house, but the trash rack or an identical structure would have to remain because of the amount of aquatic weeds and other debris that comes down the river. Shrier noted that the rack was replaced fairly recently.

Reimherr said if we put in upstream passage there would be [fish] production—then what about downstream passage? Thompson said he thinks Alvarez put it well—we want to know but it won't affect relicensing. He said we will continue to work together in the future to minimize entrainment.

Davies said intake modernization may take place during fish passage construction, including removal of structures no longer being used. She asked whether a gate in the pipe or something similar could be installed at that time to accommodate a pipe. Shrier said bubbles would still be in the pipe. He said a lay person had asked him if the fish populations are doing so well below the dam, what is the problem? Thompson clarified that blueheads could not be considered to be doing well anywhere in the Weber, just the project reach may be the best reach we have, but they are still not doing well.

Artz said from a NEPA perspective, the requirements are pretty clear—don't pursue information past what's needed for a reasonable decision. NEPA also specifies making best use possible of existing information. He said information gained from RedFish, PacifiCorp operators, and observation seems sufficient, and does not mean we aren't doing a study—just not the study we had originally intended to do, because that one no longer seems feasible.

Davies said there are rules about what is sufficient and appropriate and noted there will be a Biological Assessment as part of the process. She said she thinks we are at a point where we can say we know enough about this, given what seems feasible with this study. She noted that Alvarez and Reimherr have said they believe we know enough. She asked whether anyone felt differently. Davies asked Thompson and Badame whether they are OK with this decision.

Thompson said all the data we have suggest not many fish go down the intake—perhaps smaller ones, and they fare better. Thompson noted that bluehead sucker are not doing well, above or below the dam, and UDWR wants to work towards reconnecting this fish's habitat. He said he does not believe they could get through the spacing on the rack. But concern is not high for entrainment, he said. We will continue to work together if downstream passage is a problem in the future. Davies said that may be an item for the next relicensing process. Thompson said, or perhaps some other funding source. He said we can tackle it in the future, if needed. And Davies noted that this reach of the Weber warms later in spring and this may affect sucker movement, delaying it into spring runoff with flows above 320 cfs for a couple of months. At this time, the project would have water spilling over and gates cracked at the bottom plus flow in the ice chute. So there are multiple ways for fish to pass. She noted that is not as good as if there were no structure there, but there are options for the fish.

Shrier said the ladder may also be an option. He said the literature notes some fish move down fish ladders in the Columbia system. He said he thinks fish will try to find some other way down than going down a dark hole [i.e., the intake pipe].

Davies said depending on what ongoing studies by Phaedra Budy of Utah State University (USU) find, there may be other things we can do (Davies wondered whether USU had determined whether blueheads were rearing in the forebay), and also asked where UDWR had moved the fish below Echo to.

Thompson said 35 fish had been moved to Mountain Green but they are not doing well. Davies asked if there was some indication that salvaged fish might be using the project reach. Thompson said the USU study was able to document a group of bluehead sucker that overwinter around Morgan—they followed the fish and they went higher into the system to spawn. Thompson said this shows that we need connected habitats. We'll continue to work on that, he said.

De la Hoz asked whether UDWR had looked into entrainment into the Weber Diversion. Thompson said the diversion takes water from the surface, so he hopes not, but that needs to be evaluated. Burnett said there are lots of irrigation diversions on the mainstem Weber, so it's an issue that needs to be evaluated due to the scale of water being removed. The question at hand is whether there is a population level impact due to entrainment here. Burnett said he is comfortable relying on the literature.

Davies said if tracking the USU study, is there any larval rearing in the forebay? Thompson said he doesn't know. Davies asked whether the population as a whole is declining. Thompson said this year is the first year an increase has been noted. The species typically is in decline.

Davies asked FWG members if they had anything more to add. She asked whether anyone needed more time to consider, especially since she is recommending a halt to Phase 2 studies. Burnett said he would like more time to consider.

Davies asked what this would look like—what would next steps be. She said the camera could be left in the water for the time being but unless some other idea is forthcoming, she would like to discontinue the camera study. She said the fish entrainment study report would include findings so far and additional discussion including results of the literature search but the camera study will be discontinued and the report will be complete by the end of the year.

Burnett asked if Davies was asking for verbal consensus to discontinue the study. Davies said there was no need to take the camera out immediately. She said she will ask for consensus based on the notes from this call, which will be distributed next week [week of September 19]. FWG members requested two weeks to review the notes. Davies said she will ask for consensus to discontinue the camera study two weeks from the date the notes are distributed. Her recommendation will be to discontinue the camera study and use other sources of information. Davies asked if that path would work for FERC. Mudre said it sounds like a reasonable approach. It is not wise to pursue a study that is not yielding information. He said it is important that all are in agreement. He noted that a full technical review by FERC will take place later. Shrier said potential effects will be addressed in the Fisheries Technical Report.