



COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION

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To: FPOM
From Jeff Fryer
Date: October 10, 2013
Re: PIT tag detection installation at AFF

Since our Accords-funded project to PIT tag Chinook, steelhead, and sockeye salmon began at Bonneville Dam in 2009, I have been seeking to install additional PIT tag antennas at the AFF to better track movement of fish through the facility. In 2010, we contracted with Biomark to install a PIT tag antenna on the flume just before it enters the sampling tank. Additional locations I have been seeking to implement PIT-tag detection at are as fish are placed into the brail pool after sampling and as they exit the brail pool. Establishing PIT-tag detection at these locations would provide data on that may assist with the following:

- 1.) Determine how long it takes a tagged fish to resume its upstream migration.
- 2.) Seek any correlation between how long a fish takes to resume its migration and the time it takes to get pass Bonneville Dam or move downstream (or not be seen again)?
- 3.) Seek to use detection data to fill in PIT tag codes for fish we did not successfully scan while sampling.
- 4.) Identify possible tag sheds; i.e. fish that were released but not subsequently detected.
- 5.) Potentially provide additional data on PIT tagged AFF mortalities.

In the past, we proposed installing an antenna at the exit to the brail pool. However, this exit is very close to the trash rack and in a noisy and confined area making installation difficult and potentially affecting flows at the trash rack. Recent advances in antenna technology have made it feasible to move this antenna upstream spanning the fishway as it exits the AFF (Figure 1).

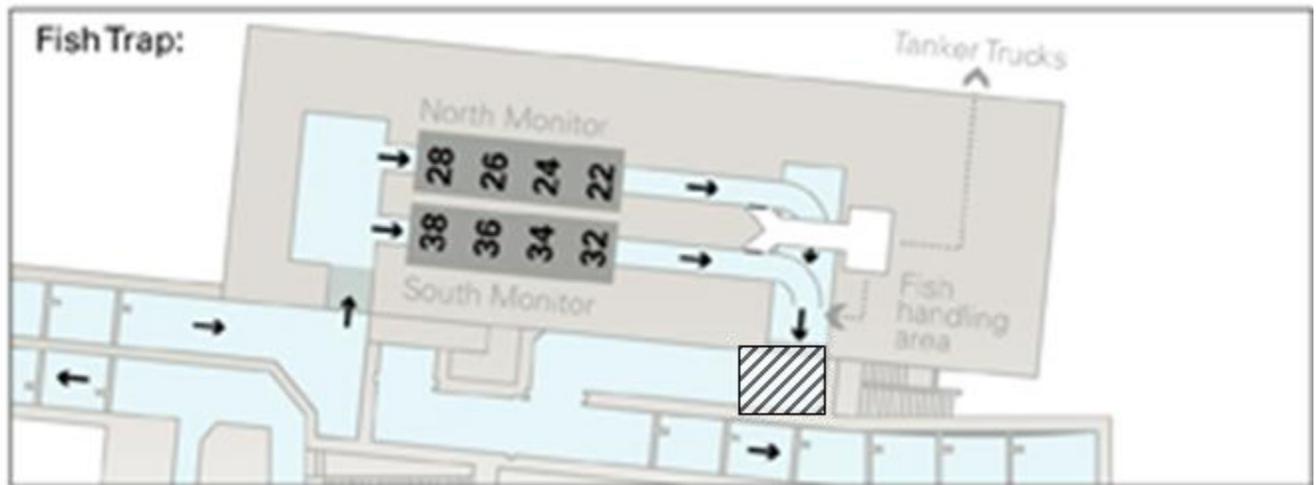


Figure 1. Site of proposed PIT tag antenna (shaded) at exit of Adult Fish Facility.

The antenna Biomark proposes to install is a thin-wall shielded antenna 3" thick similar to that installed at Wells and The Dalles dams (Figure 2).



Figure 2. Thin wall shielded antenna similar to that proposed for installation at the AFF exit. Note the AFF antenna would be rotated 90 degrees.

The antenna will be the same dimensions as the ladder cross section (with the height being at or slightly above water level) at that site, which appears to be approximately eight feet wide and two feet high. The antenna will be connected to the existing FS1001M multiplexer installed for the sampling flume antenna. (Note that this antenna has the potential to also detect ISO-compliant half duplex tags such as those used for tagging lamprey, however a multiplexer upgrade would be required.)

Exact dimensions and final antenna location will be determined by Biomark engineers and electronic technicians after dewatering in late October. In addition, they will also test to ensure there is no impact on the BO3 system maintained by PSMFC. When I receive a schedule for dates the AFF will be dewatered, I will work with Biomark to set a site visit date and notify PSMFC and FPOM so any interested parties can attend. Results of the site visit and antenna noise tests will be made available to the November FPOM meeting for final approval with installation scheduled prior to watering up the AFF in 2014.

We also propose to install a PIT tag antenna where CRITFC drops fish into the bail pool after sampling. The coated metal slide currently used will be replaced with a fiberglass or plastic slide running through an antenna which will be connected to the multiplexer.

One question which has come up is whether these antennas would be incorporated into PTAGIS. I am not anticipating this as the antenna is unlikely to meet the high standards for detection that PTAGIS has for their sites due to the lack of antenna redundancy. I also see this site as being of minimal interest to anyone outside the AFF. I will make the data available to AFF users or anyone who requests it.