



Whooshh Innovations, Inc.  
201 W Garfield Street, C-126  
Seattle, WA 98119

Aug 8, 2019

Columbia River Inter-Tribal Fish Commission  
700 NE Multnomah St., Suite 1200  
Portland, OR 97232

USACE Bonneville AFF Project Coord.  
Bonneville Lock & Dam  
Cascade Lock, OR 97014

**RE: In-Season Steelhead Report Task 3 Update 3 (July 18 – Aug 1, 2019)**

Dear Jon Hess, Jeff Fryer, John Whiteaker, Stuart Ellis and Andrew Derugin,

**Task 3: Reporting.**

**Methods:** *Biological characteristics of each Steelhead identified*

a). The FishL™ Recognition system uses multiple images from three different camera angles, together with a proprietary algorithm, to rapidly calculate the fork length of an individual fish to 1/10 mm. Provided a single fish is captured in the images, fork length data is automatically calculated. The data was later uploaded and associated with the scan index and manual classification data in the database. Table 1 below lists the Steelhead identified in the scans taken between July 18 and Aug 1, 2019. The information has been added to a continuous table listing all Steelhead identified in the scanned images from April-Aug 1, 2019 (attached Excel file: BV Steelhead Table Update Report 3\_final).

b). The adipose presence or absence (clipped) is recorded in Table 1 for each Steelhead.

c). Dorsal fin status is recorded in the table. If there is no table entry the dorsal fin is full and healthy. A question mark (?) indicates that the dorsal fin viewing was not ideal and thus status is inconclusive. Observations of split dorsal fins are noted. Those that appear to be intact but with the edge having several small splits it listed as “ragged”. Those dorsal fins that are substantially eroded or all but absent have been given a “stubby” descriptor.

d). The date and time a given Steelhead passed through the scanner with images captured is also recorded in Table 1. All time stamps during the April – Aug 1, 2019 are Pacific Daylight Time (PDT).

**Results:** To date, April – Aug1, 2019, **103 Steelhead** have been identified in the scans produced by the Whooshh FishL™ Recognition system.

**July 18-Aug 1, 2019 = 32**

**July 1-July 17, 2019 = 32**

**Apr – June 30, 2019 = 39\*** (\*one as discussed in previous reports is likely a Steelhead)

Of the thirty-two Steelhead identified July 18-Aug 1, 2019 one was larger than 780 mm. W86 was 815.7 mm and appeared to have a tail punch and a split anal fin. Half of the group, sixteen, had clipped adipose fins (hatchery). On the other sixteen the adipose fin was present (wild). Two appeared to have stubby dorsal fins, six dorsal fins were split and two were ragged. Two Steelhead had sizable open wounds.

**Conclusion:** Between April and Aug 1, 2019 there were a series of dates in which the Bonneville AFF was operational and fish that passed over the right-side false weir, and were not selected for sampling, slid through the right-side bypass and were imaged via the Whooshh FishL™ Recognition system before exiting into a calm channel connected to the fish ladder. Within this timeframe and under these conditions, 6974 scans were recorded, and date and time of scan logged. Fifty-eight scans captured two fish and one captured three fish. One hundred and three scans contained fish that were identified as Steelhead. In addition to the Steelhead, 6912 fish were identified for a total of 7015 identified fish passing through the right-side bypass chute and Whooshh FishL™ Recognition system as of Aug 1, 2019. Table 2 below summaries the fish species and total counts.

The FishL™ Recognition system is functioning well. Currently no fish are being sampled due to the warm water temperatures. Sampling and update reports will resume when the water temperatures drop and the AFF reopens. Inquires as to the data or report please feel free to contact me.

Best regards,



Janine Bryan  
Whooshh Innovations, Inc.  
janine.bryan@whooshh.com  
(206) 801-3565 ext 16

Table 1: Steelhead identified via the FishL™ Recognition system at Bonneville AFF between July 18-Aug 1, 2019. W# is the Steelhead number. Number is the scan number. The dark shaded fork length box highlights a >780 mm Steelhead.

W#	Number	Species	Adipose	Fork Length	Date	Time	Dorsal	Condition
72	6519	Steelhead	present	561.1	7/18/2019	12:49:26 PM	split fin	
73	6525	Steelhead	clipped	753.6	7/18/2019	1:07:44 PM		
74	6556	Steelhead	present	470.0	7/19/2019	10:30:24 AM		
75	6623	Steelhead	clipped	557.7	7/23/2019	11:20:24 AM	stubby	
76	6633	Steelhead	present	542.1	7/23/2019	11:49:59 AM		scrapes, descale
77	6645	Steelhead	clipped	668.6	7/23/2019	12:22:43 PM	split fin	split/clipped tail
78	6650	Steelhead	clipped	658.2	7/23/2019	12:40:51 PM	ragged	tail edge torn or clipped
79	6652	Steelhead	clipped	570.5	7/23/2019	12:41:45 PM		
80	6659	Steelhead	present	625.1	7/23/2019	1:06:12 PM		scrapes, descale
81	6668	Steelhead	clipped	675.9	7/24/2019	11:02:47 AM		
82	6682	Steelhead	present	472.5	7/24/2019	12:06:51 PM		hook lip injury
83	6720	Steelhead	clipped	538.8	7/25/2019	11:35:50 AM	stubby	tail edge clipped
84	6793	Steelhead	clipped	519.8	7/29/2019	10:27:21 AM	ragged	
85	6815	Steelhead	clipped	642.6	7/30/2019	9:15:57 AM	split fin	
86	6825	Steelhead	clipped	815.7	7/30/2019	10:00:05 AM		split anal fin, tail punch
87	6828	Steelhead	clipped	597.2	7/30/2019	10:22:32 AM		
88	6829	Steelhead	present	608.0	7/30/2019	10:22:48 AM		
89	6830	Steelhead	clipped	622.9	7/30/2019	10:23:13 AM		
90	6834	Steelhead	present	602.8	7/30/2019	10:31:28 AM		
91	6837	Steelhead	clipped	512.8	7/30/2019	10:53:00 AM		
92	6855	Steelhead	present	672.6	7/31/2019	8:32:25 AM		
93	6888	Steelhead	present	586.9	7/31/2019	9:58:30 AM	split fin	scrapes, descale
94	6922	Steelhead	present	574.5	8/1/2019	8:17:03 AM		
95	6929	Steelhead	present	600.6	8/1/2019	8:39:58 AM		
96	6933	Steelhead	clipped	642.0	8/1/2019	9:25:48 AM		
97	6943	Steelhead	present	555.9	8/1/2019	9:43:03 AM		large open gash
98	6948	Steelhead	present	433.5	8/1/2019	9:58:56 AM	split fin	descale
99	6950	Steelhead	present	599.4	8/1/2019	10:11:33 AM		open wound, descale, scrapes
100	6957	Steelhead	clipped	646.2	8/1/2019	10:45:06 AM		descale
101	6963	Steelhead	present	558.3	8/1/2019	11:03:20 AM		
102	6966	Steelhead	clipped	576.9	8/1/2019	11:09:24 AM		
103	6971	Steelhead	present	614.0	8/1/2019	11:16:03 AM	split fin	

Table 2. Fish identified between April- Aug 1, 2019 having passed through the Whooshh FishL™ Recognition system installed at the terminal end of the right-side bypass chute at Bonneville AFF.

Species thru Aug 1	Count
American Shad	781
Chinook	2564
Large Scale Sucker	19
Mini Jack	1170
Northern Pikeminnow	2
Pacific Lamprey	12
Peamouth Chubb	1090
Small Mouth Bass	2
Sockeye	1271
Steelhead	103
Whitefish	1
<b>Total</b>	<b>7015</b>