

DRAFT

Rocky Reach

2013 Adult Pacific Lamprey

HD PIT Detection and Passage Summary Report

This report summarizes half-duplex (HD) PIT tag detections for adult Pacific lamprey at Rocky Reach Dam (RRH) for the calendar year 2013. The HD detection arrays (all seven sites) were installed and fully operational on 1 June, 2012. The purpose of the HD PIT tag monitoring is to evaluate the improvements made (2011-2012) to the Rocky Reach fishway by Chelan PUD to aid upstream lamprey passage. This monitoring effort is per License Article 5-a(5) of the Pacific Lamprey Management Plan. The Rocky Reach Fish Forum (RRFF) will use monitoring results for an appropriate period of time to determine the effectiveness of the improvements for lamprey passage, such that for Rocky Reach:

...lamprey passage at the Project is similar to the best passage rates found at other hydroelectric projects on the mainstem Columbia and Snake rivers. [Pacific Lamprey Management Plan, Article 5, a(5) Evaluation of upstream passage modifications]

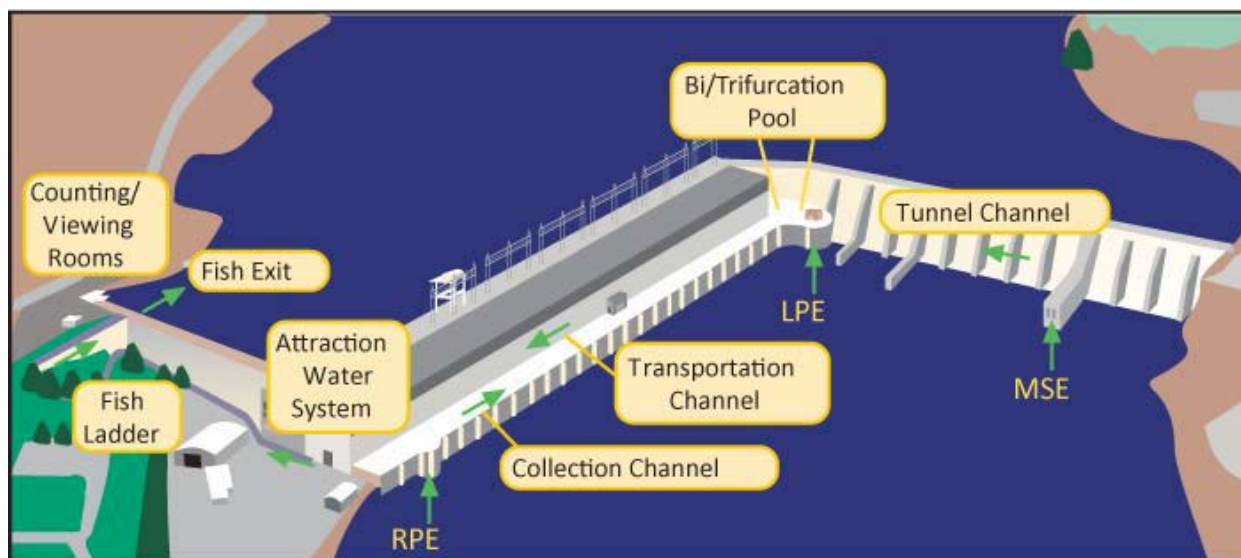
RRH HD PIT Detection Sites

HD detection sites within the Rocky Reach fishway are described in Table 1 and Figure 1. A total of seven sites (Table 1) wired with HD antennas have been monitored continuously during the period April through December, 2013. Detection sites include three main fishway entrances and four internal locations. These sites were reviewed and approved by the RRFF in 2011.

Table 1. HD PIT tag antenna site numbers and descriptions of antenna locations at Rocky Reach.

HD Detection Site	Antenna Site Description	Number of Antennas
RRH(01)	Entrance, Left Powerhouse (LPE)	1
RRH(02)	Entrance, Main Spillway (MSE)	2
RRH(05)	Entrance, Right Powerhouse (RPE)	2
RRH(03)	Internal, trifurcation pool	2
RRH(04)	Internal, transportation channel	2
RRH(06)	Internal, beginning of pool and weir ladder	2
RRH(07)	Internal exit, fishway exit to forebay	2

Figure 1. Rocky Reach Dam adult fishway system showing main entrance locations (RPE, LPE, and MSE), channel features, and fishway exit to forebay.



All adult lampreys detected at Rocky Reach 2013 were tagged in the lower Columbia River at Bonneville Dam by the US Army Corps (tag year not verified). From July through October 2013, 13 PIT tagged adult Pacific lampreys were detected at Rocky Reach Dam (Table 2). The first and earliest detection occurred on 30 July, while the latest first-time detection occurred on 3 October. Six of the 13 fish (46.2%) are assumed to have passed Rocky Reach, as each was last detected at the fishway exit antenna (RRH 07) with no subsequent detections. No fish detected at RRH in 2012 were detected in 2013.

Table 2. Detection timeline for HD PIT tagged lamprey at Rocky Reach Dam, 2013.

HD Tag Code	First Detect Date	First Detect Location	First Detect Time	Last Detect Date	Last Detect Location	Last Detect Time	Date Passed
A326D65	30 July	RRH(07)	3:23:25	30 July	RRH(07)	3:55:37	30 July
AECBEFC	6 Aug	RRH(03)	20:37:00	7 Aug	RRH(07)	0:43:08	7 Aug
AECC5BB	15 Aug	RRH(03)	4:12:43	15 Aug	RRH(07)	4:12:56	15 Aug
AECC355	19 Aug	RRH(02)	23:02:46	20 Aug	RRH(07)	4:50:30	20 Aug
AECC36F	20 Aug	RRH(03)	2:40:32	20 Aug	RRH(07)	7:17:22	20 Aug
AEBB9B5	31 Aug	RRH(06)	21:35:20	1 Sept	RRH(07)	1:01:08	1 Sept
AEBB952	7 Sept	RRH(01)	23:22:30	7 Sept	RRH(01)	23:22:30	-
AEBB9E1	15 Sept	RRH(01)	21:41:29	12 Dec	RRH(03)	20:37:35	-
AECBEC0	11 Sept	RRH(01)	1:53:46	11 Sept	RRH(01)	1:53:46	-
AEBB942	22 Sept	RRH(02)	23:19:47	9-Nov	RRH(06)	0:33:16	-
AECBF0A	22 Sept	RRH(06)	23:16:00	23 Sept	RRH(03)	0:44:36	-
ABAC50E	25 Sept	RRH(06)	22:04:49	26 Sept	RRH(04)	3:08:05	-
AECC3AF	3 Oct	RRH(07)	5:29:03	27 Oct	RRH(04)	22:27:05	-

Upstream fishway passage counts for Pacific lamprey from 2008 through 2013 are shown for Rocky Reach Dam (Table 3) Rock Island Dam (Table 4). Determination of conversion rates using count data is not strongly quantitative because of unknown rates of fallback at Rock Island and Rocky Reach, and unknown escapement to the Wenatchee. However, a comparison of lamprey passage counts for the two Projects over the last five years generally shows a higher conversion ratio since fishway improvements were made at Rocky Reach. The four-year mean conversion (2008-2011) prior to fishway improvements at Rocky Reach is 67.5% while the two-year mean post-improvement is 76.1%.

Table 3. Rocky Reach fishway window counts of Pacific Lamprey by month, 2008-2013.

Year	June	July	August	September	October	November	RRH Total	Conversion RIS-RRH
2008	0	11	161	188	8	0	368	41.8%
2009	1	13	155	105	4	0	278	74.1%
2010	0	6	126	110	26	0	268	84.3%
2011	0	0	85	482	51	0	618	69.8%
2012	0	5	251	496	53	0	805	76.8%
2013	0	37	577	1000	11	0	1625	75.4%

Table 4. Rock Island fishway counts of Pacific Lamprey by month window counts, 2008-2013.

Year	June	July	August	September	October	November	RIS Total
2008	1	39	435	387	18	0	880
2009	0	20	213	138	4	0	375
2010	0	8	139	138	33	0	318
2011	0	2	172	642	70	0	886
2012	0	9	329	662	48	0	1,048
2013	4	47	761	1,281	62	0	2,155