

PRELIMINARY PROPOSAL

VIDEO MONITORING STEELHEAD KELT PASSAGE AT BONNEVILLE PH2 JUVENILE MONITORING FACILITY SEPARATOR BARS

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Anticipated duration – March 1 through April 10, 2014.
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Project Description

Background

Steelhead kelt passage numbers through the Bonneville Powerhouse 2 Juvenile Monitoring System have been used as a trigger for when to open the Powerhouse 2 corner collector in the spring since 2010. The draft 2014 FPP states “Beginning on March 01, JMF personnel will enumerate steelhead kelt at the JMF adult/debris separator. If 2 kelts per day are observed at the JMF separators for 2 consecutive days for a cumulative total of 20 kelts, JMF personnel will notify the Control Room and Project Fisheries, and the B2CC will be opened within 1 hour.” In other words, once 20 steelhead kelts have passed and 2 kelts per day are seen passing on 2 consecutive days, the B2CC will be opened. In 2012, the FFU was assigned to recommend and implement improvements to the equipment and methods used to enumerate kelt passage. Before the 2013 spring season, FFU installed a better quality camera, better camera location, additional lighting, cabling, a new DVR recorder and large LCD monitor. This all improved the picture quality and ability to see and identify steelhead kelts passing the separator bars.

However, in 2013 a special criteria was used because the Powerhouse 2 JBS was still dewatered for maintenance issues and did not start passing fish until March 12. The special 2013 criteria was to open the B2CC after two kelts were observed for two consecutive days. The JMF crew continued to monitor the separator bars as they had in the past, and FFU reviewed the DVR files with the new system. In short, FFU determined that the passage criteria was met shortly after 20:00h on March 19 (Table 1).

Historically, the B2CC steelhead kelt trigger was met, and opened as follows:

2010 – Opened March 16, 17, 23, 24, 25, and 29 onward.
2011 – Met March 13, opened March 14
2012 – Met March 19, opened March 19
2013 – Met March 19, opened March 22

Objectives

Determine when steelhead kelt trigger is met using equipment and methodology described in Methodology section.

Develop and recommend a monitoring protocol that JMF staff (or other staff) can use to accurately and efficiently determine when the kelt trigger has been met and have the B2CC open in a timely manner.

Methodology

FFU will set up equipment to record video continuously from March 1, 2014 to April 10, 2014 at the Bonneville Dam JMF.

FFU staff will review the previous 24 hours recordings each morning, Mondays through Thursday, enumerating all steelhead kelt passage as well as other species seen. When the cumulative total of steelhead kelt nears 20, review will occur each morning including weekends and JMF staff will be notified of results, so that if the criteria is met during the day, the JMF staff can make the call to the operators to open the B2CC. Failing that, FFU staff can make the call after reviewing the previous 24 hours recordings if criteria were met but not seen by JMF staff.

FFU staff will continue to review video and enumerate passage after the B2CC has been opened, up until April 10. April 10 is typically when spill is scheduled to occur at Bonneville Dam and along with the B2CC would likely provide most of the kelt passage after this date. Also, the B2CC would automatically be opened for juvenile fish passage on April 10 in the event the kelt trigger has not already opened the facility.

Facilities and Equipment

Installation will occur at the Bonneville Dam JMF, overlooking the separator bars (lights and camera), and in the “PITAGIS” room in the sampling building (DVR and monitors).

FFU will install a camera (ONX Bullet Color Camera, 3.5-16mm f/1.2) with better resolution than the current camera, in a location that provides for improved image size and quality, install a new DVR (Everfocus Model 4D2500GB) that can record and allow read-back at the same time, at least three 100 watt flood lights for night viewing, and two 19" LCD flat screen monitors (Everfocus model EN7519SP) with 1080dpi. One monitor will be for reviewing previous recordings, while the second allows the reviewer to still see the real-time camera image of the separator bars if debris or fish should get hung up.

Impacts

There will be no impact to current JMF staff actions or duties. If desired, the old camera and video system could be left in place and a comparison could be made between the old system with JMF staff reviewing video as they have since 2010 and compare to the new system.

List of Key Personnel and Project Duties

Patricia Madson, Project Lead, reviewing video
John Dalen, equipment set up and maintenance

Technology Transfer

Data collected will allow fishery managers determine when steelhead kelts are present in the forebay of Bonneville Dam in sufficient numbers to justify opening of the B2CC to provide safe and timely passage for the steelhead kelts when significant numbers are present.

Sampling protocols developed by the study should allow JMF personnel to both accurately determine when the steelhead trigger is met as well as monitor the separator bars for debris and fish that may have become stuck, and take prompt action for their removal. JMF staff can review the video as often as desired, while still being able to see the separator bars on the live feed to the second monitor. If JMF staff are reviewing video and debris becomes lodged between the separator bars, the review can be paused, the staff simply walks out to the separator bars to clear the debris (a 1 minute walk), and then go back to reviewing video.

Table 1. Comparison of fish recorded passing the Bonneville Dam B2CC by FFU staff and JMF staff.

									FFU Total	JMF Total		
								Steelhead		Steelhead		
								Video	Visual			
Video review by FFU staff:												
3/12/2013		No fish seen on video										3/12/2013
3/13/2013	8:20	steelhead healthy,active,silvery,thin								1	0	3/13/2013
	22:04	dead shad										
3/14/2013	8:47	dead steelhead										3/14/2013
3/15/2013		No fish seen on video										3/15/2013
3/16/2013	23:47	steelhead healthy,active,silvery,thin								1	0	3/16/2013
3/17/2013	6:03	mirror car healthy,active										3/17/2013
3/18/2013	2:06	steelhead healthy,active,silvery,thin								2	0	3/18/2013
	4:08	whitefish healthy,active										
	6:40	sturgeon healthy,active										
	11:24	steelhead healthy,active,silvery,thin										
3/19/2013	15:36	steelhead badly fungused,gilling,colorful,thin								3	3	3/19/2013
	20:19	steelhead healthy,active,silvery,thin										
	21:52	steelhead healthy,active,colorful,thin										
3/20/2013	1:02	steelhead healthy,active,silvery,thin								2	0	3/20/2013
	17:17	sturgeon healthy,active										
	20:48	steelhead healthy,active,silvery,thin										
3/21/2013		No fish seen on video, documented 2 steelhead taken by CSL in PH2 forebay								0	0	3/21/2013
3/22/2013		CC opened at 12:20										3/22/2013
3/23/2013		No fish seen on video										
3/24/2013	14:46	sturgeon healthy										
3/24/2013	18:23	steelhead healthy, active, silvery, thin								1		
3/25/2013	4:48	steelhead fungused head, active								1		
3/26/2013		No fish seen on video										
3/27/2013		No fish seen on video										
								Total Steelhead seen March 12-25, 2013		11	3	
Visual monitoring by PSFMC staff reported on FPC website:												
wk 3/17-3/23	17 sthd, 1 unk salm (7 sthd video)	(3 sthd, 2 unk salmonid on 3/19/13)										
wk 3/24-3/30	17 sthd, 1 unk salm											
wk 3/31-4/6	13 sthd, 2 unk salm											
wk 4/7-4/13	10 sthd											