

MEMORANDUM FOR THE RECORD

SUBJECT: 17BON19 MFR – Pacific Lamprey mortalities at Bonneville’s Upper Washington Shore LPS.

At ~0700 on 21 June 2017, work crews alerted Project Fisheries to the fact that the upper Washington shore LPS, located in and below the auxiliary water supply channel (AWS), was overflowing and numerous lamprey were on the ground next to the structure (Picture 1). Upon arrival, Bonneville Fisheries recovered 30 alive lamprey and released them to the exit channel. Two additional fish were already dead (Picture 2). The fish mortalities were saved for later analysis by USFWS Fish Health.

Upon inspection, it’s believed that the number of lamprey in the final (original) portion of the LPS were so numerous that they caused the water to back up, overtopping the last rest box before the exit and the final flat traversing section (Picture 3). It’s unknown from which exact point in the LPS the lamprey came from. A fyke net in the final rest box was packed with lamprey (Picture 4) and was the most obvious bottleneck spot. The fyke net was then removed completely, meaning that lamprey entering that rest box may now stay in that box longer than originally intended, but allowing more lamprey to occupy that space. Inspection of other areas of the LPS show that there are many, many lamprey at all points in the LPS, suggesting the system may be at capacity.

Information collected is provided below:

- A. **Species** – Pacific Lamprey (*Entosphenus tridentatus*)
- B. **Origin** – Unknown
- C. **Length** – 59 cm and 69 cm
- D. **Marks and tags** – No marks and/or tags observed
- E. **Marks and Injuries found on carcass** – None observed
- F. **Cause and Time of Death** – Sometime between late afternoon on 20 June and 0700 on 21 June
- G. **Future and Preventative Measures** – A fyke net was removed from the overflowing rest box; this could have caused a bottleneck and subsequently water backing up. However, large numbers of lamprey were found throughout the system and could also contribute to a water surge. A larger exit hole and fyke net in the final rest box will be installed after the system is shut down for the winter.

Picture 1:



Picture 2:



Picture 3:



Picture 4:



Comments from Agencies:

Sincerely,
Bonneville Fisheries

-----Original Message-----

From: Bissell, Brian M CIV USARMY CENWP (US)

Sent: Wednesday, June 21, 2017 12:06 PM

To: Ralph Lampman <lamr@yakamafish-nsn.gov>

Cc: Kovalchuk, Erin H CIV USARMY CENWP (US) <Erin.H.Kovalchuk@usace.army.mil>;

Subject: RE: [Non-DoD Source] Re: FPOM: Official Coordination 17BON19 MFR - WA AWS LPS -PL Morts (UNCLASSIFIED)

CLASSIFICATION: UNCLASSIFIED

Ralph,

The contractor did not have enough materials for a proper fyke when installed. We had some material to extend the fyke as all the others are in similar scenarios including other LPSs on project. None of the upwelling boxes allow for fish to freely swim but rather entice fish to make that final push to either drop into a rest box or exit the system. This was also designed to allow a more ideal counting scenario with 1 fish being able to exit at a time instead of multiple.

Yes you are correct, the removal of the fyke would in theory allow fish to stay there longer but with the amount of fish observed this morning and in that particular place, it was really the only option. Moving forward we plan to hopefully enlarge the exit hole. Currently if I had to guess it's maybe 3" in diameter? You are also correct, fish may be able to go downstream. They could have gone downstream before though too as this fyke previously did not allow fish to freely swim in the upwelling box. If they go downstream they would find a rest box and either indefinitely stay there or decide to move back towards the exit and leave the system.

What we observed was that there were so many fish that the final fyke had become compromised and fish were freely swimming in the final upwelling box. The number of fish prevented water to flow out towards the exit as well as back down towards the final rest box. This caused the upwelling box to flood as well as the traversing section between the rest box and the upwelling box. Along all the LPSs there are not latches on these traversing sections as there has never been a need. The flooding and large quantities of fish I believe pushed these lids up and fish began to pour out. We plan to fasten these down in some fashion, i.e. ratchet strap, rope, etc.

31 fish were picketed up off the ground. There were also 2 morts for a total of 33 fish. With the counters not working properly and the video validation correction factor I'm not sure anyone would be able to know exactly how many fish passed, that would be a question for the FFU.

Hope this answers your questions.

Cheers,
Brian

-----Original Message-----

From: Ralph Lampman [mailto:lamr@yakamafish-nsn.gov]

Sent: Wednesday, June 21, 2017 11:25 AM

To: Kovalchuk, Erin H CIV USARMY CENWP (US) <Erin.H.Kovalchuk@usace.army.mil>; Bissell, Brian M CIV USARMY CENWP (US) <Brian.M.Bissell@usace.army.mil>; Royer, Ida M CIV USARMY CENWP (US) <Ida.M.Royer@usace.army.mil>

Cc: Subject: [Non-DoD Source] Re: FPOM: Official Coordination 17BON19 MFR - WA AWS LPS -PL Morts

Hi Erin, Brian, and Ida,

Sad news, but glad to hear that the LPS is working close to its maximum capacity.

Looks like an extension was added to the fyke net (before it was removed recently), but what was the reason for that? (seem like that may have made it more prone for lamprey to plug up there?)

Why would the removal of a fyke allow lamprey to stay there longer? (I guess I don't understand that logic) Besides allowing more space for lamprey in there, wouldn't the removal also allow them to go downstream?

So it likely overflowed somewhere between the final rest box and the terminal?
(is there that many openings between that section? I thought it was mostly closed)
Could a vexar be attached to those suspected area to prevent the escapement in the short term?

Besides the 30 alive on the ground, how many were captured from the LPS that day?

Sorry for the many questions.

Ralph Lampman
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