

MEMORANDUM FOR THE RECORD (16FOS03)

SUBJECT: Spring Chinook and summer steelhead mortalities during Foster Fish Facility Ladder Shutdown and Dewatering

As coordinated in 16FOS02, the Foster Adult Fish Facility ladder was de-watered on 1 June 2016 to accommodate the installation of research equipment for post-construction monitoring of adult fish usage of the ladder.

On Friday, June 3, 2016, the Corps (Operations Division, Technical Operations Branch, Fish Section) was notified that salvage efforts were required for several adult salmon and steelhead stranded in the ladder after dewatering.

The Foster Project and S. Santiam Hatchery staff followed the SOP (see attachment 1, Job Hazard Analysis for additional details) for dewatering and fish salvage efforts for the ladder. During dewatering and fish salvage efforts, approximately 64 hatchery adult summer steelhead and 5 hatchery adult Chinook salmon were euthanized. Four wild winter steelhead were saved and transported upriver. Two adult fish mortalities were observed in the old portion of the ladder that could not be identified due to access issues.

- A. Species – summer steelhead (adults, qty. 64) were euthanized, hatchery spring Chinook (adults, qty. 5) were euthanized, four wild winter steelhead were saved and transported upriver, two mortalities of adult fish were observed in the old portion of the ladder that could not be identified due to access issues.
- B. Origin – (see above)
- C. Length – Measurements not taken
- D. Marks and tags – Fish were scanned for CWT and PIT tags, none were detected
- E. Marks and Injuries found on carcass – Observations were not performed
- F. Cause and Time of Death – Euthanasia, lack of water/oxygen
- G. Future and Preventative Measures – The ladder should not be de-watered during peak adult fish returns for any research activities, unless it is required and approved by all parties, including the S. Santiam Hatchery Manager and Fish Agencies. Research equipment should be installed during winter maintenance period or prior to the peak of the adult fish returns. Perhaps, the duration of the closure of the entrance gate and auxiliary water supply before the dewatering should be increased (Willamette Fish Operations Plan recommends 24-48 hours). Additionally, the water level could be fluctuated, (decreased, then increased) a few times to encourage fish to back out of the ladder. Additional resources (e.g. manpower, tanks, trucks) may have alleviated the number of mortalities. Dewatering plans are being examined and reviewed and will be vetted through the Willamette Fish Operations and Maintenance Team by October of 2016.

Comments:

Draft Hatchery Management Team Minutes excerpt:

3.2.4. **16FOS03 MFR** Foster Fish Ladder Mortalities brief – Walker reported that the ladder went out of service and upon dewatering the fish salvage operation resorted in mortalities. Wild fish were salvaged and moved upstream however. The MFR has details on the operation and what went wrong. The timing of year was poor along with some other issues. Discussion is occurring about possibly installing a small hoist or something along the inaccessible portion of the fish ladder to assist with salvage in the future.

Draft Willamette Fish Operations and Maintenance Team Minutes excerpt:

4.3. 16FOS03 MFR Foster Fish Ladder Mortalities. **The MFR will be updated with additional comments.** WFPOM noted that the dewatering occurred during a less ideal time of year. The unmarked fish were outplanted. Updated dewatering plans will be available for review for the October WFPOM meeting. **ACTION:** Walker to have dewatering plans for the October WFPOM to review.

ODFW

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

From: Brett Boyd [mailto:brett.h.boyd@state.or.us]

Sent: Thursday, June 16, 2016 9:50 AM

To: Walker, Christopher NWP <Christopher.E.Walker@usace.army.mil>

Subject: RE: [EXTERNAL] RE: Foster Ladder outage

1.) No Pit Tags or CWT's were detected. Hatchery fish were identified by the missing adipose fin that ODFW fish ID staff remove while they are juveniles.

2.) The old portion of the ladder, (the last 17 pools) does not have access. That is where the two mortalities occurred. The low spot where the transportation channel meets the new ladder is where the fish congregate, if you take that away then I guess all the fish would be dewatered. I talked to Chris B. and Jay Dallas about installing a small crane/hoist at that spot to assist with lifting the fish from that area. We will make a small crowder to not allow fish back down the transport channel. Bottom line is that adults in a ladder are hard to get out, been that way at every facility I have worked at. Provide access points that comply with OSHA standards to the old section of the ladder would also be a huge improvement.

Brett

On Tue, Jun 7, 2016 at 1:12 PM, Brett Boyd <brett.h.boyd@state.or.us <mailto:brett.h.boyd@state.or.us> > wrote: Chris,

The picket weirs and AWS pumps were shut off 48 hours prior to the shutdown, sorry I missed that earlier. The operator on duty performed the operation and should have it recorded in their log. Brett

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

From: Brett Boyd [mailto:brett.h.boyd@state.or.us]

Sent: Tuesday, June 07, 2016 7:28 AM

To: Walker, Christopher NWP <Christopher.E.Walker@usace.army.mil>

Cc: Khan, Fenton O NWP <Fenton.O.Khan@usace.army.mil>; Ryan Couture <ryan.b.couture@state.or.us>

Subject: RE: [EXTERNAL] RE: Foster Ladder outage

We basically have no place to put the hatchery fish. We only have one portable tank which is needed for wild fish. You have to send one person into the transport channel and walk up to the low spot where the new ladder meets the transport channel. That person has to net the fish, club the hatchery fish, then transfer them to another net with a 25 foot handle, then that person has to haul them up by hand. The wild fish are also put in the net and transferred to the portable tank.

To keep hatchery fish alive, we would have another truck and tank. After that kind of handling I would not want them for brood, I'm not sure they would be viable for recycling back to a fishery due to the stress load either. Thus we euthanize them. No anesthesia, we would have to have a tank and crane or hoist to lower into the area, then a basket to lift the fish up so they don't struggle in a net for 20 feet.

The easiest solution is obviously don't shut the ladder down when there are large numbers of adults present. That's why the maintenance shut down period suggested by ODFW is in December. It's your staff that continues to request additional ladder closures.

Brett

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

From: Walker, Christopher NWP [mailto:Christopher.E.Walker@usace.army.mil]

Sent: Monday, June 06, 2016 3:28 PM

To: Brett Boyd

Subject: RE: [EXTERNAL] RE: Foster Ladder outage

Hi Brett,

Another couple of question:

- Were fish euthanized because they were near death, there were too many to handle and get them to safety, or both?

- What was the method of euthanasia (e.g. CO2, MS-222)?

I am finishing up a memo, if you have time to read it this PM or tomorrow by 10am that would be great, if not I'll send it out for comments. As soon as I hear from you, I will send it to you and Fenton for review.

Thanks again. Chris Walker

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

From: Brett Boyd [mailto:brett.h.boyd@state.or.us]

Sent: Monday, June 06, 2016 7:07 AM

To: Walker, Christopher NWP <Christopher.E.Walker@usace.army.mil>

Subject: RE: [EXTERNAL] RE: Foster Ladder outage

Hi Chris,

We are prepared for performing a fish salvage. We worked with Foster Staff last year to get a clearance protocol established. We have a SOP established for the action which is kept in the office. We also have all the required ladders, lanyards, fall protection equipment, and training to use the fall protection gear. We did identify a few items that would help, such as a small crowder to prevent adults from getting past the person in the ladder and going back down the transport channel, and maybe a small hoist system to haul carcasses out of the ladder. We plan on having a discussion this week to create a punch list and update the SOP. Not an issue of being prepared, more of an ethical issue. The Foster maintenance staff were great and were willing to help, we really appreciated their assistance.

Brett

Original Message

From: Brett Boyd

Sent: Friday, June 3, 2016 3:55 PM

To: Walker, Christopher NWP

Subject: [EXTERNAL] RE: Foster Ladder outage

Really hard on us and the fish, we had 60 adults in the ladder that had to be netted out. I will not support a ladder outage during an active part of our trapping season again.

Brett

NOAA Fisheries -

From: Ed Meyer - NOAA Federal <ed.meyer@noaa.gov>

Sent: Thursday, June 16, 2016 11:29 AM

To: Mackey, Tammy M NWP

Cc: Stephanie Burchfield - NOAA Federal

Subject: [EXTERNAL] Fish kill at Foster dam dewatering

What is the status of the investigation into the adult fish kill at Foster dam that occurred during the dewatering of the ladder and trap? Why did we lose so many fish and what is being done to correct the problem? Thanks

Ed

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Edward Meyer

Fish Passage Engineer

National Marine Fisheries Service - West Coast Region

1201 NE Lloyd Blvd, Suite 1100

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NOAA/ODFW

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

From: Stephanie Burchfield - NOAA Federal [mailto:stephanie.burchfield@noaa.gov]

Sent: Tuesday, June 07, 2016 2:16 PM

To: Brett Boyd <brett.h.boyd@state.or.us>

Subject: [EXTERNAL] Re: 16FOS03 Foster Fish Ladder Mortalities

Brett,

Thanks for sending that "JHA" -- it helps me understand your normal protocols for dewatering the ladder/trap. And, yes, I understood what you meant and agree that not shutting down during fish passage season is the best approach.

Today isn't the day to get into the details, but at some point, I'd like WFPOM (or someone, including Ed Meyer) to review these protocols and see if any improvements can be made to minimize the need to salvage. Typically, we want to have a system where fish can be guided back out the ladder during dewatering rather than hold up and get stuck midway.

Stephanie Burchfield
Fisheries Biologist
NOAA Fisheries West Coast Region
U.S. Department of Commerce
1201 NE Lloyd Blvd, Suite 1100
Portland OR 97232
503-736-4720

From: Brett Boyd [mailto:brett.h.boyd@state.or.us <mailto:brett.h.boyd@state.or.us>]
Sent: Tuesday, June 07, 2016 2:04 PM
To: Stephanie Burchfield - NOAA Federal; Brett Boyd; Walker, Christopher NWP
Subject: RE: 16FOS03 Foster Fish Ladder Mortalities

Hi Stephanie,

Attached is the protocol we followed. It is in the form of a JHA but we tried to include all of the fish related actions as well. There is no access to the old section of the ladder. Not performing a ladder shut down in a river system with a late wild steelhead, Spring Chinook, and summer Steelhead return would be the best way to avoid fish strandings. Brett

From: Stephanie Burchfield - NOAA Federal [mailto:stephanie.burchfield@noaa.gov]
Sent: Tuesday, June 07, 2016 1:49 PM
To: Brett Boyd; Walker, Christopher NWP
Subject: Re: 16FOS03 Foster Fish Ladder Mortalities
Hi Chris and Brett,

We need more details about how this fish kill happened beyond the short description in the MFR. Please provide the written protocol that the trap operators use for dewatering the facility/ladder. Were all steps followed? What could be done differently to avoid fish stranding in the ladder during future dewaterings?
Thanks.

Stephanie Burchfield
Fisheries Biologist
NOAA Fisheries West Coast Region
U.S. Department of Commerce
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