

## MEMORANDUM FOR THE RECORD

Subject: FINAL minutes for the 31 March 2020 WFPOM special call to discuss options for fish counting at Lebanon Dam and the potential for spring Chinook spawning ground surveys in 2020.

The meeting was held via teleconference. In attendance:

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Reis	Kelly	ODFW	<a href="mailto:Kelly.E.Reis@coho2.dfw.state.or.us">Kelly.E.Reis@coho2.dfw.state.or.us</a>
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**1. Final decisions and recommendations made at this meeting.**

**1.1.** The WFPOM sub-group requested we work alternatives that would not require significant ladder modification, and that could be implemented in the near term.

**2. Goal:** Enumerate Hatchery Origin Returns (HOR) and Natural Origin Returns (NOR) of Spring Chinook salmon (via presence or absence of an adipose fin) returning to the South Santiam River at Lebanon Dam.

**3. Background:** From BiOp 2020; Terms & Conditions (T&C), 2c.

**3.1.** “The Corps and ODFW shall fund and operate a fish counting station throughout the entire spring Chinook salmon migration in the fish ladders at Lebanon Dam on the South Santiam River. The existing fish ladder on this dam allow for the enumeration of returning salmon to this river. The Corps and ODFW shall seek to obtain permission from the city of Albany (owner of the dam) to continue to count fish here; as no other options are available in the lower South Santiam River. The purpose of this information is to estimate the number of natural-origin salmon returning to this population and allowable numbers of natural-origin salmon that can be collected and integrated into the South Santiam hatchery salmon broodstock. Without run size information, impacts from hatchery broodstock integration cannot be determined. These counts will also provide estimates of pHOS. The funding of this action between the Corps and ODFW will be allocated according to the cost sharing for this entire program (operations at Foster Fish Collection Facility and South Santiam Hatchery), or as otherwise mutually agreeable between these agencies.”

- 3.2. Note: Because the Period of Performance (POP) of the T&C are unspecified, determining the optimal Alternative for implementation will require additional input from NOAA. Range of Magnitude (ROM) cost estimates will be developed for alternatives once the POP is better established to allow evaluation of the return on investment from each Alternative depending upon required design life.
- 3.3. Wertheimer explained there are a lot of variables and asked Kruzic how long these counts are expected to occur. This time will inform alternative selection. Kruzic said the BiOp doesn't have a sunset date. He said we are likely looking at a decade or more. As long as the hatchery program is in effect, the counts are needed. **New design should be built to last at least 10 years.** Wertheimer has worked with Bart Debow to layout different options. Getting fish within 18" of the count window is important to accurately determine clipped and unclipped.
4. **Objective 1:** Determine appropriate ladder infrastructure &/or configurations Alternative(s) to allow video or other fish count systems/software to enumerate HOR & NOR passage at Lebanon Dam Fish Ladders. Three Primary Alternatives have emerged as potential design solutions to allow counting of HOR & NOR returns at Lebanon Dam.
- 4.1. Alternative 1: COUNT WINDOW(s) cut into ladders, fish crowder, and associated ladder guidance improvements. This option will likely take more than one year and a lot of legwork to get the permissions and construction completed. Kruzic stressed the need to come up with a solution that allows for accurate counts but does not require a major infrastructure change. E. Kelley would like to see a balance between getting a count station installed quickly and long term reliability. Wertheimer has asked the City of Albany for as-builts to see if there is something we can get in place this year. The COVID-19 situation has created additional challenges not previously foreseen. Getting travel permission to travel to non-federal locations and communications have all been slowed. Kruzic said he understood the challenges and would like to see something quick at the top of the ladder to test it this season. There are concerns about turbulence lower in the ladder. Wertheimer said the turbulence is a concern for him as well because it reduces the ability to compress the data. E. Kelley said ODFW uses the Salmon Soft software and it seems to cut through the turbulence fairly well. Is that not an option for USACE? Wertheimer said he is familiar with the software, and that such solutions were being evaluated.
- 4.2. Alternative 2: VAKI RIVERWATCHER(s)  
[http://www.riverwatcher.is/media/PDF/VAKI\\_Riwerw\\_brochure\\_A4\\_fyrir\\_netid.pdf](http://www.riverwatcher.is/media/PDF/VAKI_Riwerw_brochure_A4_fyrir_netid.pdf)
- 4.2.1. The Riverwatcher is used to remotely monitor fish in rivers, fish ladders, weirs, and fishways, using infrared scanning technology and high resolution cameras. The Riverwatcher is able to count and identify different fish species and validate fish counts with silhouette images and photographs.
- 4.2.2. Reis asked how species would be identified. Wertheimer said body morphology would be used. The focus is spring Chinook so looking at differences between steelhead and Chinook should allow for this option.
- 4.2.3. Mullan asked how the Upper Bennett and Lower Bennett systems differ. Wertheimer discussed in the next alternative.
- 4.3. Alternative 3: UNDERWATER VIDEO, via camera, with weir guidance, and associate count software (e.g., Upper Bennett).
- 4.3.1. Wertheimer received photos from Bart and will share those if ODFW is agreeable. E. Kelley said Lower Bennett takes multiple people and a couple of days to install. Kruzic said Lower Bennett is a low dam with hardly any water. It's a very different setup than Upper Bennett or Lebanon dams. Wertheimer said the intent is to get

cameras in the upper section of Lebanon as soon as possible. He would like to get to Lebanon within the month, approval for travel pending.

- 4.3.2. Mullan said she will try to get Wertheimer the as-builts. NOAA Fisheries may have electronic copies she could send. Kruzic asked if anyone knows the distribution of fish between the two ladders. Wertheimer said he has a folder of studies but hasn't come across that information just yet. Mullan asked if that info would be used to determine a different solution for the north ladder. Kruzic said it would be interesting to see and if the distribution is skewed significantly, maybe we could use only one ladder. E. Kelley said one year of data may not be appropriate for that determination. She suggested 5 years may give us enough data to make an informed decision.
  - 4.3.3. Wertheimer asked about the count turn-around time. E. Kelley said Bart submits weekly counts. Kruzic said ideally the counts would be on a weekly basis. This data is needed to guide quick turnaround for management decisions.
  - 4.3.4. Kruzic suggests scoping out the video on the south ladder and applying that to the north ladder. Wertheimer agreed and feels there likely isn't going to be a difference in passage distribution, based on water conditions, and flow symmetry through each of the ladders.
  - 4.3.5. Mullan said if Lebanon is similar to the Bennetts, late May is a critical time to have the video in there. These counts are going to help inform the water management decisions, especially this year when flow targets may not be met due to low water.
5. **Objective 2:** Determine appropriate count systems and or software to enumerate HOR & NOR passage at Lebanon Dam Fish Ladders.
- 5.1. Task 2.1 Review Fish Counting Systems; contact companies and get a ROM cost estimate for components and systems. Get feedback from current users of the systems, and continue to work with ODFW subject matter experts counting fish from similar facilities (e.g., Upper Bennett).
    - 5.1.1. Subtask 2.1.1 River Watcher (<http://www.riverwatcher.is/>)
    - 5.1.2. Subtask 2.1.2 Salmon Soft (<https://www.wecountfish.com/>)
    - 5.1.3. Subtask 2.1.3 Fish count window with standard cameras and DVR (research and utilize compression software).
    - 5.1.4. Subtask 2.1.4 Underwater Video Box (USFWS – Alaska video weirs [http://www.psmfc.org/steelhead/2012/Gate\\_PSMFC\\_2012\\_Video\\_presentation.pdf](http://www.psmfc.org/steelhead/2012/Gate_PSMFC_2012_Video_presentation.pdf))
  - 5.2. Task 2.2 Approval/Permitting
    - 5.2.1. Subtask 1.1.1 present findings to WFPOM
    - 5.2.2. Subtask 1.2.2 MOU with City of Albany
    - 5.2.3. Subtask 1.2.3 Permitting NOAA/ODFW
  - 5.3. Task 2.3 Develop acquisition strategy with COE contracting and present timelines to WFPOM after development.
6. Spawning survey needs. Wertheimer pointed out that we are reaching a point of no return for getting spawning surveys in place. He said FFU has the equipment to get cameras in place at the top of the ladder by May but that is without additional travel restrictions. Mullan said fish tend to show up at Foster in late June. August is the month of worry for flow targets. Steelhead flow targets are not being met in an effort to have water for Chinook. Spawner counts will provide information as well. She mulled over whether spawner counts would be a better option given uncertainties regarding ladder counts at this time.
- 6.1. Wertheimer explained that funding is limited and if we are going to be required to do spawning surveys, there will be less funding available to work on ladder count solutions. **Kruzic reiterated that counts are the higher priority over downstream spawning**

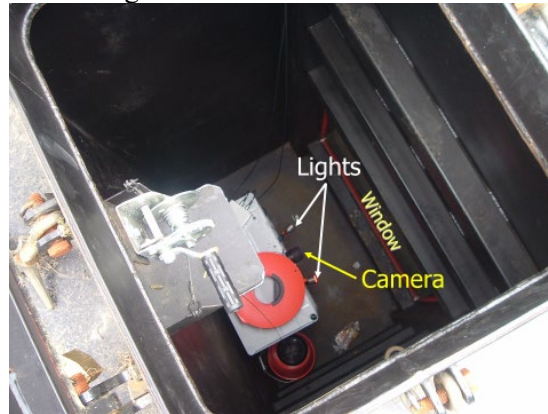
**surveys.** Kruzic said the worst case scenario would be to have no counts and no spawning surveys. **E. Kelley said she would prefer to move forward on getting cameras in place.** Walker said the drop dead date for initiating spawning surveys is dependent on when WFPOM wants the surveys to start. If we wait until late season, we have some time to test cameras. If we want early/mid-season, we need to get contract paperwork started this week. Wertheimer believes we can get counts this year. WFPOM is agreeable and willing to work with FFU to overcome any challenges or obstacles that present themselves.

**6.2. The WFPOM requested we work alternatives that would not require significant ladder modification, and that could be implemented in the near term.**

Photos from Bart Debow (received via email 23 March 2020). Pictures from both Upper Bennett and Lower Bennett are provided and labeled to depict the configurations in these ladders.



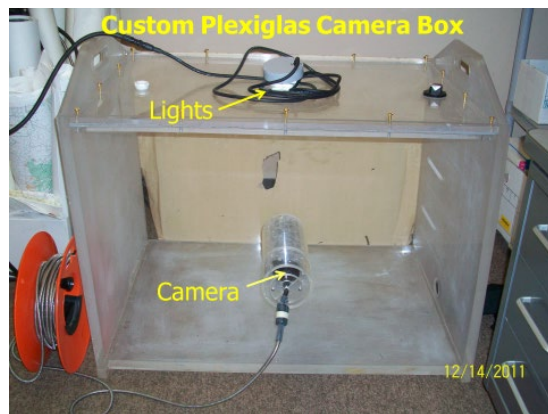
Upper Bennett Weirs and Vault  
(fish pass window and then exit to river)



Upper Bennett Video Vault  
(4'x4' Plexiglas view window)



Lower Bennett Weirs  
(camera installs where worker is located)



Lower Bennett Camera Box