Willamette Action Team for Ecosystem Restoration (WATER)
Research, Monitoring and Evaluation (RM&E)
November 3, 2016

http://www.nwd-wc.usace.army.mil/tmt/documents/FPOM/2010/Willamette_Coordination/Willamette%20RME/RME.html

Facilitator's Summary

ACTION	BY WHOM?	BY WHEN?
Review proposal for JPL-17-06-DET; provide comments to Rich	RM&E Team	Friday, November 4th
Consider meeting to discuss potential acclimation and release study below DET.	RM&E Team	Week of November 7th
Report back to the RM&E team with decision on study	Corps	ASAP

Participants on the Phone: Leslie Bach (NPCC), Stephanie Burchfield (NMFS), Ian Chane (USACE), Brad Eppard (USACE), Tom Friesen (ODFW), Bernadette Graham-Hudson (ODFW), Sue Jones (USACE), Fred Monzyk (ODFW), Eric Oldenkamp (USACE), Rich Piaskowski (USACE); Dan Spear (BPA), Riccardo Walker (USACE)

Facilitation & Notes: Emily Stranz, DS Consulting

Review and Input on JPL-17-06-DET Proposal
Rich Piaskowski, USACE, explained that the Corps received a proposal from ODFW to conduct a rearing and migration pattern study with juvenile winter steelhead in the North Santiam River above Detroit Dam. As requested by the Corps, the study focuses only on Objective 1 of the concept paper reviewed and prioritized by the RM&E Team. Objective 1 is to:

Describe rearing and migration patterns of juvenile winter steelhead above Detroit Reservoir, including:
a. Proportion migrating into Detroit Reservoir (and residualization rate in stream);
b. Timing, age and size of migration into Detroit Reservoir; and,
c. Growth rate in streams above Detroit Reservoir.

The RM&E team members prioritized this objective as medium to high (Corps: 5 (if releasing natural spawners); BPA: 5; NPCC: 4; NMFS: 3; FWS: 4; ODFW: 5; CTGR: 4).

Due to the current size of the winter steelhead and the need to release them as soon as possible, the Corps would like to get RM&E Team input as to if the proposal effectively addresses Objective 1? ODFW researchers were on the call to answer questions and provide insight as to the methodologies and thought behind the proposal. Stephanie Burchfield, NMFS, noted that the other concept objectives (most importantly, objective 2) were prioritized high and should be addressed in this study as well.

Sue Jones, USACE, explained that the ODFW proposal went above and beyond what the Corps had intended to request in their work statement, thus, the Corps is interested in hearing from the RM&E Team as to what aspects of the study are necessary to get at the information needed in Objective 1.

The Corps also asked for RM&E input as to how answering Objective 1 will inform management decisions. Rich explained that since the study rankings were completed by the RM&E Team in June, the

Corps' Detroit Downstream PDT has resumed work and determined additional information on juvenile steelhead passage and behavior was not needed in order to design the improvements, as now scheduled. The Corps has committed to design improvements that provide passage for juvenile spring Chinook and winter steelhead through most of the year, and therefore information on migration timing, growth, survival and residualization are not needed at this time. Stephanie reminded the group that this study stems from meetings of the RME Team and Fish Passage Team that took place approximately four years ago, in which Corps' biologists said that there needed to be better understanding of how steelhead would act above the dam in order to inform downstream passage design. Bernadette Graham-Hudson, ODFW, noted that the paired release study has demonstrated that some fish are residualizing and that this study will provide information on steelhead behavior to help inform future release timing and size.

The Corps also asked whether using hatchery origin steelhead is sufficiently representative of natural fish rearing and migration patterns. Dan Spear, BPA, and Brad Eppard, USACE, expressed perspective that using hatchery fish is not effective in answering the questions posed by Objective 1 (early rearing and migration patterns), whereas natural origin fish outmigrating from adults outplanted upstream would be informative. Brad noted that this study would be more valuable after passage is implemented at Detroit. Stephanie acknowledged this concern, however, noted that most of studies in the Willamette RME effort have used hatchery origin fish to help understand natural origin fish behavior (and she listed several of them: balloon tag survival studies, JSATS and radio tag fish behavior and survival, paired release with PIT tags studies). She also noted that these fish aren't truly "hatchery-origin," because they were taken from natural-origin winter steelhead adults, and only the spawning and early rearing occurred in the hatchery. Ian Chane, USACE, suggested PIT tagging these fish, acclimating and releasing them downstream of Minto Dam to see what the adult returns look like and then using the adults in a study. Tom noted that both releasing up and downstream of the dam could be possible. He also noted that they cannot outplant adults above Detroit due to the current IHN risk. The group decided to table this idea and potentially discuss it with the RM&E Team at a special meeting next week.

→ **ACTION:** If desired, the RM&E team will coordinate a meeting the week of November 7th to discuss potential releases below DET.

The Group walked through the proposal together and discussed the methods suggested. The following pages provide a brief recount of the discussion points.

Task 1: Determine proportion of juvenile winter steelhead migration into Detroit Reservoir versus remaining in the streams above Detroit Reservoir.

1.1: Mark juvenile winter steelhead.

- Biomark would be contracted to tag the fish. If necessary, fish will be held temporarily at Marion Forks hatchery (depends on when fish get tagged – OSU can only hold the fish until December 1st). The fish are not expected to acclimate to Marion Forks water due to their age.
- Approximately 28,000 fish will be tagged.
- Fish are currently 65mm+ and the longer the wait to tag and release, the less realistic the experiment becomes. OSU has the fish on a maintenance diet now and expects that the fish will be ~70mm, but less than 80mm by the time they would be tagged if it is within a month. It will take time (30 days) to finalize the contract once ODFW has it, so if the Corps decided to move forward with the contract, the sooner the better.

1.2: Release juvenile winter steelhead.

- The proposal suggests two release sites: North Santiam and Breitenbush Rivers, with two release groups in each that are separated by a week (14,000 fish/basin). This approach seeks to address concerns of overcrowding and habitat capacity issues.
- The Corps noted that this approach doubles the needs of the study and proposed that they could release in two locations on the same tributary.
- Ian asked if one of the tributaries was a better match in regards to the size of fish that would be coming out of the stream. Tom Friesen, ODFW, responded that they do not have that information, however, could calculate ATU and estimate.
- Stephanie shared that if doing two releases NMFS would rather do both in the same year, as opposed to splitting the study over multiple years. This allows for data to be compared in-year and limited the number of variables. She noted that there are already multiple variables in the samples due to different conditions in the tributaries, size of fish when released, release location, etc. These variables are important to track as they could influence management in the sense that the facility may adjust operations based on when they are actively migrating, if they are rearing in the reservoir before heading to the forebay, when fish are coming into the facility, etc.

1.3: Deploy equipment to monitor migration prior to release.

- Fred Monzyk, ODFW, explained that the screw traps would be placed in each tributary, along with a PIT array located downstream from the trap. The intent of the PIT array is to address issues with estimating abundance, as the screw trap data is negatively biased due to fish avoiding the trap after initial capture. Electroshocking would also be used to capture and detect marked fish.
- Brad asked how it would impact the study to only use the screw trap to detect fish? Could they still meet the objectives? Fred responded that due to the negative bias from the trap, the two methods of detecting fish will provide a better efficiency estimate which is then used for the abundance estimate.
- It was noted that Chinook will also be using the streams and may be impacted by electroshocking. There was question as to if the electroshocking is necessary or if the PIT arrays and portable PIT detectors are sufficient. Stephanie noted that she would like to talk internally at NMFS regarding the use of electroshocking, as they are generally not supportive of it.
- There was question as to if the hatchery releases would push out other fish that are in streams. Fred noted that you may be able to detect any impact with screw trapping and PIT array and that that could be helpful information.

Task 2: Determine timing, age and size of migrating juvenile winter steelhead into Detroit Reservoir.

- Fred noted that all fish trapped will be measured, this will provide size and growth information.
- Rich asked what number of recaptures will be needed to estimate the population of migrant abundance and the population that stayed. Fred noted that ideally, they will get five recaptures per week to estimate migrant abundance. They are not yet sure how many are needed to estimate the population that stayed.
- Rich asked how they will get at the population estimates, will they use combined catch? Time period? Fred noted that they will use any way that they can detect it. The time period was not specified in the work order, so ODFW is proposing to use the summer months to estimate how many migrate out in the spring?

- Brad asked how collection efficiency will vary. Fred noted that it will vary and they will look at it weekly and try to account for weekly variables (including reservoir elevations and time series) to factor in how efficiency is influenced.

Task 3: Determine the growth rate of juvenile winter steelhead in streams above Detroit Reservoir.

- Fred mentioned that during the summer field season ODFW will be taking length measurements on any fish that they can get in hand.

Task 4: Report findings.

- Tom noted that the time between the draft and final reports is tight considering the timeline for the WATER review process, he suggested a longer review time. Riccardo mentioned that the Corps and WATER review could happen concurrently to help shorten the review time.

Next Steps
The Corps shared that from their perspective the proposal includes extra aspects that could be cut out and still get at the information needed to fulfill the objective. They encouraged RM&E Team members to provide comment on the methods and approach to the study and noted that they will follow-up with ODFW regarding how they decide to proceed. The Corps will also circle back to the RM&E Team with their decision.

Emily thanked the group for their work and with that the meeting was adjourned.

This summary is respectfully submitted by DS Consulting. Suggested edits are welcome and can be sent to Emily at emily@dsconsult.co.