



# Oregon

Kate Brown, Governor

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Jon Rerecich  
Fish Passage Section  
Environmental Resources Branch  
US Army Corps of Engineers, Portland District  
333 SW First Ave.  
Portland, OR 97204



RE: ODFW review of the U. S. Army Corps of Engineers, Portland District draft 30% Design Documentation Report, "Detroit Floating Screen Structure"

Dear Mr. Rerecich:

Thank-you for the opportunity to review the 30 Percent Design Documentation Report for the Detroit Floating Screen Structure, distributed for review on March 7, 2018. ODFW has reviewed the draft report and comments are attached.

Please direct any questions or concerns regarding these comments to Kelly Reis ([kelly.e.reis@state.or.us](mailto:kelly.e.reis@state.or.us), 541-726-3515, x29) or Elise Kelley ([elise.x.kelley@state.or.us](mailto:elise.x.kelley@state.or.us), 541-757-5249).

Sincerely,

Kelly Reis  
Willamette Fish and Wildlife Policy and Program Manager

c: Rich Piaskowski, USACE  
Dan Spear, Christine Peterson, BPA  
Mike Hudson, USFWS  
Elise Kelley, Bernadette Graham Hudson, ODFW  
Leslie Bach, Karl Weist, NWPC  
Lawrence Schwabe, CTGR  
Melissa Jundt, Diana Dishman, NMFS  
Nancy Gramlich, DEQ

## ODFW Comments for 30% Design Documentation Report, Detroit Floating Screen Structure:

USACE - Thank you for your comments. Responses are in blue.

### General Comments

- ODFW appreciates the work and effort that have been invested in development of the Floating Screen Structure. We feel volitional passage at Detroit and Big Cliff dams, rather than trap and haul, will provide the best chance of recovery of listed fish. Juvenile fish, particularly smolts, and downstream-migrating kelts, are already in a stressed state prior to passage due to the biological and chemical transitions they are experiencing. Navigating the reservoir is an additional stress. Excessive handling and artificial movement, as would be the case with trap and haul, will increase the stress levels on these fish and put their survival at greater risk. We feel volitional passage will ultimately be more successful in recovering listed spring Chinook and winter steelhead and consequently should be the passage goal on the North Santiam rather than trap and haul.

We concur that volitional (piped bypass) passage in conjunction with the FSS should be evaluated. However, the AE has not been contracted for this part of the design and will continue with the development of trap and haul. It is anticipated that trap and haul will be a necessary component, at least in the early stages of operation. Efforts are underway to develop a strategy to utilize new information through RM&E regarding the potential biological benefits/risks of the two alternatives and we continue to improve our understanding of the trap and haul life cycle costs through DDR level design. The DET conveyance alternatives, alignment with the BiOp implementation schedule, high head bypass team study results and next steps, are being discussed and evolving. There will be more discussion with ODFW and WFFDWG as this progresses.

- The FSS design must incorporate flexibility. Fish don't necessarily behave the way we expect them to. Fish may not show up at the expected depths in the reservoir, they may not congregate in the places we expect them to be, they may migrate at times other than anticipated. Existing data on fish behavior at Detroit Dam don't necessarily provide a definitive picture of how the fish will behave. Building a structure that can be moved if needed, or will allow collection of fish in different locations or depths is important. Maintaining as much flexibility as possible in the design and operation of the FSS will allow adaptive management in response to unanticipated behavior by steelhead kelts and juvenile salmonids.

We concur the FSS should be designed to be as flexible as possible while achieving the goals for passage originally identified in the 2017 EDR. Features such as the adjustable weir at the entrance and operations flexibility for turbine flows and pumped flow are being incorporated. Additionally, the design must also be compatible with the SWS and meet dam safety and seismic criteria. We also must minimize impact to the authorized purposes of DET dam. Performance criteria development with NOAA continues including phased approaches to incorporate other passage features such as guidance nets. Performance will be evaluated post construction and will be developed through the regional RM&E process.

- The FSS should be designed to include passage of lamprey.

We recognize that there are a number of conservation efforts for lamprey taking place to which the action agencies are signatories and reintroduction projects for lamprey could expand in the future. Pacific lamprey are not presently in Detroit reservoir but have the potential to be present in the accessible range of salmonids which includes the lower N. Santiam River. Through screen velocity criteria for juvenile salmonids (fry) and salmonid friendly conveyance features will be applicable to juvenile lamprey as well.

### Specific Comments and Questions

## **Section 1 Purpose and Introduction**

### **1.1 Purpose and Scope**

- Please clarify that “downstream migratory winter steelhead” includes both juveniles and kelts.

This clarification had been added to Section 1.1 of the DDR.

### **1.2.2 Project Authorization**

- Do primary purposes also include fish and wildlife, and recreation?

Yes. The project authorization text has been updated identifying the project purposes at Detroit Dam: flood control, navigation, hydropower, water supply (irrigation, and municipal and industrial), water quality, fish and wildlife, and recreation.

## **Section 2.2 Biological Criteria**

### **Table 2-2**

- It’s not clear to how 50F water temperature will be maintained if the Detroit surface temperatures get warmer than that (i.e. there are summer migrants).

Increased temperature impacts the holding capacity of the adult holding tank, which is addressed in Section 4.6.7.7; and the required circulation water in juvenile holding tanks, and in those cases we will be providing adequate circulation water for all potential temperatures.

- Peak outmigration time could vary, so plan to be able to meet the 58F limit during the summer and early fall.

Increased temperature impact the holding capacity of the adult holding tank, which is addressed in Section 4.6.7.7; and the required circulation water in juvenile holding tanks, and in those cases we will be providing adequate circulation water for all potential temperatures.

- Is 35’ the deepest depth of FSS operation for fish collection?

Yes, the trashracks are 35 feet deep. Although the entrance weirs have a variable depth, which is less than 35 feet, the trashracks are 20 feet upstream of the weirs and the USACE CFD model shows a fairly even flow distribution entering the FSS over the full 35-foot depth of the trashracks.

## **Section 4 Hydraulic Design**

### **4.4 Operations**

- ODFW supports and appreciates design allowances for attraction pumps if needed.

Elements to support the future integration of attraction flow pumps included in the current design are as follows: Additional spaces for electrical breakers for each pump motor, a dedicated control cabinet to house eight (8) future starters and electrical feeder lines to pumps, additional i/o and HMI provisions for future integration, conduits for future electrical conductors and control signals, a discharge cone for each pump, and a flap gate for each discharge cone. Future pump installation will require installation of the pump, discharge adapter, rail guide brackets, guide rail, lifting chain assembly, and mini-CAS monitoring relay.

### **4.6 Floating Screen Structure**

#### **4.6.3 Trashracks**

- Please consider allowances for additional clear spaces within the trashracks to allow free

passage of steelhead kelts if one clear space per trashrack is not adequate.

Optimizing debris management and fish passage is a significant concern. Post construction debris impacts and fish passage evaluations that result in modifications may be necessary.

#### **4.6.8.3 Juvenile Holding Tanks**

- In the 60% DDR, please include an easy-to-follow diagram of fish movement through all items that are discussed in this section. A process diagram rather than an engineering diagram would be preferable.

Drawing M-093 has been added to the drawings in the DDR with a fish process flow diagram.