Workplan for the Anadromous Fish Floor Workgroup

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Introduction

The Forest Practices Board (Board) is currently considering including an anadromous fish floor in its permanent water typing system. The anadromous fish floor (AFF) is defined as measurable physical stream characteristics downstream from which anadromous fish habitat is presumed. This workplan guides a multi-stakeholder Anadromous Fish Floor Workgroup (workgroup) that will gather and analyze data from a sample of western Washington watersheds to inform recommendations on criteria for an anadromous fish floor. These efforts are being coordinated with the oversight from the Forest Practices Board Water Typing System Rule Committee (Board Committee).

Purpose

The purpose of the workgroup is to engage in a collaborative and productive multi-stakeholder process to assist the Board in making a decision on the anadromous fish floor. The workgroup will evaluate measurable physical stream characteristics downstream from which anadromous fish habitat is presumed. Workgroup tasks may include:

1. Assemble and analyze anadromous fish distribution and habitat data from a sample of western Washington watersheds to evaluate suitability of gradient and fish passage barrier metrics, and potentially other stream characteristics (as determined by the Project Team), to inform the development of the anadromous fish floor. The analyses will include assessment of the performance of the metric(s), including estimates of stream length correctly and incorrectly classified against best available anadromous fish distribution information.
2. Recommend potential future field studies, as needed, to address technical uncertainties.
3. Provide report to the Board Water Typing Rule Committee with additional information on potential AFF definitions and rule elements.

Goal

Provide the Water Typing Rule Committee with information and analyses to help the committee make a recommendation to the full Board on the anadromous fish floor.

Objectives

- Complete GIS analyses relating channel gradients, barriers, channel widths and known anadromous fish distributions from selected Washington watersheds.
- Analyze the sensitivity of the results to the parameters used in the GIS analyses.
- Summarize results of the analyses to inform the Water Typing Rule Committee on AFF options.

Questions of Interest

1. Within 2-3 channel width categories (determined by analysis of results):
   - What is the distribution of stream lengths (both positive and negative) between anadromous fish distribution end points, concurred F/N breaks [1], and the proposed Anadromous Fish Floors (5%, 7%, 10% gradient threshold, and landowner proposal [2])?
   - What is the distribution of maximum channel gradients downstream from known anadromous fish distribution end points and concurred F/N breaks?
   - What proportion of anadromous fish distribution end points and concurred F/N breaks points are observed above and below the proposed AFF overlays?
2. How does the inclusion of barriers (WDFW definition [3], and as refined by the Project Team based on sensitivity analysis) change the gradient, stream length, and stream width distributions found in the above analyses?
3. How does the distribution of stream lengths between anadromous fish distribution end points and concurred F/N breaks and the modeled AFF overlay change when the AFF is based on a change in gradient versus a gradient threshold?
4. Sensitivity analysis questions:
   - How do different minimum reach lengths affect estimates of channel gradient?
   - How does application of variable versus fixed reach lengths affect estimates of channel gradient?
   - How do different definitions of barriers change the distributions of stream gradients and channel lengths in number 2 above?

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[1] F/N break is the current regulatory point that divides fish habitat from non-fish habitat.

[2] The landowner anadromous overlay proposal includes core anadromous streams (as identified on StreamNet or SWIFD) that are presumed to be Type F water and are not sampled or re-classified by protocol survey except through an ID team process. Tributary streams connected to the core anadromous overlay streams are also presumed to be anadromous fish habitat, unless a gradient PHB and/or obstacle PHB is present at the tributary stream junction with the adjacent core anadromous stream. In other words, a size-based Potential Habitat break (PHB) alone is not to be used as a PHB where no fish are found upstream of a tributary stream junction adjacent to the anadromous core water.

[3] **The current WDFW natural fish barrier definition**

Natural barriers, that would exclude most adult salmonids, are defined as:

- a waterfall > 3.7 vertical meters in height,
- a stream reach having a sustained gradient exceeding 20% for 160 or more meters (continuous), or,
- a channel having a sustained gradient >16% for a distance of 160 meters and having a width <0.6 meters in Western Washington or <0.9 meters in Eastern Washington as measured at the scour line

While it is recognized that different species have various jumping and swimming abilities, for example, bull trout are often found above 30% gradient (Cannings and Ptolemy 1998) and cutthroat trout have been found in gradients up to 33% (Jauquet 2002), for purposes of this manual, the 20% gradient threshold has been accepted as the upper limit for most adult salmonids.

- How do different threshold values for the minimum change in gradient that trigger a reach break affect distribution of channel gradients?

Workgroup Members

The work group is divided into three types of participation – Project Team members, Caucus Members and Interested Parties. Specific roles within the Project Team include Principal Investigators (PI) and Project Managers (PM). Other Project Team members contribute their expertise and knowledge on water typing, salmon habitat and fish distribution patterns, and directly assist the PIs as requested and time allows. Caucus members provide input and guidance to the Project Team as the analyses are being done and reports are being written. See section below on Roles and Responsibilities. Though not formally considered members of the workgroup, members of the Board Committee play an important role in overseeing and guiding the workgroup. Additionally, other participants in the Adaptive Management Program interested in this work will be provided email updates on the status and progress of the workgroup.

Project Team	Caucus Members	Interested Parties
Principal Investigators	Jim Peters	Marty Acker
Brian Fransen	Marc Engel	Michelle Wilcox
Gus Seixas	Alec Brown	Derek Marks
Jamie Glasgow	Darin Cramer	Curt Veldhuisen
--- Other PIs TBD ---	Martha Wehling	Mike Olis
Contractor PI(s)?	Steve Barnowe-Meyer	Bruce Jones
Other Team Members		Tyson Waldo
Doug Martin		Mark Hicks
Debbie Kay		
Sarah Zaniewski		
Caprice Fasano		
Lauren MacFarland		
Lisa Belleveau		
Don Nauer		
Brian McTeague		
David Wisher		
John Heimburg		
Project Managers		
Ash Roorbach		
Marc Ratcliff		

Roles and Responsibilities

Project Team

Principal Investigators

- Perform technical analyses and lead in drafting technical report with QA/QC to assure data quality.
- Develop methods for analyzing and describing the relationship between physical stream characteristics and anadromous fish habitat.
- Communicate and collaborate as necessary with technical workgroup members to complete the analyses in the given timeframe.
- Communicate to the workgroup what specific technical questions will be answered in the analyses and what information will result from the analyses.

Other Team Members

- Provide expertise on salmon distributions and habitats in western Washington watersheds.
- Assist PIs as needed and time allows to conduct the analyses and write/review the reports.

Project Managers

- Organize meetings, set meeting agendas, take notes, and maintain open and timely communication between all members of the workgroup and Board Committee.
- Assist in the drafting of technical report and recommendations based on data and analyses generated by Principal Investigators.

Caucus Members
(Membership is open to all adaptive management stakeholder participants)

- Provide input, guidance and feedback to the Project Team and assist team members as requested and time allows to complete tasks.

Forest Practices Board Water Typing Committee

- Provide guidance and oversight to the workgroup
- Facilitate discussions with the entire Board and facilitate delivery of a final anadromous fish floor recommendations or minority/majority report

Workgroup Tasks and Timeline

(blue font indicates work done through GIS contract)

Tasks	Timeline	Status	Tasks that can be done concurrently with tasks in first column	Timeline	Status
Finalize Goal, Objectives, and Questions of Interest Review and approve workplan and communication plan Determine which downstream habitat characteristics will be used in the analyses: • Gradient • Width • Distance • Step Height	January 2020 January 2020 January 2020	Done	Select watershed(s) for additional analyses <u>Selection criteria</u> • Available high resolution lidar • Known anadromous fish stock depletion levels • Available high-quality anadromous fish distribution points data	2 weeks to 1 month (February 2020)	Near completion
Determine how downstream habitat characteristics will be measured • Reach length • Channel gradients • Channel width estimates Compile and sort fish distribution points into groups by confidence level that the points represent the recoverable extent of anadromous fish habitat, and can address questions of interest • Species • Population statuses • Stream characteristic (barrier, end of defined channel, width/gradient, presumed, unknown, etc.)	1.5 months (February/April 2020)		True-up the hydro layers in selected watershed(s) based on high resolution lidar data	1 month (February 2020)	
			Update Science Panel literature review to focus on addressing the specific questions of interest	3 months (May 2020)	

Tasks	Timeline	Status	Tasks that can be done concurrently with tasks in first column	Timeline	Status
• Location in the watershed					
Calibrate model, run the GIS and sensitivity analyses, QA/QC results	2 months (April/May 2020)				
Write reports 1. Analyses results 2. Metric(s) Performances, implementation options & recommendations	1 month (May/June 2020)				
Recommendations on future field studies	1 meeting (May/June 2020)				