

THE WASHINGTON FARM FORESTRY ASSOCIATION WESTERN WASHINGTON ALTERNATE PLAN TEMPLATE

A SUMMARY COMPARISON OF ADAPTIVE MANAGEMENT PROGRAM SCIENCE FINDINGS

Prepared by:

Washington Farm Forestry Association

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The Washington Farm Forestry Association (WFFA) Alternate Plan Template (hereafter *Westside template*) proposal initiation document and supporting scientific justification was submitted to the Forest Practices Board on February 10, 2015. At that meeting, the Forest Practices Board recommended acceptance of the proposal as submitted with explicit instruction that it be evaluated by the Adaptive Management Program (AMP). That evaluation was to include both an evaluation of the science and an evaluation by the AMP Policy Committee. After significant delays, we are happy to report that the scientific review has been completed. That evaluation included an external scientific assessment of the WFFA scientific justification, and an additional independent scientific review by external scientists at the University of Washington using the Independent Scientific Panel Review (ISPR). The external scientific assessment was awarded to Cramer Fish Sciences with Mark Teply, M.S., completing the work for that consulting firm. That assessment was conducted through a contract from the Department of Natural Resources. The additional ISPR process evaluated the work conducted by Mark Teply, M.S., at Cramer Fish Sciences, thus completing a review of a review of the WFFA 'best available science' justification. In total, 7 PhD's and a Riparian Scientist (MS) (see page 6 for a full listing), have developed and/or evaluated the best available science included in the WFFA Westside template using 117 unique scientific papers (see page 7 for a full listing) that span the breadth of available science on the subject. With this level of scrutiny, we can be confident that the likely impact to public resources when implementing prescriptions from the Westside template would fall within the values as shown in the summary tables included in this document.

The WFFA Template Proposal - Scientific Justification used [Washington Department of Ecology Models](#) to compare the relative effectiveness of the Westside template proposal to the Forest Practice Rules with summary results shown in **Table 2**. The Cramer Fish Sciences/Mark Teply Consulting's ISPR-reviewed "Small Forest Landowner Alternate Plan Template Review, April 28, 2019" used different approaches to conduct the same analysis and came up with relative effectiveness parameters as shown in **Table 3**. With relatively minor differences, both science reviews reached essentially the same conclusions regarding the relative effectiveness of the proposal as shown in **Table 1**. We assert that details provided herein provide a solid basis for discussing a key element of the *Alternate Plan Approval Standard*: namely the degree to which the Westside template proposal is "equal in overall effectiveness" from the perspective of best available science.

Table 1: A comparison of "equal in overall effectiveness" from Martin (Westside Template Proposal) and Teply (Cramer Fish Sciences review of Westside template proposal) (bold are likely significant differences in overall effectiveness). As the original tables from Martin and Teply are ordered differently, LWD and Shade values for each table are highlighted with unique color codes. Differences are Alternate-FPR prescription.

Relative Effectiveness of WFFA Proposal vs Forest Practice Rules									
Proposal vs rule differences found by Martin (Table 3) and Cramer Fish/Teply (Table 8)									
Prescription	Stream Type	BFW	RMZ	Potential LWD CHANGE		Potential Shade CHANGE			
No. (Simplified)				Martin	Teply	Martin	Teply	Martin	Teply
1 (A)	Fish	> 15'	75' no cut	+/- 2%	+/- 2%	0 to + 6%	+/- 5%		
7 (A part thin)	Fish	> 15'	75' Thin outer 25'	-1%	-1%	No change	-5% to 0%		
2 (B)	Fish	5-15'	50' no cut	up to -6%	-2 to 6%	up to -6%	up to -8%		
8 (B part thin)	Fish	5-15'	50' thin outer 25'	up to -6%	up to -6%	+1%	up to -5 to 8%		
3 (C)	Fish	< 5'	25' no cut	up to -22%	up to -18 to 22%	up to -5%	up to -5 to 13%		
4 (D 1st bullet)	Np	> 5'	25' full length						
			1st 300' NC:	up to -16%	up to -16%	No change	-5%		
			Above 300' thin:	more than +19%	up to +19%	+43%	+85%		
5 (D 1st bullet)	Np	< 5'	25' full length						
			Thin 1st 300':	up to -72%	up to -72%	-53%	-5%		
			Thin above 300':	more than +19%	up to +19%	up to -16%	+85%		

Footnote: Differences among riparian function estimates of less than 15% are within the range of measurement error of the various resource data. Further, when evaluating tradeoffs, consideration needs to be given to what can be estimated versus what is biologically meaningful.

WFFA Alternate Plan Template Proposal – Science Justification for Equal in Overall Effectiveness (Martin - Table 3)

Table 2: Comparison of riparian function potential between proposed and Forest Practices Rule (FPR) prescriptions. In FPR type F streams, function effectiveness is evaluated for both the “no inner zone” and “thin from below” options for Site Class 3, respectively. See Table 2 caption for description of prescription codes. (Martin).

Prescription No.	Stream Type	Riparian function potential					Riparian function potential											
		BFW (ft)	RMZ (ft)	Prescript.	Shade	LW	Sed.	Long. Cont.	BFW (ft)	Prescript.	Shade	LW	Sed.	Long. Cont.				
Standard Prescription																		
1	F	>15	75	75/nc	max	> 96%	H	H	L	Y	>10	105/nc ^c	max	> 98%	H	H	L	Y
											>10	50/nc, 105/hth	> 94%	> 94%	H	H	L	Y
2	F	5-15	50	50/nc	> 94%	> 91%	H	H	L	Y	<10	93/nc	max	> 97%	H	H	L	Y
											<10	50/nc, 93/hth	> 94%	> 93%	H	H	L	Y
3	F	<5	25	25/nc	> 95%	> 75%	H	H	L	Y	<10	93/nc	max	> 97%	H	H	L	Y
											<10	50/nc, 93/hth	> 96%	> 93%	H	H	L	Y
4	Np	>5 ft	25	25x300/nc 25/tha	> 94%	> 75%	H	H	L	Y	NA	50x50%/nc 50%/cc	> 94%	> 91%	H	H	L	Y
					43% ^a	> 19% ^b	H	H	H	Y			>0	slash	M	L	M	N
5	Np	<5 ft	25	25/tha	43% ^a	> 19%	H	H	H	Y	NA	50x50%/nc 50%/cc	> 96%	> 91%	H	H	L	Y
													59% ^d	slash	M	L	M	N
6	Ns	NA	0	30/elz	>0	slash	M	L	M	N	NA	30/elz	>0	slash	M	L	M	N
Thinning Prescription																		
7	F	>15	75	50/nc, 75/hth	> 94%	> 93%	H	H	L	Y	>10	50/nc, 105/hth	> 94%	> 94%	H	H	L	Y
8	F	5-15	50	25/nc, 50/mth	> 95%	> 87%	H	H	L	Y	<10	50/nc, 93/hth	> 94%	> 93%	H	H	L	Y

^aShade in upper portion of Np reach based on cms stands (i.e., 25% density)

^bAssume 75% supply potential for a 25-ft buffer which is reduced by 25% stand density (i.e., 0.25 x 0.75 = 0.19)

^cTop and bottom cell Rx's are no-inner-zone-harvest and thin-from-below, respectively

^dBase on mean canopy cover for headwater streams with slash (see Appendix A).

Results from ISPR reviewed Small Forest Landowner Alternate Plan Template Review April 28, 2019 (Reply/Cramer Fish Sciences) (Reply - Table 8)

Table 3: Comparison of riparian function potential predicted from WFFA template prescriptions to Forest Practices rule prescriptions based on findings of the independent function evaluations in the Review section. See “WFFA Template Proposal – Scientific Justification” for a complete explanation of WFFA and Forest Practices rules prescriptions.

Rx No.	Stream Type	WFFA Riparian Function						FPR Riparian Function					
		LWD	SHD	LIT ¹	SED ²	SB ³	LWD	SHD	LIT ¹	SED ²	SB ³		
1	F	<96%	95%	a	b	a	<94% - <98%	90% - 100%	a	a - a/c	a		
2	F	<91%	90%	a	c	a	<93% - <97%	90% - 98%	b - b/c	a			
3	F	<75%	85%	b	d	b	<93% - <97%	90% - 98%	b - b/c	a			
4	Np	<75% / <19%	85% / 85%	b	d	b	<91% / 0%	90% / 0%	c/e	a/c			
5	Np	<19%	85%	b	d	b	<91% / 0%	90% / 0%	c/e	a/c			
6	Ns	>0%	>0%	c	e	c	>0%	>0%	e	c			
7	F	<93%	90% / 95%	a	b/c	a	<94%	90% / 100%	a/c	a			
8	F	<87%	85% / 90%	a/b	c/d	a/b	<93%	90% / 98%	b/c	a			

Notes:

1- Leaf and litterfall:

- a. would likely be greater than or equal to that from unharvested stands
- b. has not been observed for buffers smaller than 10 m
- c. would be measurable, but less than that from 10 m buffers

2- Sediment:

- a. filtration would generally be 80 percent and delivery would likely be zero
- b. filtration would generally be less than 80 percent and delivery would likely be zero
- c. filtration would be less than that from a 75-ft buffer and the buffer would likely have very low soil disturbance
- d. filtration or delivery effectiveness has not been observed for 25-ft buffers
- e. filtration would be less than that provided by a 25-ft buffer and delivery would be significantly greater than that from buffered treatments

3- Streambank stability:

- a. is likely protected with fixed-width buffers 50 feet and wider
- b. has not been observed with use of 25-ft fixed-width buffers
- c. would likely have no protection as deep-penetrating roots decay

AUTHORS, PARTICIPANTS, AND REFERENCES USED IN THE SCIENCE REVIEW PROCESS

Template Authors:

1. Richard Miller, PhD, retired USFS soil scientist and small forest landowner.
2. Elaine Oneil, PhD, Executive Director, Washington Farm Forestry Association.

Template Supporting Scientific Assessment:

3. Douglas Martin, PhD

Dr. Martin is the Principal of Martin Environmental as well as an Affiliate Professor at the School of Environmental and Forest Sciences, University of Washington and a graduate student advisor at both Portland State and Michigan State Universities. As well as working in various capacities within Washington's Adaptive Management Program over the past 2 decades, Dr. Martin also serves as a co-principal investigator of a science-based, landscape scale, community forest approach to watershed planning for rural communities of Southeast Alaska with the overall goal to achieve a measurable and sustainable balance of timber, salmon and deer production, local economic diversification and improved watershed health. In this role Dr Martin works in collaboration with Sealaska Corporation, Hoonah Indian Association, Tongass National Forest, Alaska Department Fish and Game, and The Nature Conservancy.

DNR Contracted Reviewer of the Template for the TFW Policy Adaptive Management Program:

4. Cramer Fish Sciences with review led by Mark Teply, M.S.

Mr. Teply has extensive experience in modeling forest riparian conditions including serving as the riparian Scientist, for the Upper Klamath River Basin Riparian Flow Assessment, as a TWIG member for the Eastside Type N Riparian Effectiveness Monitoring Project, and as lead scientist for a number of DNR projects including the Hardwood Conversion Study Report and the Eastside Modeling Effectiveness Project, the Idaho streamside management rule revision, the Oregon riparian forest practices rule revision, and the I-5 Corridor Reinforcement Project for the Bonneville Power Administration. Prior to working with Cramer Fish Sciences Mr. Teply was the research manager for DNR's Olympic Experimental State Forest. Mr. Teply worked at Cramer Fish Sciences while doing this review for the Dept. of Natural Resources, however the post ISPR review final document was published by Mark Teply Consulting.

Independent Science Peer Review Associate Editor & Reviewers:

5. Dr. Derek Booth - Associate Editor for Independent Scientific Peer Review Committee and Affiliate Professor, Dept. of Earth & Space Science, University of Washington
6. Through the Independent Scientific Peer Review Committee (ISPR) of the University of Washington, a peer review was conducted of the Cramer Fish Sciences' *Small Forest Landowner Alternate Plan Template Review* (dated September 30, 2018). Three peer reviewers were chosen by ISPR to conduct the peer review. This was a 'blind' peer review where only Dr. Derek Booth knows the reviewers identity. Dr Booth shared in the ISPR report:

"The three reviewers bring a diversity of technical and professional backgrounds, with all having extensive experience in Pacific Northwest forestry issues. Both **R1** and **R2** are or have been university professors; **R2** and **R3** both have served in public or tribal resource agencies; and all have extensive private consulting experience. **R1** has a particular focus on statistical methods and analyses; **R2** is an extensively published forest hydrologist with long-standing research interests in stream buffers and stream temperature; **R3** is an aquatic ecologist with many decades of Pacific Northwest experience in forest management issues from both technical and policy perspectives."

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Note: 22/73 references in common with WFFA analysis (in bold)

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Testimony Presented to the Forest Practices Board

By

Vic Musselman

August 14, 2019

Good morning Chairman Bernath and members of the Forest Practices Board. My Name is Vic Musselman and I am President of the Washington Farm Forestry Association. We believe the work currently being done by the Water Typing System Rule Committee is very important to the future management of all private forests in Washington and should not be rushed.

It is our understanding that there is more work to be done to properly quantify a workable spatial analysis and define an appropriate Anadromous Layer. The need to complete an accurate Cost/Benefit Analysis (CBA) to support the proposed new water typing rule demands the spatial analysis be done correctly and all stakeholders be in agreement on the location of the Anadromous Layer.

Therefore we urge the Forest Practices Board to allow enough time for the Water Typing System Rule Committee to accurately complete its work followed by an accurate and timely re-do of the CBA and its accompanying Small Business Environmental Impact Statement (SBEIS).

Thank you and I will address any questions!

Table 1: A comparison of "equal in overall effectiveness" from Martin (Westside Template Proposal) and Reply (Cramer Fish Sciences review of Westside template proposal) (bold are likely significant differences in overall effectiveness). As the original tables from Martin and Reply are ordered differently, LWD and Shade values for each table are highlighted with unique color codes. Differences are Alternate-FPR prescription.

Submitted by Ken Miller

Relative Effectiveness of WFFA Proposal vs Forest Practice Rules									
Proposal vs rule differences found by Martin (Table 3) and Cramer Fish/Reply (Table 8)									
Prescription	Stream Type	BFW	RMZ	Potential LWD CHANGE		Potential Shade CHANGE			
No. (Simplified)				Martin	Reply	Martin	Reply		
1 (A)	Fish	> 15'	75' no cut	+/- 2%	+/- 2%	0 to + 6%	+/- 5%		
7 (A part thin)	Fish	> 15'	75' Thin outer 25'	-1%	-1%	No change	-5% to 0%		
2 (B)	Fish	5-15'	50' no cut	up to -6%	-2 to 6%	up to -6%	up to -8%		
8 (B part thin)	Fish	5-15'	50' thin outer 25'	up to -6%	up to -6%	+1%	up to -5 to 8%		
3 (C)	Fish	< 5'	25' no cut	up to -22%	up to -18 to 22%	up to -5%	up to -5 to 13%		
4 (D 1st bullet)	Np	> 5'	25' full length						
			1st 300' NC:	up to -16%	up to -16%	No change	-5%		
			Above 300' thin:	more than +19%	up to +19%	+43%	+85%		
5 (D 1st bullet)	Np	< 5'	25' full length						
			Thin 1st 300':	up to -72%	up to -72%	-53%	-5%		
			Thin above 300':	more than +19%	up to +19%	up to -16%	+85%		

Footnote: Differences among riparian function estimates of less than 15% are within the range of measurement error of the various resource data. Further, when evaluating tradeoffs, consideration needs to be given to what can be estimated versus what is biologically meaningful.

NET PLUS!



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August 13, 2019

Washington Forest Practices Board
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PO Box 47012
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Forest.practicesboard@dnr.wa.gov

Re: Comments on Water Typing Rule Making

Dear Forest Practices Board Members:

Washington Forest Protection Association (WFPA) is a forestry trade association representing large and small forest landowners and managers of nearly four million acres of productive working forests, including timberland located in the coastal and inland regions of the state. Our members support rural and urban communities through the sustainable growth and harvest of timber and other forest products for U. S. and international markets. For more information about WFPA, please visit our website at www.wfpa.org. Thank you for the opportunity to comment. WFPA respectfully submits comments on two primary topics for today's meeting: 1) TFW Policy's response to the Forest Practices Board (FPB) June motion; and 2) the analysis of potential habitat break (PHB) alternatives.

The FPB's June motion which asked TFW Policy the yes/no question regarding the anadromous fish floor (AFF) and water crossing structures generated significant discussion at the July meeting. Discussion ranged from refusing to answer the question, seeking legal advice before answering the question, to qualifying the answer with feedback to the FPB about inconsistency with the Adaptive Management Program (AMP) process. As you will hear from the TFW Policy Co-Chairs, while Policy ultimately answered the questions, there is concern about the process precedent being set by the FPB. Although WFPA has agreed to work with TFW stakeholders on the AFF and has asked for more specific information regarding the magnitude/frequency of the problem associated with water crossing structures, we do not consider the FPB's motion to be consistent with the AMP process. Both the AFF and water crossing structure topics require additional technical and policy work; for example, WFPA's AFF alternative has not been analyzed at all thus far. The remaining work should be accomplished through the formal AMP process. Working these topics outside the formal AMP process incurs additional risk for the FPB's rule making; therefore, at a minimum, consistency with spirit/intent of the AMP process is an important consideration.

As we've testified at previous FPB and water typing subcommittee meetings, WFPA wants the PHB analysis completed as proposed by each proponent, including consideration of the width criteria associated with each alternative. Neither the science team nor the FPB has considered all the recommended PHB criteria (width, gradient, obstacles) integrated together in their analyses. We don't see how the FPB can have a defensible rule making process absent a complete analysis of the alternatives. Disappointingly, at the last water typing subcommittee meeting there was discussion

about excluding the width criteria from each alternative. This proposal is deeply disturbing to WFPA, particularly since we've demonstrated how considering width changes the results of the analysis. Excluding width is also inconsistent with FHAM as proposed by TFW Policy, years of technical water typing work, and the recommendations in both science team reports. Finally, there is no legitimate, technical basis for not considering stream size as having an important influence on the spatial distribution of fish and fish habitat.

If the FPB chooses to entertain excluding width from the analysis, either directly, or indirectly by accepting the incomplete analysis of alternatives performed by Cramer Fish Sciences as adequate, WFPA requests the opportunity to refine our PHB alternative by either adjusting the gradient and obstacle criteria, substituting a different criterion for width, or both. We selected our PHB criteria to achieve a high level of accuracy and balance of error against concurred end of habitat (EOH) points. Dropping one of the criterion changes how each of the proposed PHBs perform; therefore, we would no longer support our alternative moving forward in the rule making process if it was arbitrarily modified by the FPB. Other options the FPB could consider are: 1) applying all the size based criteria from each alternative to tributary junctions - this would help address the uncertainty associated with identifying size thresholds in a GIS platform; 2) adjusting all threshold based size and gradient criteria to measurable changes in size or gradient - this would be consistent with science team recommendations to use changes in stream characteristics rather than threshold-based PHBs and easier to analyze/implement; or, 3) incorporate FHAM into the Board Manual and focus our efforts on refining PHB criteria through a field based study carried out in the formal AMP process. There may be other alternatives.

Regardless of how the FPB chooses to proceed, a detailed discussion about performance expectations for the water typing system is desperately needed. It's difficult, if not impossible, to find common ground when the TFW caucuses are trying to accomplish different objectives through the water typing system. For example, we've heard several comments from FPB and caucus members suggesting accessibility equals habitat. Absent consideration of habitat suitability, i.e. habitat likely to be used by fish, consideration of access alone is an incomplete measure of fish habitat likely to be used. Incorporating a disputed policy position into the water typing system without an analysis of the implications of that decision is inconsistent with the AMP process and goals of the Forests & Fish HCP.

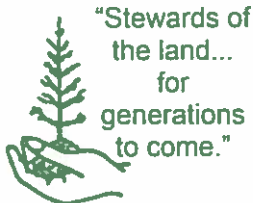
To conclude, WFPA believes there is a considerable amount of technical and policy work still needed on both the PHBs and AFF in order to move the water typing rule making forward, and that work may require additional resources. This must begin with a credible and defensible analysis of alternatives considered for adoption in rule. If resources do not currently exist to complete the analysis, we will need to request them from the Legislature in the upcoming 2020 session. Starting that work, together, as soon as possible is recommended.

Thank you for the opportunity to comment. I can be reached at dcramer@wfpa.org or (360) 280-5425 should you have any questions.

Sincerely,



Darin D. Cramer
Sr. Director of Forest & Environmental Policy



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August 14, 2019

Re: Water Typing System Rulemaking

Washington State Forest Practice Board
P.O. Box 47012
Olympia, WA 98504-7012

Chairman Bernath and members of the Forest Practices Board,

My name is Steve Barnowe-Meyer and I am a small forest landowner in Jefferson County.

It was my distinct honor and privilege to be one of the participants in the TFW Group Meeting and Capacity Building at Skamania Lodge, June 13-17, along with several of you on the Forest Practices Board, as well as other leaders in attendance at today's meeting.

I will never forget those five days; the acts of leadership and courageous personal behavior exhibited, the work relationships forged and the journey of TFW recommitment that we embarked upon together there.

My intent today is to remind those of us in attendance at that TFW reinvigoration workshop of some of the "interim steps" we proposed to take to renew and strengthen our collective commitment to TFW collaboration, and for others not in attendance at the workshop, to introduce a truly more effective form of leadership and a better path forward from where we are today.

Here are some of those "interim steps" we proposed to take while we continue to build capacity within the world of TFW:

- **Caucuses will truly talk more with (not at) each other, at all levels**
- **Informal communication is often more effective than formal**
- **We need a recommitment of leadership from all caucuses (and together) for true collaboration to occur**
- **We need commitment to shared problem solving**
- **We need to develop short and long term goals and**
- **Find opportunities for small wins, early**
- **Relationships and process will help move us forward**
- **And finally, there's lots of work to do**

Today, following this public comment period, the Board will hear status reports on progress made associated with some aspects of water typing rule making from both the Water Typing System Board Committee and staff. Some progress has indeed occurred within the Board Committee and in meetings of the Anadromous Fish Floor Workgroup (of which I am a member) since the last Special Board meeting in June. But there's still multiple areas of dispute and there's still lots more work to do.

I implore the Forest Practices Board, with the help of those leaders who attended the TFW reinvigoration meeting in mid-June, to take seriously the interim steps that came out of that meeting and commit to finding opportunities for small collective wins that truly solve the shared problems and needs of all caucuses and stakeholders, rather than create win-loss scenarios.

In my opinion, all potential paths forward pertaining to a successful resolution of Type F water typing rule issues must be based on open and honest collaboration at every stage of the process, in the true spirit of TFW.

Our only hope of success is predicated on meaningful collaboration between all caucuses, the full Board and DNR staff toward a common set of goals, specifically the four goals of the Forest and Fish Report. We can do this but we will need to listen more actively to each other, lead by example, and have the courage to insist that everyone commits to solving each other's problems, together.

Thank you for this opportunity to provide input to you today.

Steve Barnowe-Meyer

A handwritten signature in cursive script that reads "S. P. Barnowe-Meyer".

Washington Farm Forestry Association
(360) 880-0689