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Washington Forest Practices Board  
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**Re: Comments on Water Typing Mediation and Progress**

Dear Forest Practices Board Members:

Washington Forest Protection Association is a forestry trade association representing large and small forest landowners and managers of nearly 4 million acres of productive working, 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](http://www.wfpa.org). We appreciate the opportunity to comment on recent progress related to water typing.

As you know, developing a new permanent water typing rule is a key priority for the Forest Practices Board (Board). Differing interpretations of “fish habitat” and the intent of the term “fish use” exist due to often conflicting regulatory language. To address this issue, the Board directed TFW Policy to provide recommendations for a permanent water typing rule, including reproducible, implementable, and enforceable field guidance to determine the extent of fish habitat that is consistent with the fish habitat definition<sup>1</sup>. The recommendations must also incorporate Best Available Science to meet the performance targets and expectations established by the Board, the Forest and Fish Report (FFR), the Forest Practices Habitat Conservation Plan (FPHCP), the Timber Fish and Wildlife (TFW) Agreement, and TFW Policy. In August 2016,

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<sup>1</sup> See WAC 222-16-010.

the Board directed the TFW Policy co-chairs to facilitate implementation discussion of issues necessary to develop a new permanent rule, guidance and/or training.”<sup>2</sup> According to the same motion, the Board “generally expects TFW Policy Committee to:

- use the existing information,
- develop a method for addressing streams not on the hydro layer,
- make methods as accurate as possible,
- balance error,
- minimize electrofishing,
- improve map over time,
- develop methods to locate the stream break points on the ground, and
- ensure the methods address small forest landowners. “

#### TFW Policy Has Made Significant Gains in Reaching Consensus

WFPA is pleased to report that TFW Policy has made significant gains in reaching consensus on a wide variety of water typing topics. Previous agreements include<sup>3</sup>:

- fish habitat model review,
- physical default review,
- general water typing system objectives (highly accurate, minimize error and balance remaining error/reduce systematic bias),
- necessity of training programs,
- development of new board manual,
- upgrades to water type maps and review of documentation procedures.

TFW partners have participated in two significant technical groups: Electrofishing Working Group, and the Technical Working Group to Assist in the Development of Type F Habitat Guidance. Results from the work of these groups has been forwarded to you.

**WFPA believes that the substance of this work is a strong foundation for board manual development.**

#### Substantial Agreement Reached on the Framework

Through the formal adaptive management program dispute resolution process, consensus has recently been reached on the status of regulatory points established by water type modification forms. Substantial agreement has been reached on the definition of off-channel habitat and a framework for a statewide stream typing fish habitat methodology to determine the Type F/N water break (Framework). As part of this Framework, TFW Policy is recommending that the Board utilize technical/scientific experts to provide options for the development of potential habitat breaks.

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<sup>2</sup> Forest Practices Board Motion on TFW Policy Direction on Water Typing, Adopted August 11, 2015.

<sup>3</sup> See Timber, Fish & Wildlife Policy Committee Summary of Water Typing Discussion for Forest Practices Board, v.11-3-16.

At this point, WFPA views the key remaining dispute as whether the Board should provide an arbitrary presumed fish habitat threshold to direct the technical experts' science and data review.

Adopting a 20% Fish Passage Probability Prior to Technical Review Ignores Fundamental TFW Values

Other TFW caucuses have proposed that the Board adopt a 20% fish passage probability as a limit on use of methods to identify fish presence prior to any technical evaluation. WFPA opposes this proposal. WFPA strongly believes that this action would be an unprecedented violation of the science-based adaptive management program requirement for the use of science in the development of new rules or board manuals. Further, without adequate technical review, the Board cannot assess the implications of this decision for public resources or economic impacts. Such an action ignores the legal obligation to use science and data in the adaptive management process and the fundamental values of the TFW process.

To further the discussion of scientifically sound options, WFPA offers the attached Draft Board motion for your consideration (See Appendix A).

Changes in forest practices rules or board manuals must meet numerous legal and policy standards. Changes must support the four goals of the FFR<sup>4</sup>:

- To provide compliance with the Endangered Species Act for aquatic and riparian-dependent species on non-federal forest lands;
- To restore and maintain riparian habitat on non-federal forest lands to support a harvestable supply of fish;
- To meet the requirements of the Clean Water Act for water quality on non-federal forest lands; and,
- To keep the timber industry economically viable in the State of Washington.

Changes must also comply with the water typing objectives in the FFR (highly accurate, minimize error and balance remaining error/reduce systematic bias). As stated in the National Marine Fisheries Service Biological Opinion:

*“Failure to correctly identify fish-bearing waters will occur and is assumed to lessen over time. It is assumed that any methods used to map or delineate such waters will have an approximately equal probability of identifying waters as fish-bearing where fish do not actually occur or the reverse, identifying waters as non-fish-bearing where fish actually do occur. It is further assumed that such errors will be relatively small and largely offset at the landscape scale. This assumption is based upon the fact that this concept of equal error probabilities was inherent to the FPHCP. (emphasis added).”<sup>5</sup>*

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<sup>4</sup>Final Forests and Fish Habitat Conservation Plan, Appendix B – Forests and Fish Report, December 2005, p. B-1.

<sup>5</sup>National Marine Fisheries Service Biological Opinion, June 5, 2006, p. 180.

### Washington State Law Requires Science

The Forest Practices Act requires science in the development of new rules or board manuals.<sup>6</sup> In addition, the Administrative Procedures Act requires development of a cost benefit analysis, a determination that the rule being adopted is the least burdensome alternative for those required to comply with it that will achieve the general goals and specific objectives, and a finding that the rule achieves the general goals and specific objectives of the relevant statute.<sup>7</sup> The Regulatory Fairness Act requires the development of a small business economic impact statement.<sup>8</sup> The State Environmental Policy Act requires evaluation of the environmental impact.<sup>9</sup> Following the science-based process for new rules is critical because it allows the Board to evaluate the benefits and costs of the action. Noncompliance with these provisions will result in arbitrary and capricious agency actions.

Some caucuses will claim that adoption of a threshold at this point in the process is merely a valid policy risk assessment. However, even policy decisions must be grounded in science; this proposal asks the Board to make a premature decision before the technical work is done. WFPA believes that significant additional costs for rule compliance may be driven by this decision. Without technical evaluation prior to the decision, the Board cannot determine whether the action will have any value-added benefits to public resources to compare with the economic impacts.

During the dispute resolution process, proposals from various caucuses that substantially reduce the use of surveys, and either rely on the conservative, arbitrary thresholds before using survey tools or significantly increasing the reliance on current default physicals, threatens the economic viability of the timber industry. Ironically, these suggestions continue despite wide agreement that protocol surveys are the most accurate tool for typing streams under current rule, and recent technical work dismissing concerns about significant impacts to fish from electro-fishing surveys.

### Current Default Physicals Ignore the Concept of Equity

The current default physicals have long been recognized as being extremely unreliable across much of Washington forestlands, often extending a presumption of fish use thousands of feet above the actual extent of fish use. This high error of stream classification, and the extreme upstream bias of the current defaults, results in the high use of protocol surveys by landowners to correct water typing for use in Forest Practices permitting. The economic hardship of a system that restricts or precludes use of protocol surveys and instead relies on such an unreliable alternative is an unacceptable burden. Any reduction in landowner's ability to conduct protocol electro-fishing surveys must be accompanied by an alternative means to type streams that is on average consistent with the results of a protocol survey, and meets the expectations for high

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<sup>6</sup> See RCW 76.09.370.

<sup>7</sup> See RCW 34.05.328.

<sup>8</sup> See RCW 19.85.040.

<sup>9</sup> See 43.21C RCW.

precision and equitable allocation of risk prescribed by the Board and embedded within the FFR, the FPHCP and the Forest Practices Rules. In prior decisions, the Board has recognized that the ability to survey streams and correct water typing error from application of the default criteria is essential. The TFW Policy Framework provides structure for the proper development of a science-based fish habitat assessment methodology in a new water typing program.

### **Significance of the Fish Habitat Assessment Methodology**

The Framework anticipates a field-based habitat assessment with reliance on field-verified or previously known upstream extent of fish use as a starting point, with habitat breaks at changes in stream channel characteristics identified at or above the upstream extent of documented fish for use as candidate locations for the upstream extent of fish habitat, or Type F waters. Potential habitat breaks (PNB) may occur at potential permanent natural barriers, and/or at changes in stream size, gradient, or both, associated with a low likelihood of upstream fish use. Significant gains in the accuracy of water type classifications are easily achieved through the incorporation of previously known and/or surveyed fish use information, relative to a modeled or simple threshold physical criteria approach.

Development of a science-based guidance to support a field-based determination of Type F waters that meets the fish habitat definition is the next critical step. Existing guidance is based on reliably determining current fish presence, which does not always address the full range of fish habitat attributes contained within the regulatory definition. Recent gains in the science surrounding temporal variability in fish use, reliability of electrofishing, and the influence of anthropogenic influences on the upper extent of fish use can provide the basis for the development of improved guidance that bridges the gap between surveyed fish use and the broader fish habitat objectives contained within the FFR and the FPHCP.

Prior attempts to incorporate the influence of these factors into water typing decisions have relied extensively on expert opinion reflecting individual risk tolerances, and thus were subjective in nature. Incorporation of data characterizing the temporal variability in fish use in association with the physical characteristics of stream channels can provide a technical basis for developing improved guidance that meets the FFR Water Typing objectives.

Forest Practices rules define "fish habitat" as "habitat, that is used by fish at any life stage at any time of the year including potential habitat likely to be used by fish, which could be recovered by restoration or management and includes off-channel habitat."<sup>10</sup> Surveyors have long employed a process to estimate the upper extent of habitat "likely to be used by fish" when proposing F/N breaks. This process relies on an evaluation of the physical characteristics of stream channels at, or near, the surveyed upstream extent of fish use. A permanent natural barrier, and/or measurable change(s) in stream size and/or gradient at the location of the uppermost detected fish are usually present (Trotter 2000, Cupp et al. 2001, Cole et al 2006, Cole and Lemke 2006, Fransen et al. 2006).

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<sup>10</sup> See WAC 222-16-010.

### Framework Needs to be Reproducible

The subjective nature of these decisions can result in disagreement over the full extent of habitat likely to be used by fish. A system is required that assesses the location of current or previously known fish use, and then incorporates local information at and upstream from that location in determining habitat likely to be used by fish. Reproducible and easily identified stream characteristics that demonstrate a reliable association with the likelihood of upstream fish use following completion of a single visit survey can then be used to develop science-based guidance for field practitioners. Practitioner decisions on where to designate Type F/N breaks can be supported by improved science-based guidance linking the upper extent of habitat likely to be used by fish to fixed physical features, thus reducing the subjective nature of water typing determinations while achieving water typing outcomes that meet Policy expectations. We believe the development of a new fish habitat assessment methodology will fulfill this need.

### Selected Water Typing Rule Background & the Concept of Equity

In 1996, the Forest Practices Board (Board) adopted a consensus package of actions including emergency water typing rule with defaults for presumed fish use and a fish survey protocol to determine fish use.<sup>11</sup> The emergency rule became necessary after a growing body of evidence in the mid-1990's showed that then-current water typing maps were significantly under-estimating the extent of game fish distribution. This evidence demonstrated that many streams that were being mapped as having no fish use, did in fact have fish use. Given the uncertainty of the proposed defaults in meeting these objectives, Board members recognized that the defaults would be modified as necessary to more correctly reflect fish use as more and better data became available.<sup>12</sup> The need for shared risk in this deliberation also supports a basic goal of the Timber Fish and Wildlife Agreement.<sup>13</sup> The Board also approved guidance for the Department of Natural Resources and others to use when implementing the rule and manual, and a long-term plan for riparian management that would address Clean Water Act and Endangered Species concerns. This long-term riparian management plan ultimately resulted in the FFR and the FPHCP.

Water typing was a critical component of the FFR negotiations. As stated above, the FFR envisioned that a GIS-based model to determine the extent of fish habitat using geomorphic parameters such as basin size, gradient, elevation and other indicators. The Board embraced this recommendation when it adopted final forest practices rules based on the FFR in 2001.<sup>14</sup> While negotiations for FFR continued, the Board adopted a series of water typing emergency rules

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<sup>11</sup> Forest Practices Board Rule Motion for Water Type Emergency Rule, Adopted November 14, 1996.

<sup>12</sup> Forest Practices Board, Minutes from November 12, 1996 meeting, p. 10.

<sup>13</sup> "The values of public and private resources are very real. Precise quantification of those values is quite variable however. When tradeoffs occur between public and private resources, it is logical to seek ways to maintain equity." TFW Agreement (1987).

<sup>14</sup> WSR 01-12-042, § 222-16-031, filed 5/30/01, effective 7/1/01.

based on the 1996 emergency rule, utilizing protocol surveys and physical defaults for water typing.<sup>15</sup>

Adopted as part of a statewide salmon recovery strategy, FFR was a landmark, collaborative, science-based program to recover salmon, preserve water quality, protect aquatic species and maintain a viable timber industry.<sup>16</sup> In 2001, the Forest Practices Board (Board) developed water typing rules based on the final FFR. The FFR anticipated the development of a multi-parameter, field-verified geographic information system (GIS) logistic regression model. The model was to produce water type maps, but before the maps could be adopted the Board, FFR required them to meet specific precision and risk allocation criteria.<sup>17</sup> These general objectives for the water typing system can be summarized as: highly accurate, minimize systematic error. As you are aware, to date, the model/maps have not demonstrated the ability to meet those parameters.

When the Board adopted permanent rules to implement the FFR in 2001, the GIS-based model did not yet exist and there was great uncertainty in the performance of the field-based application of the model described in the FFR interim water typing system. At that point, the Board took an unusual action – it adopted two permanent administrative rules to determine the extent of Type F waters: one deemed the “permanent” rule, which described the model-based system<sup>18</sup>; and a second “interim” rule, which continued the use of protocol surveys and the physical defaults.<sup>19</sup> Due to landowner concerns shared with the Board members about the over-estimation of fish use by the default physicals,<sup>20</sup> when the Board adopted the “interim” rule, it continued use of electro-fishing surveys as a means to correct error arising from application of the default physicals.<sup>21</sup> The Board’s intent was that the “permanent rule” utilizing the model would come into effect when the Board adopted the fish habitat water type maps.

In 2005, a pilot study was conducted to begin evaluation of the GIS model that was developed, but was not adequate to reliably characterize the precision and balance targets set forth in the FFR. As a result, the model met with resistance from various parties across the spectrum of forest stakeholders. In February 2005, the Board met to review options for finalizing and adopting the model either in whole or in part. The Board declined to adopt the maps, instead

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<sup>15</sup> Emergency Rules were adopted in February 12, 1997; July 10, 1997; November 12, 1997; February 11, 1998; May 13, 1998; September 22, 1998; November 10, 1998; February 10, 1999; March 31, 1999; July 21, 1999; November 16, 1999; October 27, 1999 (full FFR emergency rule).

<sup>16</sup> Final Forests and Fish Habitat Conservation Plan, Appendix B – Forests and Fish Report, December 2005, p. B-1.

<sup>17</sup> As stated in the FFR, “the risks between resource protection and timber harvest as determined by a model with a statistical accuracy of +/- 5% will be revised so that the line demarcating fish and non-fish habitat waters will be drawn so as to be equally likely to be over and under inclusive.” Forests and Fish Report, February 22, 1999, p. 18-19.

<sup>18</sup> WAC 222-16-030. See, WSR 01-12-042, § 222-16-031, filed 5/30/01, effective 7/1/01.

<sup>19</sup> The current water typing rule<sup>19</sup> (“interim rule”) identifies two methods for establishing the regulatory fish/nonfish break: protocol survey or default physical criteria. Protocol surveys rely on determination of the upper extent of fish use. Where no fish use information exists, the current rule employs a default presumption of fish use based on pre-defined physical default characteristics of streams, namely a specified gradient, channel width and basin size.<sup>19</sup> WAC 222-16-031.

<sup>20</sup> Fransen, B. Assessment of Emergency Rule Precision and Balance of Error (unpublished), October 1999.

<sup>21</sup> WSR 01-12-042, § 222-16-031, filed 5/30/01, effective 7/1/01.

unanimously encouraging further study of a hybrid option combining use of surveys and model maps in hopes of achieving a consensus recommendation.<sup>22</sup> Ultimately, this effort also failed. In the meantime, the “interim rule,” utilizing protocol surveys and physical defaults remained in place.

Three Key Metrics: Accuracy – Minimized Error – Equitable Balance of Uncertainty

In late 2005, the state submitted the FFR rules to the U.S. Fish & Wildlife Service and National Marine Fisheries Service as the Forest Practices Habitat Conservation Plan (FPHCP). In 2006, the Services approved the FPHCP with the current (“interim”) rule as the water typing rule.<sup>23</sup> Throughout the FFR and FPHCP discussions, three key metrics were important objectives for water typing: high degree of accuracy, minimized risk, and balance of the remaining uncertainty. Both the FFR and FPHCP included this concept of equity in the allocation of error, which is also consistent with the earlier Timber-Fish-Wildlife (TFW) agreement.

Since 2012, the Board and TFW Policy have been working to address water typing issues. WFPA believes that the current process, if allowed to continue with an appropriate science-based discussion will yield significant results. WFPA respectfully requests that the Board adopt the consensus recommendations from TFW Policy and consider the attached draft Board motion related to further development of a fish habitat assessment methodology. WFPA looks forward to continued work with the Board on critical water typing issues. Please don’t hesitate to contact us with questions.

Sincerely,



Karen Terwilleger  
Senior Director of Forest and Environmental Policy

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<sup>22</sup> Forest Practices Board, Minutes from May 17, 2005 special meeting, p. 22-24.

<sup>23</sup> U.S. Fish and Wildlife Service Biological Opinion, p. 101: “The FWS recognizes the substantial effort that the State of Washington and other stakeholders are conducting with respect to Adaptive Management. Both Federal Services are participating and supporting that effort and believe it is an important component of the FPHCP. However, the FWS cannot predict which aspects of the FPHCP may be modified through adaptive management in the future, nor can we anticipate the manner in which, or degree to which, these changes may occur. For those reasons, this Opinion analyzes only the existing prescriptions and requirements of the current Washington Forest Practices Rules and does not rely on Adaptive Management in reach the conclusions contained herein.” (emphasis added). See the National Marine Fisheries Service Biological Opinion for nearly identical language at p. 179.



**WFPA Suggested Water Typing Board Motion\***

The Board moves that that a group of internal and external scientific/technical experts be convened to assist the Board in determining and providing the metrics to identify “Potential habitat Breaks” (PHB). The current Fish Habitat Technical Group (FHTG), a multi-stakeholder group of technical staff and scientists, will work directly for the Board and guide the Adaptive Management Program Administrator (AMPA) in assigning technical expertise using DNR contracting to assist the FHTG in developing PHB definition(s). Members of the FHTG will work with the AMPA to identify if any skills and expertise are currently lacking in the FHTG, and with the AMPA determine how outside expertise can be brought in to the group to address these gaps. These definitions shall be designed to support a system that identifies fish habitat that is (1) highly accurate, and (2) off-sets remaining error length. The Board allocates \$\$ \_\_\_\_\_ from the Adaptive Management budget for this purpose.

Expected Outcomes

- Based on analysis of existing data, the technical group will develop preliminary PHB definitions across the state. These definitions will be as accurate as possible given uncertainty and the limitations of existing data sources.
- The technical group will also provide recommendations on a strategy for a validation/refinement study through CMER and the adaptive management process (or at the FP Board’s direction).

Adaptive Management

Through adaptive management, CMER will:

- Evaluate the accuracy and error allocation of the preliminary PHB definitions using the approach Roni suggested to the Fish Habitat Technical Group.
- Evaluate PHB definitions operationally through at least one water typing season to assess “implementability” of the definitions.

Timeline

- August FP Board meeting: Update and description of data that will be used in the analyses.
- November FP Board meeting: Preliminary PHB definitions. Recommendations on follow-up validation/refinement studies.

\*Assumes that all previous TFW Policy consensus recommendations continue to be accepted by the Board. And that the Board will favorably consider any new TFW Policy consensus recommendations.