

April XX, 2016

MEMORANDUM

TO: Hans Berge, Adaptive Management Program Administrator

FROM: _____Caucuses

SUBJECT: Proposal Initiation: Evaluating Physical Default Characteristics.

The _____Caucuses request that two tasks be evaluated by the Adaptive Management Program Administrator to develop a proposal review packet for Policy's review and approval. The packet shall include a summary of the proposal, recommendations of proposed tracks for adaptive management program development and proposed timeline for completion.

- **Phase #1. Review and summarize original data used to develop the 1996 Emergency Rule default physical characteristics.**
 - Clarify what the default physicals are developed to predict (fish presence, fish use, fish habitat).
 - Document the history of the 1996 defaults
- **Phase #2. Identify and summarize existing additional data that can be used to assess the accuracy of the current physical defaults for determining presumed fish use.**
 - Data collected by stakeholders specifically to evaluate the default criteria.
 - Other data characterizing habitats used by fish and not used by fish.
 - WTMF channel width and gradient data to determine proportion of Type F/N breaks accurately estimated by current defaults.
 - ISAG channel width and gradient data to determine proportion of Type F/N breaks accurately estimated by current defaults.
 - CMER fish model development data as a source to refine default criteria.
- **Phase #3. Determine if default physical criteria can be refined to minimize error.**
 - Can additional criteria be added to channel width, gradient and basin size to minimize error (e.g., stream morphology type, region-specific geomorphology, etc?)
 - Are there other alternatives for determining a presumption of fish use?
 - Can precision and accuracy of current default physical criteria be determined?
 - Characterize precision and accuracy of alternatives.

1. *The affected forest practices rule, guidance, or DNR product.*

[WAC 222-16-031](#), “*Interim Water Typing system*”
[Forest Practices Board Manual Section 13](#), “*Guidelines for Determining Fish Use for the Purpose of Typing Waters*”

2. *The urgency based on scientific uncertainty and resource risk.*

Addressing Type F and the permanent water typing rule is currently the number one priority established by the Board for TFW Policy. In August 2015, the Board directed TFW Policy Committee to “accept the Type F matrix as the framework to complete the evaluation of all components needed to establish a permanent water typing rule, as well as to establish any needed guidance and training.¹ The Board directed the TFW Policy co-chairs to facilitate implementation of the matrix to get to a permanent rule, guidance and/or training.” 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. “

The current water typing rule, WAC 222-16-031, allows utilization of protocol survey or default physical criteria to determine the regulatory fish/nonfish break. TFW Policy is currently reviewing science and technical questions related to protocol survey. A comprehensive review of the water typing system as outlined by the Board requires review of the default physical criteria as well.

RCW 76.09.370(6) requires that forest practices rule changes may only be adopted “if the changes or new rules are consistent with recommendations resulting from the scientifically based adaptive management process established by a rule of the board. Any new rules or changes under this subsection need not be based upon the recommendations of the adaptive management process if: (a) The board is required to adopt or modify rules by the final order of any court having jurisdiction thereof; or (b) future state legislation directs the board to adopt or modify the rules.”

Brief Background of Physical Defaults

In 1996, after reviewing data primarily collected by the Point-No-Point Tribal Council, the Quinault Indian Nation, Washington Trout and the Department Fish & Wildlife, 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.²

1 Forest Practices Board Motion on TFW Policy Direction on Water Typing, Adopted August 11, 2015.

2 Forest Practices Board Rule Motion for Water Type Emergency Rule, Adopted November 14, 1996.

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.³ The Board also approved guidance for the Department of Natural Resources (Department) 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 Forests & Fish Report (FFR) and the Forest Practices Habitat Conservation Plan (FPHCP). Water typing was a critical component of these efforts. As negotiations for FFR continued, the Board adopted a series of emergency rules based on the 1996 emergency rule.⁴

The FFR envisioned that the water typing system was to utilize a multiparameter, field-verified geographic information system (GIS) logistic regression model to determine water type. Water typing maps would then be created from the model results. The model would determine the extent of fish habitat using geomorphic parameters such as basin size, gradient, elevation and other indicators. The modeling process was also designed to achieve a level of statistical accuracy of 95% in separating fish habitat streams and non-fish habitat streams; and that the demarcation of fish and nonfish habitat waters would be equally likely to over and under estimate the presence of fish habitat.⁵ Thus, several key principles were critical in the development of a water typing rule for FFR: 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. 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.”⁶

In 2001, when the Board adopted permanent rules for implementing the FFR, the model was not complete. The Board took an unusual action – it adopted two permanent administrative rules: one deemed the “permanent” rule, which described the model; and a second “interim” rule, which continued the provisions of the emergency rules first adopted in 1996 which continued the use of protocol surveys and the physical defaults.⁷

3 Minutes from November 12, 1996 Forest Practices Board meeting, p. 10.

4 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).

5 Forests and Fish Report, February 22, 1999, p. 18-19.

6 National Marine Fisheries Service Biological Opinion, June 5, 2006, p. 180.

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

Preliminary Review of Physical Default Characteristics

Both the default criteria and protocol surveys were temporary solutions within the 1996 emergency rule and never intended as permanent solutions. While attention to date has focused on the potential uncertainties related to protocol surveys, a systematic review of the rule also necessitates a review of the uncertainties related to the default physical criteria. Since 1996, field-verified data indicate that the current default criteria often do not accurately reflect the extent of fish use. The default criteria were demonstrated to over-estimate fish use as early as 1999⁸ (attached as Appendix 1).

3. *Any outstanding TFW, FFR, or Policy agreements supporting the proposal.*

FFR Forests and Fish Report Goals:

The Forests and Fish Report (FFR) served as the basis for development of the Forests and Fish forest practices rules, and thus, the Forest Practices Habitat Conservation Plan. The goal of the authors of the Forests and Fish Report was to compile biologically sound and economically practical solutions that would improve and protect riparian habitat on non-Federal forestlands in Washington. FFR recommended the development and implementation of rules, statutes and programs on non-Federal forestlands to:

- achieve compliance with the Endangered Species Act for aquatic and riparian dependent species on non-Federal forestlands;
- restore and maintain riparian habitat to support a harvestable supply of fish on non-Federal forestlands;
- meet the requirements of the Clean Water Act for water quality on non-Federal forestlands; and
- keep the timber industry economically viable in Washington.⁹

Forests & Fish Report and Statute

In the 1999 Salmon Recovery Act and the resulting Forests and Fish Rules, the Washington State Legislature required the development of an adaptive management program to: . . . *make adjustments as quickly as possible to forest practices that are not achieving the resources objectives . . . (and) shall incorporate the best available science and information, include protocols and standards, regular monitoring, a scientific and peer review process, and provide recommendations to the board on proposed changes to forest practices rules to meet timber industry viability and salmon recovery. (RCW 76.09.370(7)).*

4. *How the results of the proposal could address Adaptive Management Program key questions and resource objectives or other rule, guidance, or DNR product.*

The key issue facing the Forest Practices Board is the development of a permanent water typing system that meets FFR objectives for the water typing system (high degree of accuracy, minimization of risk, balance of remaining uncertainty) and the criteria determined by the Forest Practices Board.

⁸ Fransen, B. Assessment of Emergency Rule Precision and Balance of Error, October, 1999.

⁹ Final Forests and Fish Habitat Conservation Plan, Appendix B – Forests and Fish Report, December, 2005, p. B-1.

This proposal follows the AMP goals expressed in RCW 76.09.370, FFR Appendix L and HCP Appendix N, *Adaptive Management*, and embraces the Policy and science based process to develop recommendations for rule change to present to the Board. FFR called for the establishment of:

- A science-based adaptive management program to monitor the relationships and evaluate the effectiveness of rules and guidance toward achieving the target forest conditions and processes;
- Forest Practices Board adopted rules and guidance designating the required elements of an adaptive management process;
- Forest Practices Board set priorities for action as guided by information developed through the adaptive management process; and
- TFW (Policy) recommendations to the (Board) are to be accompanied by formal petitions for rulemaking and guidance.

Board Manual Section 22, *Guidelines for Adaptive Management Program* provides a technical advisory supplement to the Forest Practices rules and provides guidance to the AMP. The process to request an AMP review and subsequent preparation of recommendations to present to the Board for potential rules changes is found in Part 3.1 Stage 1: Initiation and Screening of Proposals.

5. *Available literature, data and other information supporting the proposal.*

Potential Data Sets:

- 1996 Data to develop the physicals
- 1999 review (end-of-habitat; end-of-fish) compared to physicals
- 2005 Model development dataset
- Other industry, agency or Tribal datasets

Forest Practices Rules, WAC 222-30-031 *Interim Water Typing System.

Until the fish habitat water type maps mentioned above are available, waters will be classified according to the interim water typing system described below. If a dispute arises concerning a water type, the department shall make available informal conferences, which shall include the departments of fish and wildlife, ecology, and affected Indian tribes and those contesting the adopted water types. These conferences shall be established under procedures established in WAC [222-46-020](#).

For the purposes of this interim water typing system see the following table:

Water Type Conversion Table

Permanent Water Typing	Interim Water Typing
Type "S"	Type 1 Water
Type "F"	Type 2 and 3 Water
Type "Np"	Type 4 Water
Type "Ns"	Type 5 Water

*(1) "**Type 1 Water**" means all waters, within their ordinary high-water mark, as inventoried as "shorelines of the state" under chapter [90.58 RCW](#) and the rules promulgated pursuant to chapter [90.58 RCW](#), but not including those waters' associated wetlands as defined in chapter [90.58 RCW](#).

*(2) "**Type 2 Water**" means segments of natural waters which are not classified as Type 1 Water and have a high fish, wildlife, or human use. These are segments of natural waters and periodically inundated areas of their associated wetlands, which:

(a) Are diverted for domestic use by more than 100 residential or camping units or by a public accommodation facility licensed to serve more than 10 persons, where such diversion is determined by the department to be a valid appropriation of water and only considered Type 2 Water upstream from the point of such diversion for 1,500 feet or until the drainage area is reduced by 50 percent, whichever is less;

(b) Are diverted for use by federal, state, tribal or private fish hatcheries. Such waters shall be considered Type 2 Water upstream from the point of diversion for 1,500 feet, including tributaries if highly significant for protection of downstream water quality. The department may allow additional harvest beyond the requirements of Type 2 Water designation provided by the department of fish and wildlife, department of ecology, the affected tribes and interested parties that:

(i) The management practices proposed by the landowner will adequately protect water quality for the fish hatchery; and

(ii) Such additional harvest meets the requirements of the water type designation that would apply in the absence of the hatchery;

(c) Are within a federal, state, local or private campground having more than 30 camping units: Provided, That the water shall not be considered to enter a campground until it reaches the boundary of the park lands available for public use and comes within 100 feet of a camping unit.

(d) Are used by fish for spawning, rearing or migration. Waters having the following characteristics are presumed to have highly significant fish populations:

(i) Stream segments having a defined channel 20 feet or greater within the bankfull width and having a gradient of less than 4 percent.

(ii) Lakes, ponds, or impoundments having a surface area of 1 acre or greater at seasonal low water; or

(e) Are used by fish for off-channel habitat. These areas are critical to the maintenance of optimum survival of fish. This habitat shall be identified based on the following criteria:

(i) The site must be connected to a fish bearing stream and be accessible during some period of the year; and

(ii) The off-channel water must be accessible to fish through a drainage with less than a 5% gradient.

*(3) "**Type 3 Water**" means segments of natural waters which are not classified as Type 1 or 2 Waters and have a moderate to slight fish, wildlife, or human use. These are segments of natural waters and periodically inundated areas of their associated wetlands which:

(a) Are diverted for domestic use by more than 10 residential or camping units or by a public accommodation facility licensed to serve more than 10 persons, where such diversion is determined by the department to be a valid appropriation of water and the only practical water source for such users. Such waters shall be considered to be Type 3 Water upstream from the point of such diversion for 1,500 feet or until the drainage area is reduced by 50 percent, whichever is less;

(b) Are used by fish for spawning, rearing or migration. The requirements for determining fish use are described in the board manual section 13. If fish use has not been determined:

(i) Waters having any of the following characteristics are presumed to have fish use:

(A) Stream segments having a defined channel of 2 feet or greater within the bankfull width in Western Washington; or 3 feet or greater in width in Eastern Washington; and having a gradient of 16 percent or less;

(B) Stream segments having a defined channel of 2 feet or greater within the bankfull width in Western Washington; or 3 feet or greater within the bankfull width in Eastern Washington, and having a gradient greater than 16 percent and less than or equal to 20 percent, and having greater than 50 acres in contributing basin size in Western Washington or greater than 175 acres contributing basin size in Eastern Washington, based on hydrographic boundaries;

(C) Ponds or impoundments having a surface area of less than 1 acre at seasonal low water and having an outlet to a fish stream;

(D) Ponds of impoundments having a surface area greater than 0.5 acre at seasonal low water.

(ii) The department shall waive or modify the characteristics in (i) of this subsection where:

(A) Waters have confirmed, long term, naturally occurring water quality parameters incapable of supporting fish;

(B) Snowmelt streams have short flow cycles that do not support successful life history phases of fish. These streams typically have no flow in the winter months and discontinue flow by June 1; or

(C) Sufficient information about a geomorphic region is available to support a departure from the characteristics in (i) of this subsection, as determined in consultation with the department of fish and wildlife, department of ecology, affected tribes and interested parties.

***(4) "Type 4 Water"** means all segments of natural waters within the bankfull width of defined channels that are perennial nonfish habitat streams. Perennial streams are flowing waters that do not go dry any time of a year of normal rainfall and include the intermittent dry portions of the perennial channel below the uppermost point of perennial flow.

***(5) "Type 5 Waters"** means all segments of natural waters within the bankfull width of the defined channels that are not Type 1, 2, 3, or 4 Waters. These are seasonal, nonfish habitat streams in which surface flow is not present for at least some portion of the year and are not located downstream from any stream reach that is a Type 4 Water. Type 5 Waters must be physically connected by an above-ground channel system to Type 1, 2, 3, or 4 Waters.

***(6)** For purposes of this section:

(a) "Residential unit" means a home, apartment, residential condominium unit or mobile home, serving as the principal place of residence.

(b) "Camping unit" means an area intended and used for:

(i) Overnight camping or picnicking by the public containing at least a fireplace, picnic table and access to water and sanitary facilities; or

(ii) A permanent home or condominium unit or mobile home not qualifying as a "residential unit" because of part time occupancy.

(c) "Public accommodation facility" means a business establishment open to and licensed to serve the public, such as a restaurant, tavern, motel or hotel.

(d) "Natural waters" only excludes water conveyance systems which are artificially constructed and actively maintained for irrigation.

(e) "Seasonal low flow" and "seasonal low water" mean the conditions of the 7-day, 2-year low water situation, as measured or estimated by accepted hydrologic techniques recognized by the department.

(f) "Channel width and gradient" means a measurement over a representative section of at least 500 linear feet with at least 10 evenly spaced measurement points along the normal stream channel but excluding unusually wide areas of negligible gradient such as marshy or swampy areas, beaver ponds and impoundments. Channel gradient may be determined utilizing stream profiles plotted from United States geological survey topographic maps. (See board manual section 23.)

DRAFT