WASHINGTON STATE DEPARTMENT OF
Natural Resources

PETER GOLDMARK
Commissioner of Public Lands

January 29, 2014

TO: Forest Practice Board Members

FROM: Aaron Everett, Chair

RE: Type F briefing information

The purpose of this memo is to provide you with some additional briefing information to aid in your preparation for the "Type F Dispute Resolution" item on the Board's agenda at our upcoming meeting. As you know, the system of water typing embodied in our forest practices rules is foundational to how much stream length is buffered, and at what buffer width. This, in turn, determines how the resource objectives for riparian function in the Forests & Fish Report and the FP HCP are achieved. The Board last considered the issue of establishing a permanent water typing rule in 2005 and failed at that time to enact a permanent rule, owing to disagreement among the Board members and caucuses.

These are complex issues, and I do not expect that Board members achieve instantaneous velocity in subject matter expertise. The Board will need to spend its due time to develop a complete understanding of the options and implications associated with transitioning from the interim rule to a permanent one. For the purposes of our meeting, I instructed Board staff to prepare the attached table which seeks to highlight the major issues of dispute around water typing, the corresponding Forests & Fish/HCP commitment to which they apply, and the "real-world" practical effect of a rule change. By no means does this document provide comprehensive detail of all the issues surrounding water typing, and neither does it seek to portray the positions or contentions of individual caucuses. You should also review the individual caucus memos that were submitted to the Board on the Type F dispute.

For further background on water typing, I also suggest a brief read-through of Jim Hotvedt's memo transmitting the caucus recommendations.

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1111 WASHINGTON ST SE • MS 47001 • OLYMPIA, WA 98504-7001
TEL: (360) 902-1000 • FAX: (360) 902-1775 • TRS: 711 • TTY: (360) 902-1125 • WWW.DNR.WA.GOV
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Issue	Forests & Fish/HCP commitment	**Practical Effects on Type F/N Break**
Water Type Rule Change The forests and fish rules intend there to be one permanent rule establishing the break between Type F and N Waters Policy had to address two opposing opinions: - accept the current interim rule as permanent; or -create a new permanent rule	The Board adopted the water typing interim rule (WAC 222-16-031) to be implemented until the Board directs the permanent water typing rule (WAC 222-16-030) is implemented. The Board directed Policy to develop and make recommendations for a permanent water typing rule. Policy must follow the process as outlined in the Adaptive Management Program (AMP), WAC 222-12-045 – ". . . to provide science-based recommendations and technical information to assist the board in determining if and when it is necessary or advisable to adjust rules and guidance for aquatic resources to achieve resource goals and objectives".	• The water typing system is included in the forest practices rules to determine what kind of riparian buffer is needed – how much stream length is buffered, and at what buffer width. • The interim rule in WAC 222-16-031 (the system currently in use) establishes a stream as a Type F Water based on physical conditions found on the ground such as stream width and gradient. Water type can be modified from the physical criteria's designation using a "protocol survey" (electrofishing) method for the determination of fish use (Board Manual 13). • The 2001 "permanent" rule in WAC 222-16-030 (not currently used) instructs DNR to prepare water type maps showing the Type F/N Water break. The maps are to be based on a multiparameter, field verified GIS logistic regression model. • Opinions vary among the Policy caucuses regarding how to address the main components of this issue – continued use of the interim rule, modified use of the interim rule, adoption of the "permanent" -030 rule, and so on.
Use of a Statistical Model to Produce Water Type Maps	Schedule L-1 Functional Objective for Stream Typing and Passage Resource Objective is " Type 'fish habitat' … by using a … regression model …" Permanent rule (WAC 222-16-030) outlines the use of maps based on modeling to achieve an accuracy of 95%.	• The accuracy of using a Water Type map based on a predictive multiparameter, GIS logistic regression model to serve as the water typing rule is in dispute within Policy. Whether the requisite degree of precision and accuracy can be achieved is largely the issue in question. • The predictive model may be improved to better predict the Type F/N Water break by re-running it using high-resolution Light Detection and Ranging (LiDAR) data. o Schedule L-1 resource objective may need to be revised if a model is not used for water typing. • Use of a model also represents a choice between basic administrative frameworks for field implementation – having the map serve as rule with no opportunity to make site-by-site adjustments, versus map as a starting point and continued use of site-specific evaluations.
Definition of Fish Habitat	From 1999 FFR - "If statewide water type maps are not available by the time of rule adoption, water typing will proceed under an interim rule modeled after the current emergency rule … the line demarcating fish and non-fish habitat waters will be drawn so	• Basic dispute arises from the lack of quantitative review of current application of interim rules to determine if habitat for all fish species are being protected o The forest practices rules focused on protection of anadromous fish prior to the 2001 permanent forest practices rules. The inclusion of "used by fish at any life stage at any time…" was established in the Forests and Fish Report and changed in the forest practices rules in 2001. Current procedures, such as physical criteria used, reflect some of these

	as to be equally likely to be over and under inclusive." Schedule L-1 Functional Objective for "Stream Typing and Fish Passage Resource Objective is "Type 'fish habitat' streams to include habitat which 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 in management, and including off-channel habitat …"	legacy issues. • The process for locating the Type F/N Water break may be changed if either the use of the current interim water typing strategy based on physical conditions and protocol surveys (electrofishing) or the use of the predictive regression model is not found to protect all species of fish. o The interim rule in WAC 222-16-031 establishes a stream as a Type F Water either based on onsite physical criteria and/or by using a protocol survey method for the determination of fish use (Board Manual 13).
Shared Risk	Schedule L-1 Performance Target for stream typing functional objective is "statistical accuracy of +/- 5%, with line between fish and non-fish habitat waters equally likely to be over and under inclusive."	• No rule set can perfectly anticipate all possible on-the-ground conditions. The concept of shared risk originates with the Forests & Fish agreement and is to insure that the rules result in equal shares of over-protecting in some cases and under-protecting in others. Shared risk relates to the degree to which the currently applied rules or permanent water typing rules contain equally distributed error across the landscape. o The concept can be applied to any of the individual sub-issues of dispute, but most broadly applies to the degree of over- or under-protection that applies to the water typing system in aggregate.
Protection of Off-Channel Habitat	Schedule L-1 Functional Objective for "Stream Typing and Fish Passage Resource Objective is "Type 'fish habitat' streams to include … off-channel habitat …"	• Any permanent rule must contain off-channel habitat considerations for Type F water. • The riparian buffer starts at the outer edge of off-channel habitat, which has the effect of enlarging the buffer from one that would have been based on the bankfull width of the main channel. • Several caucuses at Policy believe an inconsistency exists in the definitions of off-channel habitat in the interim (-031) and permanent (-030) water typing system rules. The degree to which DNR field implementation of the rules actually include off-channel under the interim rule is also disputed. The off channel definitions in rule are: <u>WAC 222-16-030 Water Typing System</u> *(2) **"Type F Water"** means segments of natural waters . . . which are within the bankfull widths of defined channels and periodically inundated areas of their associated wetlands, . . . which . . . contain fish habitat or are described by: (d) Riverine ponds, wall-based channels, and other channel features that 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 habitat stream and accessible during some period of the year; and (ii) The off-channel water must be accessible to fish. <u>WAC 222-16-031 Interim Water Typing System</u> *(2) "Type 2 Water" (**Type F Water**) means segments of natural waters which . . . have a high fish, wildlife, or human use. These are segments of natural waters and periodically inundated areas of their associated wetlands, which: (d) Are used by fish for spawning, rearing or migration. Waters having the following characteristics are presumed to have highly significant fish populations; 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" (**Type F Water**) means segments of natural waters which . . . 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: (b) Are used by fish for spawning, rearing or migration. The requirements for determining fish use are described in the board manual section 13. *For the purposes of this interim water typing system, Type 2 and 3 waters are encompassed within the definition of Type F.*
Use of Default Physicals (for Stream Typing)	From 1999 FFR: "If statewide water type maps are not available by the time of rule adoption, water typing will proceed under an interim rule (WAC 222-16-031) modeled after the current emergency rule but modified in the following respects … the risks between resource protection and timber harvest 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; and … electro-fishing to prove the presence or absence of fish will no longer	• The interim rule in WAC 222-16-031 establishes a stream as a Type F Water based on physical conditions found on the ground and/or by using a protocol survey method (electrofishing) for the determination of fish use (Board Manual 13). o The physical conditions are: WAC 222-16-031 Interim Water Typing System (3)(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

	affect stream type determination from an operational standpoint. Stream reaches previously field-verified, as fish-bearing will not be re-categorized as non-fish bearing". Physical parameters for stream typing is provided under the interim rule (WAC 222-16-031)	having greater than 50 acres in contributing basin size in Western Washington or greater than 175 acres contributing basin size in Eastern Washington. • The degree to which the rule identified physical conditions over/under predicts fish habitat are a disputed issue within Policy.

Electrofishing/Protocol Surveys	From 1999 FFR: "If statewide water type maps are not available by the time of rule adoption, water typing will proceed under an interim rule modeled after the current emergency rule but modified in the following respects … the risks between resource protection and timber harvest 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; and … electro-fishing to prove the presence or absence of fish will no longer affect stream type determination from an operational standpoint. Stream reaches previously field-verified, as fish-bearing will not be re-categorized as non-fish bearing".
	
	Board Manual Section 13 provides guidance for conducting electrofishing surveys
		• Electrofishing is a component of the current water typing system used to establish where the "last fish" is present in a stream.
		• The FP HCP provides limited incidental take coverage for the use of electrofishing during research and monitoring projects, not for broad use in water type verification. Some fish mortality may occur during electrofishing.
		• The Board has limited authority to directly regulate the proper operation of an electrofisher or the in-stream protocols for electrofishing.
		  o The timing, licensing, survey processes and other technical standards are established and administered by the Federal Services (National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed Under the ESA, 2000) and not DNR.
		  o The Board could request Policy to seek authorization from the federal services to expand the timing of electrofishing to survey streams outside of the current authorized sample window to more accurately determine fish usage of stream segments.
		  o The Board could choose to specify that the only information acceptable for use under the current water typing system must comply with 'best practices,' which are yet to be developed in a forest practices context.

Stream Downgrades	From 1999 FFR: "If statewide water type maps are not available by the time of rule adoption, water typing will proceed under an interim rule modeled after the current emergency rule … Stream reaches previously field-verified, as fish-bearing will not be re categorized as non-fish bearing." Board Manual Section 13 provides alternatives for stream typing decisions apart from protocol surveys	• The interim rule calls for waters to be classed according to physical characteristics presumed to have fish, or the stream can be surveyed to determine fish use according to the protocol in board manual section 13. • Streams are Type F when fish presence is confirmed through protocol surveys using electrofishing and/or concurrence through an ID team. • The current system for the upgrade/downgrade of a stream, in WAC 222-16-030, allows for a stream downgrade based on an on-site interdisciplinary team determination. The finding is then documented by a landowner on a DNR water type modification form, DNR will then update the fish habitat water type map as soon as practicable. If a dispute arises concerning a water type, DNR calls an on-site interdisciplinary team, which shall include the departments of fish and wildlife, ecology, and affected Indian tribes and those contesting the adopted water types, and prepares an informal conference note.
Definition of Defined Channel	From 1999 FFR: "[Type F waters] include all segments of natural waters (other than Type S waters) within the bankfull widths of defined channels … which … contain fish habitat"	• Adding a rule definition for "defined channel" would establish standards to identify the channel for all Type S, F and N Waters o Uncertainty exists within Policy as to what constitutes a defined channel and if fish habitat includes overland flow or infrequently flooded depressions on the forest floor. Since the riparian buffer starts at the outer edge of the streams bankfull width, inconsistency may exist when applying the starting point of the riparian buffer when no clear field markers are identified. o 'Channel' is defined in Board Manual Section 2.

Permanent Natural Barriers	FPHCP: Under Section 3-1.3.1 FRESHWATER HABITAT REQUIREMENTS, a citation states, " Natural features of the landscape such as waterfalls, reaches of steep channel gradient, logjams, excessive water velocities and insufficient flows may permanently or temporarily block fish in their attempt to access spawning and rearing locations (Bjornn and Reiser 1991). The degree to which a natural feature blocks access often varies by species, and may change seasonally with changes in discharge. RCW 76.09.020 'Fish passage barrier' means any artificial in-stream structure that impedes the free passage of fish Board Manual Section 13 outlines what constitutes a natural barrier	• Adding a rule definition for "permanent natural barrier" would establish standards to assist in the determination of the Type F/N Water break, the point where fish are blocked from access for spawning and rearing. o Uncertainty exists within Policy regarding: ▪ What constitutes a permanent natural barrier including the potential variability by fish species and the degree to which the barrier exists based on seasonal variability in water flow. ▪ The ability to re-establish fish habitat when the physical characteristics presumed to have fish are found above a natural barrier. Further uncertainty exists over the potential to apply the survey protocol (electrofishing) above a natural barrier to determine fish usage. • Additional scientific information may be needed to address disagreements regarding: o 16%-20% channel gradient threshold presenting a barrier to fish movement, especially if the channel morphology is step-pool habitat
Type F Charter	Board Manual Section 22 outlines the process for developing and implementing a Policy sub-committee Charter	• The Board has the authority to clearly define and assign work to Policy. o The Forest practices Board has the authority through the Adaptive Management Program rule, WAC 222-12-045 to: ▪ (2)(b) give direction (assign work) to Policy and CMER; and ▪ (2)(d)(i) Initiate proposals or research questions for Policy and/or CMER to complete to provide the Board necessary information to fulfill their duties.
Water Typing Process	The water typing modification process as administered by DNR under the Forest Practices Division's Operations section is outlined in WAC 222-16-030.	• The Water Typing rule has established the procedures for landowners to apply for, and for DNR to process water type modification requests and update the Water Type maps. • The Board can change the implementation by DNR of the water typing processes through the adoption of a permanent water typing rule.