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## MEMORANDUM

July 21, 2016

**TO:** Adrian Miller, TFW Policy Co-Chair  
**FROM:** Hans Berge, Adaptive Management Program Administrator  
**SUBJECT:** Recommended approach to evaluate the Physical Default Characteristics proposal initiation

On 18 May 2016, the Washington Forest Protection Association submitted a Proposal Initiation for the evaluation of the physical default characteristics for the purposes of water typing. The emphasis of the proposal is to better understand how default physical characteristics were developed, identify additional data that can be used to assess the current default physicals, and determine if they can be refined to be more accurate and minimize error.

The first step in the evaluation of the PI is to determine the applicability to the AMP by assessing management and resource implications. Following the criteria set forth on page 8 of Board Manual Section 22, it is clear from the detail in the PI that this proposal fits the criteria and would directly inform guidance and a permanent water typing rule.

In Board Manual Section 22, the process for the AMP specifically identifies two tracks for proposal development: scientific or policy (Board Manual M22-9 and 10). From the Board Manual, the following direction is given:

*“The **science track** evaluates currently available science, collects new information through research and monitoring, and synthesizes the best available information into a technical summary for Policy consideration.”*

*“Proposals seeking to change or clarify policies or change the way existing science is implemented in the rules are directed toward the **policy track**.”*

The components outlined in the PI clearly align more closely with the “science track”. While the implications of the PI will be ultimately considered by TFW Policy, the work needed to address the PI is technical. The proposed approaches to address the issues most relevant in the PI are organized in the same format as the PI (by “phase”) in the following tasks.

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**PI:** Phase #1: Review the history of the default physicals including the original designed use(s). Determine how the default physicals may be used in the application of a new permanent water typing rule.

- A. Review and summarize original data used to develop the 1996 Emergency Rule default physical characteristics.
- B. Clarify what the default physicals were developed to predict (fish presence, fish use, fish habitat).
- C. Document the history of the 1996 defaults.
- D. How are the default physicals being used in the current process? Are all criteria being used, including default basin size?

**Recommendation:** There is little value in trying to recreate the datasets that were used as the basis for a compromise that resulted in the current physical default characteristics. I recommend forgoing this step.

However, if there was interest in pursuing this phase of the PI, the recommendation would be to hire a contractor to seek the original data from Tribes and Departments of Natural Resources and Fish and Wildlife to see if data could be accessed for analysis. Follow up research would be necessary with individuals to make sure that the metadata are captured correctly and the summary/history reported on the 1996 defaults is correct. An additional exercise to evaluate how the default physicals are used in the current process would take additional resources. Expectation would include a report summarizing the findings.

**Track:** Science

**Timeline:** This should be accomplished within 6 months, with an expected cost of \$60,000.

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**PI:** Phase #2. Identify and summarize additional data that can be used to assess the accuracy of the current physical defaults for determining presumed fish use.

- A. What degree of uncertainty exists about whether the current default physical

- criteria accurately reflect presumed fish use for all regions? For all stream morphologies?
- B. Can the overall precision and accuracy of current default physical criteria be determined? If so, what resources and funding would be needed?
  - C. Can currently available data be used for assessing accuracy and precision such as:
    - 1. WTMF channel width, gradient, and default basin size data to determine proportion of Type F/N breaks accurately estimated by current defaults.
    - 2. Data collected by stakeholders specifically to evaluate the current default criteria.
    - 3. Data collected by other scientists or investigators relevant to evaluating the current default criteria.
    - 4. ISAG data used for habitat model development and validation.
    - 5. Other data characterizing habitats used by fish and not used by fish.

**AND**

**PI:** Phase #3. Determine if default physical criteria can be refined to minimize error.

- A. Can additional criteria be added to channel width, gradient and basin size to minimize error (e.g., stream morphology type, region-specific geomorphology, etc.?) Or can the existing criteria be adjusted to improve accuracy?
- B. Review results of Pilot Water Typing Model, when completed, to determine the need for physicals.
- C. Are there other alternatives for determining a presumption of fish use, including the fish habitat model, the fish habitat model using LiDAR, modified physical defaults, snorkeling, trapping, eDNA, and lentic sampling techniques?
- D. If so, characterize precision and accuracy of alternatives.
- E. Is additional research and/or field monitoring needed to fill in important scientific gaps and/or areas of uncertainty, particularly those uncertainties related to regional variations?
- F. Identify possible short-term and long-term approaches for developing physical criteria for the presumption of fish use that minimize error and are implementable and enforceable.

**Recommendation:** Science used in the Adaptive Management Program needs to be rigorous, objective, transparent, and complete. Once projects are approved by Policy, the study design and results need to be peer-reviewed before they are accepted. This makes it very difficult to justify using existing data to evaluate accuracy of current physical defaults, particularly when looking across regions and morphologies. However, existing data can be used to inform the appropriate study of the sampling frame, appropriate strata, scale (spatial and temporal), covariates, signal to noise of methods, etc.

- 1. In order to accomplish the requested tasks, it would be necessary to assemble a technical group to review Phases 2 and 3. Each Phase requires a technical approach including

reviewing data and literature to determine the next steps and providing a report to Policy.

2. Following item 1 above, I would recommend designing a study that seeks to identify appropriate physical parameters to describe fish use across state and private timberlands in Washington to better address the intent of the physical default criteria as described in the PI (p 2-5) as well as the relevance (p 5-11). This study would need to be developed by a technical group (e.g., CMER SAG or TWIG) and would require appropriate financial resources.

**Track:** Science

**Timeline:** Item 1 could be accomplished in six months. I expect it would cost \$75,000 thoroughly analyze all nine items in Phases 2 and 3. Item 2 could take up to 3 years, and would likely cost between \$400,000 and \$600,000, depending upon the emphasis from item 1. Item 2 would need to occur in eastern and western Washington, and capture the variance of streams within lands covered by the Forest Practices Habitat Conservation Plan.