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MEMORANDUM

December 28, 2021

TO: TFW Policy Committee

FROM: Saboor Jawad, Adaptive Management Program Administrator *asj*

SUBJECT: Findings Report of Type N Experimental Buffer Treatment Project in Hard Rock Lithologies: Phase II Extended Monitoring

This memo transmits to TFW Policy Committee (Policy) the findings report of the Type N Experimental Buffer Treatment Project in Hard Rock Lithologies Phase II Extended Monitoring (Hard Rock Phase II). The Cooperative Monitoring, Evaluation and Research Committee (CMER) approved all nine chapters of the final report between February and April 2021, the executive summary in July 2021 and the answers to six questions document in November 2021. The findings report package is complete and ready for Policy's review. The study's final report and the answers to the six questions are both delivered to Policy with this memo.

Hard Rock Phase II evaluates riparian processes nine years post-harvest (2009-2017). Phase I of the study evaluated riparian processes two years post-harvest (2009-2011) and was delivered to Policy in 2018. Both phases of the study followed CMER's scientific protocols including review and approval of study design and the findings report by Landscape and Wildlife Scientific Association Group (LWAG), Riparian Scientific Association Group (RSAG), the Independent Scientific Peer Review (ISPR) and CMER.

The study used a Before-After Control-Impact (BACI) design to examine the responses of aquatic resources, conditions and processes to riparian buffer treatments along non-fish bearing perennial streams (Type N). Four experimental buffer treatments were evaluated in 17 Type N stream basins across western Washington. These included six unharvested reference sites, four treatment sites of two-sided 50-ft riparian buffer along the entire length of the Riparian Management Zone (RMZ), three treatments sites of two-sided 50-ft riparian buffer along at least 50% of the RMZ which is

consistent with current Forest Practices buffer prescriptions for Type N streams, and four treatment sites of clearcut harvest throughout the entire RMZ. The study refers to these treatments as REF, 100%, FP and 0% treatments respectively. All treatments were implemented between October 2008 and August 2009.

The study reports statistically significant responses in wood loading, stream temperature and cover, discharge, nutrient export, stream channel characteristics, as well as stream associated amphibian densities. Direction, magnitude and persistence of change vary for response variables and are reported and documented separately. The study also reports changes that weren't apparent two years post-harvest. These differences from pre-harvest emerged in the extended period and apply to amphibian related variables on which the study reports substantial negative declines in the extended period. Amphibian related findings in the extended period also underscore the need for continuous monitoring of long-term impacts. In minimizing changes from pre-harvest conditions, the study finds the 0% buffer treatment to be least effective, the FP treatment intermediately effective, and the 100% buffer treatment as the most effective.

Hard Rock Phase II tested the effectiveness of existing Type N riparian prescriptions as well as of alternative riparian buffers in maintaining key aquatic conditions and processes. The results have policy implications on whether existing buffer prescriptions on Type N water meet the overall Performance Goals, the long-term viability of stream-associated amphibians or meet water quality standards. Policy should take action on these findings and prepare recommendations to the Forest Practices Board. Policy recommendation should consider revising some of the Type Np Performance Targets, and also consider developing Performance Targets for metrics such as stream-associated amphibian population viability. The study also reports that hydrological features in study sites function as seep sensitive sites but wouldn't meet the definition under current rules. Policy should also consider reevaluating the definition of seep sensitive sites.

The completion of Hard Rock Studies is a major milestone for the Adaptive Management Program. This study provides a substantial gain in understanding of the degree to which Type Np Forest Practices rules meet the Resource Objectives and Performance Targets outlined in Schedule L-1 of the Forest Practices Habitat Conservation Plan.

Attachments:

1. CMER Answers to Six Questions
2. Final Report of Hard Phase II Study