

Memorandum

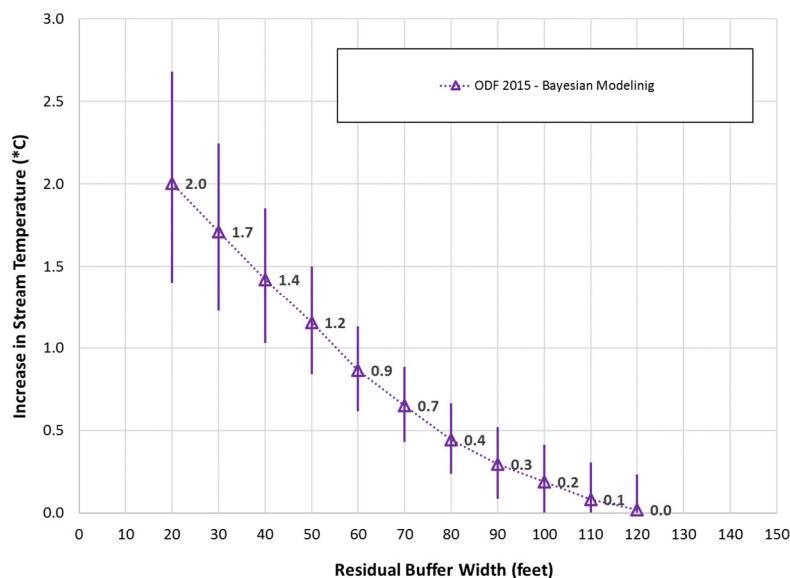
February 17, 2017

To: Allen Henning, USEPA Region 10

From: Peter Leinenbach, USEPA Region 10

Subject: Estimating the stream temperature response associated with *Relief Prescription 1* for small and medium streams in Western Oregon

The Bayesian model results were obtained from ODF staff and are presented in the figure below. ODF staff had presented this information, along with other similar Ripstream material, to the Oregon Board of Forestry on several occasions during the recent Forest Practices Act riparian rulemaking efforts¹. The bars associated with each temperature prediction are the upper and lower credibility Interval associated with each prediction.



It is proposed that the *Relief Prescription 1* will have a 50' and 70' no cut buffer for small and medium streams, respectively. Accordingly, the temperature increase associated with these buffers is 1.2°C and 0.7°C, respectively. It is important to note that *Relief Prescription 2* would have similar buffer widths, however thinning activities would be allowed with the buffer zone. Thus, tree density will be reduced within the buffer regions under *Relief Prescription 2*. Recently published ODF research reported that a reduction of riparian canopy density resulted in increase in stream solar loading, and that this increase solar loading resulted in stream temperature increases (Groom et al 2011). Accordingly, it would be expected that stream temperature increases will be greater with *Relief Prescription 2*, than calculated by ODF staff for *Relief Prescription 1*.

Reference - Groom J. D., L. Dent, L. Madsen, J. Fleuret. 2011b. Response of western Oregon (USA) stream temperatures to contemporary forest management. *Forest Ecology and Management* 262(8):1618–1629.

¹ For example, http://www.oregon.gov/ODF/Board/Documents/BOF/20150603/BOFATTCH_20150603_07_03.pdf and http://www.oregon.gov/ODF/Board/Documents/BOF/20150723/BOFATTCH_20150723_02_01.pdf