"Stewards of the land... for generations to come."

Washington FARM FORESTRY ASSOCIATION

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May 22, 2025 Re: Type Np. . . Science Doesn't Warrant Such Drastic Rule Change

Washington State Forest Practices Board

Chairman Young and members of the Forest Practices Board:

For the record I'm Ken Miller, co-representing Washington Farm Forestry Association with Dave Roberts on behalf of the small forest land owners (SFLOs) on the TFW Policy Committee.

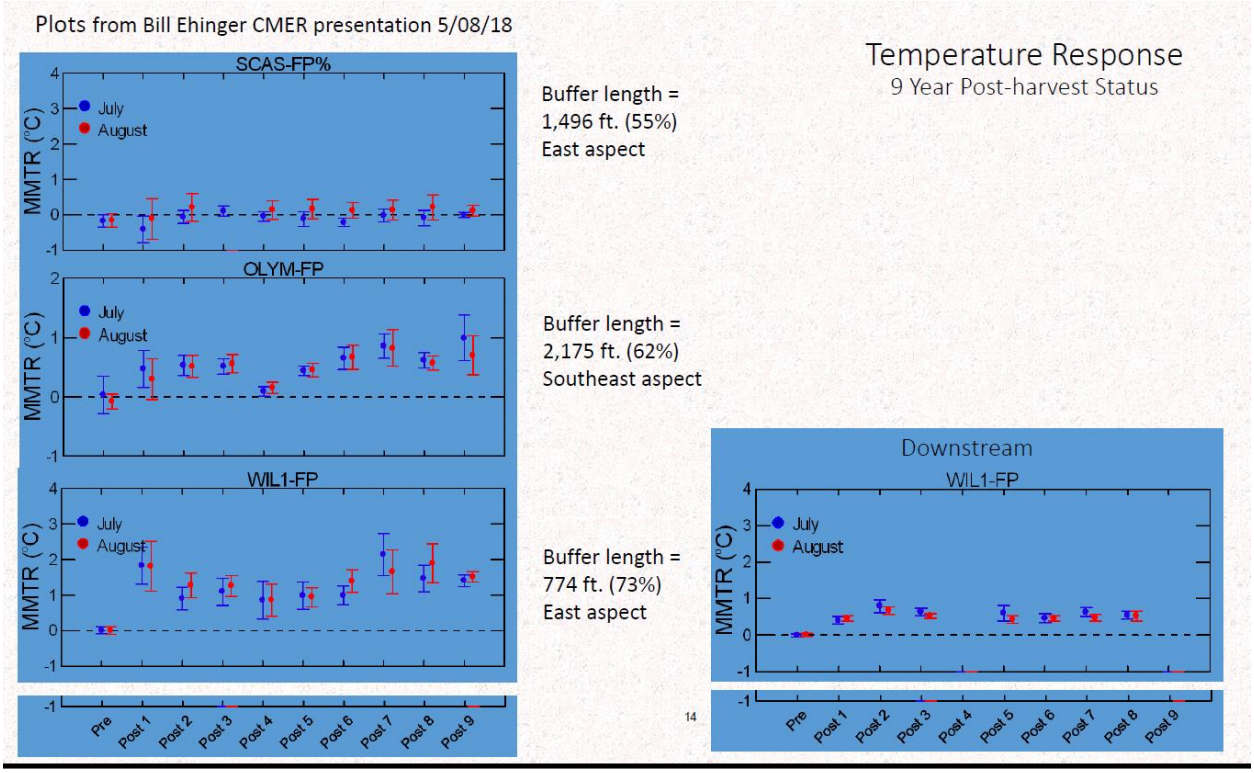
You received testimony to the effect that any credible temperature study needs to have far more than 3 sites, and such a study needs to be specifically designed to make any reliable conclusions about temperature for all western Washington. No one is challenging the science data, just the inferences & confidence that can/should follow such limited study results. The Technical Type Np Prescription Workgroup similarly recommended "larger sample sites be obtained" along with many other concerns about the inferences from the Hard/Soft Rock studies. It's also fair to say these studies were designed to study riparian **critters and shade**, not specifically for water temperature. Additionally, these studies incorporated the entire Np stream reach that is rarely ever harvested at once without intervening separations of years/decades.

You are considering new Type Np buffer rules that will cost our forest economy $2-3 Billion based on temperature responses on only three Forest Practices (FP) sites where the temperature responses to harvest (following current FP rules) **were averaged**, without showing the high degree of variable temperature responses at the three individual FP sites. The rest of the story is: one of the 3 FP sites suffered heavy blowdown from a 500-year wind-event storm; this is the only FP site that showed any appreciable temperature response; and the only FP site for which downstream temperature responses were recorded was the site which suffered the 500-year blowdown event!

I agree that figures don't lie, but we need to dig deeper into some of the lesser-known figures shown below from CMER staff that tell a much different story on the limited # of sites.

1. **SCAS-FP%** showed no increase in temperature after harvest compared to the reference control site!
2. **OLYM-FP** appears to have been both above and below the 0.3^{o} C measurable change standard during the 8 years post-harvest.
3. **WIL1-FP** was the single site showing a significant post-harvest temperature response. . . . but there is much more to this site's story:

a. The WIL1-FP reference control site was damaged in the same 500-year storm event but was dropped and replaced with another undamaged WIL reference site.
b. The WIL1-FP site was thus compared (on this graph) to a different control site with entirely different topography and no heavy blowdown . . . apples and oranges!!
c. The only downstream temperature measurements had the same apples and orange comparison but still indicated minimal, if any real downstream impacts.



Again, we aren't challenging the statistics, just how few sites were included for such momentous decisions. When you boil down these statistics, we are making huge inferences really based on only one site. . . a single site that in hindsight should have been dropped like the WIL1 reference site destroyed by the 500-year storm. It feels like the CMER & the Majority TFW Policy response was a solution looking for statistical support rather than a credible response to statistics within the science.

Additionally, and prior to the Hard/Soft Rock studies, CMER had conducted (& discarded) an actual temperature study (CMER #05-513) (https://www.wafarmforestry.com/sites/default/files/pdfs/Advocacy/Hunter2010.pdf) that had similar mixed results (on more sites) with only 2 of 8 sites exceeding the temperature threshold immediately after timber harvest. This 2010 Water Temperature Evaluation of Hardwood Conversion Treatment Sites Data Collection Report provided a lot more context/details not provided in the current reports. This 2010 CMER report never really saw the light of day despite the efforts of our CMER representative Dr.

Richard Miller wanting to dig further into the results for meaningful inferences. . . . until the day he missed one of the CMER meetings where others decided to stop all work on this study (avoiding a call for dispute resolution). Perhaps more important, this decision soured a talented and dedicated scientist who no longer believed in the integrity of CMER to do what he was charged to do by WFFA leadership: "Just do good science."

The 2010 Water Temperature Evaluation findings on 8 sites found:

> This study suggests that stream temperature is affected by many factors that might differ among locations and through time within a location. More conclusive results will require an experimental study and perhaps a more robust analysis to account for or control these factors. Although temperature was highly variable over time and among locations, longitudinal patterns of warming **and** cooling at many sites remained consistent before and after harvest. This suggests that a more successful study might require careful selection of sites and factors to account for changes in the longitudinal distribution of temperatures (that is, the shape of the temperature distribution).

This water temperature studies' Executive Summary talks about a lot of the complications of this particular CMER study (details missing from Hard/Soft Rock) that seem valid and reconfirm Board testimony that temperature inferences aren't scientifically credible without far more test sites. Of particular interest to this non-scientist were the notes about how the landowners rarely if ever actually harvested as much as was allowed by rule – realities that should temper any FPB rule conclusions.

Yes, it's logical to assume a temperature response to adjacent harvests, in fact such a response was anticipated in Forests and Fish. However, it's not logical to rely on such small samples for such a wide area and without considering the differential responses between sites, particularly with two seemingly different CMER study answers about breaking an incredibly hard rule to measure.

Despite study shortcomings & no assertions of functional impacts landowners were willing to essentially double our Np buffers in an effort to further reduce potential temporary warming. The Board's majority decision to exclude those more collaborative rule options from Cost/Benefit analysis seems a gross overreaction to the sketchy science we currently have let alone the significant imbalance between costs vs benefits.

CMER now has 15 years of this temperature data working its way through the process. The Board should wait a few months for these results to be published before moving forward with such economically damaging rule making. Like the Hunter study, this 15-year response data could help indicate that something other than timber harvest is having a large effect on water temperature.

Moving forward without intermediate options will surely leave my caucus feeling: they don't matter; science doesn't matter; laws don't matter; CMER processes are biased; and the great 1987 TFW Agreement & the Forest and Fish experiment of collaboration with shared risks has ended in failure. 🙁

Ken