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

Washington FARM FORESTRY ASSOCIATION

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August 12, 2025

Washington Forest Practices Board
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Sent via email to:
Forest.practicesboard@dnr.wa.gov
Cc: Owen Roe, Senior Policy Advisor for Natural Resources, Office of the Governor
Senator Mike Chapman, Chair Senate Agriculture and Natural Resources committee
Representative Kristine Reeves, Chair House Agriculture and Natural Resources committee

Re: Public comment on CR102 stage of rulemaking on Non-fish Perennial (Np) Buffers before the Forest Practices Board (FPB). Position: OPPOSE.

The Washington Farm Forestry Association (WFFA) is a membership based non-profit organization that has served as the voice for small forest landowners since 1953. Our objectives include educating small landowners about improved management of forest land, and representing small forest landowners in the legislative process and by participation in the Adaptive Management Program Cooperative Monitoring, Evaluation and Research (CMER) and TFW Policy committees. WFFA also supports educational efforts directed towards the general public regarding the contribution of small forest landowners to the environment and rural economies in Washington. Our members are a part of the forest sector. They represent a cohort of (mostly) larger small forest landowners who contribute to the forest economy while providing intergenerational stewardship of the forests under their care. WFFA submits the following information for the record for the CR102 on the Non-fish Perennial (Np) buffer rulemaking (hereafter Np rule).

WFFA leaders were part of the 1999 Forests and Fish law negotiations and in fact a key contributor to this process (Ken Miller) hosted the signing of the agreement at his property outside Olympia. In short, we believe in the Forests and Fish agreement. And we believe in it because it was designed to protect salmon habitat in forested areas, protect endangered species, provide for clean water, and ensure logging could continue. In this voluntary, negotiated agreement, private forest landowners gave up billions in timber and land value, and spent millions to address roads and water crossings. In return, we were promised 50 years of stability in rules, a collaborative adaptive management process to tweak the rules as necessary, and support for small forest landowners, including a map-based rule. Fast forward 25 years and we are on the cusp of, not a tweaking but another massive taking, with no clear reason to support it, no clear plan for the future, and certainly no map-based rule. **Our position is that we OPPOSE advancing this Np rule into the CR103 stage** as a final step prior to its inclusion in the Washington Adminstrative Code (WAC).

Our opposition is driven by the following concerns with the CR102:

1. **The Np Rule CR102 is based on a fatally flawed Cost Benefit Analysis (CBA) and Small Business Economic Impact Statement (SBEIS).**
2. **The Np Rule CR102 has emerged from a premise that was forced into the Adaptive Management Program (AMP) by the Department of Ecology (ECY). That premise is that there can be no temperature change at no time in no place (i.e. no warming beyond 0.3C which is estimated to be the limit of measurable change). That faulty premise has since been reversed by ECY in May 2025. ECY's assertion that no temperature change is allowed in Tier II waters is contrary to the Clean Water Act criteria that they cite in support of the Np rule and historic precedent During Forests and Fish negotiations.**
3. **The scientific data collected in Np studies contains a very small sample of potential outcomes that do not support the scope of inference needed to support a rule of this magnitude.**
4. **ECY's policy position asserting that there can be no allowable measurable temperature change is contrary to the biological opinion on Np streams included in the Forests and Fish Habitat Conservation Plan (HCP) which was promised to deliver 50 years of regulatory assurances.**

FATALLY FLAWED COST BENEFIT ANALYSIS (CBA) AND SMALL BUSINESS ECONOMIC IMPACT STATEMENT (SBEIS)

Industrial Economics Corp (IEc) was retained to complete the Cost Benefit Analysis (CBA) and Small Business Economic Impact Statement (SBEIS) for the Np rule as required for rule changes under Washington statute. While we appreciate that the SBEIS used NAICS codes relevant to the secondary impacts of the rule (i.e. are part of the multiplier effect of the proposed rule change), they miss the primary impacted stakeholder - the small forest landowners (SFL) themselves. Why? We note that in **RCW 19.85.040 "** *(c) A list of industries that will be required to comply with the rule. However, this subsection (2)(c) shall not be construed to preclude application of the rule to any business or industry to which it would otherwise apply*; "[emphasis added]. We have heard an interpretation of the RCW that suggests SFL aren't a covered group because they don't have a specific NAICS code. This is a ridiculous assertion as SFL collectively own 15% of Washington State's forest-land; are important enough to have their own RCW (76.13); will clearly be subject to these new rules; and bear significant impacts from the rule. Therefore, we assert that it is necessary to include them in the SBEIS per the underlined section of RCW 19.85.040 above.

Vic Musselman, a WFFA volunteer with over 50 years of forest land appraisal expertise participated in the ad hoc advisory committee to IEc while they completed the CBA and SBEIS. That means since the adhoc committee inception WFFA has provided detailed comments to support the IEc analysis, including links to data sources on small forest landowners when IEc asserted there were no data available. Given that the legislature had spent $500K (SB 5330 (2019)) to fund a UW study to address the question of the impact of regulations on small forest landowners, it was an egregious oversight on the part of IEc to ignore that data. From the 2019 data we know that current forest acreage in riparian buffers for SFLO averages 14% in western WA but in some southwest counties that average is as high as 27%. Individual landowners can have more than 60% of their forested acres in buffers. These forested acres are unavailable for harvest but are taxed and maintained by the landowner at their own expense. Currently (2025) there are over 200,000 forested acres in buffers in western Washington. The 2019 study identified 2.2 times as many miles of non-fish to fish streams, so we expected there would be a significant impact if the Np buffer rule were to go into effect. For many of the wetter regions of the state, we are already at a point where harvest is no longer

economically viable and therefore even FREP cannot be used to address this regulatory taking because it requires an adjacent harvest.

IEc's cavalier attitude towards asserting that there were no data to assess small forest landowner impacts was so egregious that we were forced to contract for data analysis ourselves. We had the University of Washington Natural Resource Spatial Infomatics Group (UW team) complete an assessment of immediate impacts of the Np rule building on prior work they have done in this space. The UW Team developed Washington's forest land database starting with its first iteration in 2007, with major updates in 2019 (ie. SB 5330) and then a significant improvement in timber volume assessment completed in 2024 in response to the Climate Commitment Act request for methods to aggregate carbon data for small forest landowners. Their unique state-of-the-art database was used to generate spatially explicit estimates of the impact of the proposed Np rule on western Washington's private forest landowners, including small forest landowners.

Unlike the other analyses submitted for this rule, (i.e. IEc CBA and the WFPA CBA), the UW Team's forestland database isn't a sample. It's a census. It maps every parcel, who owns it, identifies all forest land down to an acre in size, and integrates it with about 60 data layers in a sophisticated GIS system that can assess nearly any natural resource within Washington's boundary. The database has been used by nearly every natural resource state agency in Washington over the past 2 decades to answer their critical questions. From it we know that over 400,000 stream segments in the DNR hydro layer are untyped, meaning that they are predicted to be non-fish, but it is unknown if they are seasonal (Ns) or perennial (Np). It is also known from prior studies that the DNR hydro layer underestimates the number of streams found when field work commences prior to a timber harvest so estimates built from the hydro layer are likely to be an under-estimate of total impact.

Given that caveat, the UW Team applied the complicated formulas proposed in the Np rule to develop a robust estimate of the change in harvestable acres, timber volume, timber value and carbon value under current rule and under the Np rule proposal. Using the ratio of typed Np to Ns (60%) found in the hydro layer to estimate Np stream length and combining those values with currently typed Np waters the UW Team found that there are 204,000 – 206,000 acres that would no longer be harvestable under the Np rule. This accounts for partial harvest opportunities in the outer parts of the Np rule buffer. This is near the midpoint of the WFPA CBA and more than the IEc estimated upper bound.

Gradient Nearest Neighbor (GNN) data were used by IEc to generate their timber volume and value estimates. The UW Team used their (2024) AI model based on remote sensing, digital aerial photogrammetry (DAP), and all available DNR and US Forest Service (USFS) Forest Inventory and Analysis (FIA) plot data, to create species and volume estimates. The UW Team estimates are 25% better than the GNN (gradient nearest neighbor) data according to an independent evaluation of each method by the USFS FIA team.

Using Department of Revenue (DOR) data by species the UW Team calculated total stumpage value that would be lost to private landowners under the proposed rule. They were also able to generate an estimate of carbon value that would be taken from landowners if the rule is adopted. The changes in harvestable timber value are shown in Table 1 by county. Estimated lost value in Table 1 assumed Type Np streams would be closest to the Type F waters (Np Packed) and remove 204,000 acres from production. Values were calculated for all privately owned forested parcels over 5 acres (minimum size of Designated Forest Land (DFL) parcels).

The Real Costs

Table 1 shows that the current standing inventory that would be taken by the Np Rule has a current value of $1.8 Billion across all private forest landowners. The impacts are unequally distributed with four counties in SW Washington carry the brunt of the economic impact: Lewis (20.5%), Pacific (14.3%), Cowlitz (13.5%) and Grays Harbor (11.9%). Together these counties carry over 60% of the total timber volume and value loss attributable to the proposed Np rule. Lost land value, estimated at a conservative $900/acre, increases the immediate asset value loss to $2.0 Billion, or **double the upper limit of the IEc CBA cost estimate**.

The cost to landowners in lost asset value is just part of the economic cost associated with this rule. Each timber harvest generates Business and Occupation tax revenue to state and county coffers of approximately 5% or nearly $91M for current standing inventory (Table 1). The jobs associated with timber management, harvest, manufacturing, and downstream community impacts are also costs that will be borne disproportionately by the rural communities who depend on the timber economy as their mainstay. A 2021 study on the contribution of working forests to Washington's economy found that every million board feet harvested created 15 direct jobs, 36 total jobs and $106,481 in tax revenue. Using data from Table 1 and the 2021 study we can estimate that the tax reductions and job losses associated with the Np rule resulting from reduced timber harvest as shown in Table 2 – for the total asset loss and a yearly estimate based on a 40 year rotation.

Table 1: Immediate timber asset forfeiture resulting from application of the Np rule on western Washington's Private Forest Landowners by County.

Buffer 60% of Unknown As Np Packed (closest to fish streams) For all Western Washington Private Forest Lands for parcels with forest cover of 5 acres or more.							
Estimated immediate stumpage volume and value lost to the proposed Np buffer rule based on species specific log prices from DOR stumpage value tables Jan-June 2025 applied to forest inventory estimates generated from the UW NRSIG database.							Excise Tax Impact calculated at 5%
Impact ranking by lost asset value	County	Upland acres removed from production	Change in harvestable volume (MBF)	Change in Harvestable Value	Percent Change per County	Percent of Total Lost Value	Total for current standing inventory
6	Clallam	(9,726)	(200,073)	-$80,516,382	-4.4%	4.4%	-$4,025,819
16	Clark	(4,110)	(82,987)	-$33,573,601	-3.6%	1.9%	-$1,678,680
3	Cowlitz	(28,029)	(539,961)	-$245,379,803	-6.8%	13.5%	-$12,268,990
4	Grays Harbor	(24,123)	(481,721)	-$216,034,134	-6.3%	11.9%	-$10,801,707
19	Island	(219)	(7,993)	-$4,040,159	-0.5%	0.2%	-$202,008
10	Jefferson	(5,530)	(123,932)	-$54,796,467	-3.8%	3.0%	-$2,739,823
9	King	(6,644)	(158,713)	-$66,651,683	-3.0%	3.7%	-$3,332,584
17	Kitsap	(1,060)	(31,967)	-$15,275,802	-1.6%	0.8%	-$763,790
1	Lewis	(43,961)	(808,685)	-$371,170,148	-7.2%	20.5%	-$18,558,507
14	Mason	(3,839)	(85,393)	-$40,861,803	-2.2%	2.3%	-$2,043,090
2	Pacific	(32,136)	(601,160)	-$259,652,702	-11.9%	14.3%	-$12,982,635
7	Pierce	(8,741)	(179,462)	-$76,547,688	-3.2%	4.2%	-$3,827,384
18	San Juan	(249)	(8,166)	-$4,118,707	-0.4%	0.2%	-$205,935
5	Skagit	(9,083)	(230,261)	-$98,440,721	-4.3%	5.4%	-$4,922,036
15	Skamania	(4,175)	(79,342)	-$35,361,668	-5.2%	1.9%	-$1,768,083
12	Snohomish	(4,309)	(111,069)	-$47,836,337	-2.1%	2.6%	-$2,391,817
13	Thurston	(5,982)	(96,012)	-$44,907,647	-3.2%	2.5%	-$2,245,382
8	Wahkiakum	(7,249)	(156,599)	-$68,362,217	-10.9%	3.8%	-$3,418,111
11	Whatcom	(4,899)	(119,240)	-$50,614,605	-3.5%	2.8%	-$2,530,730
	Grand Total	(204,066)	(4,102,736)	-$1,814,142,273	-5.0%	100.0%	-$90,707,114

Table 2: Jobs and Tax losses from application of the Np rule on western Washington's Private Forest Landowners.

	* 2021 study	Np Volume reduction (from Table 1)	per year impact for 40-year rotation
Board Feet	1,000,000	4,102,736,408	102,568,410
direct jobs	15	61,541	1,539
Direct and indirect jobs	36	147,699	3,692
excise tax revenue		$90,707,114	$2,267,678
total tax revenue	$106,481	$436,863,475	$10,921,587

While the most recent IEc CBA asserts that carbon values are of minimal importance, they still include the carbon estimate as a benefit from the Np rule by asserting that the carbon value of retained buffers provided a worldwide benefit in reduced carbon emissions. That is false. If carbon were worth $380/ton as asserted in the social cost of carbon analysis, fiscally rationale timber companies would lock up all their timber land and just sell the carbon. They don't do that because the carbon value and purported benefit is not real. It is especially problematic for PNW westside forests because life cycle analysis of PNW forests conducted to international (ISO) standards shows that greatest carbon benefit to the atmosphere arises from keeping forests in long term management and also depends on how wood is used and for how long[1].

The IEc assertion is not only false, but the carbon value is on the wrong side of the ledger. Here's why. Removing the timber from production through regulatory fiat means that it's sale on a carbon market would not be possible because of additionality requirements – so the supposed benefit presented in the CBA is actually a cost (loss to the landowner) if a real market analysis were to be conducted. And that is even before we start to figure in the highly uncertain values on leakage and growth used in the estimation procedures, and the ignoring of displacement and substitution carbon benefits.

Using a conservative estimate of $50/ton of carbon, the UW Team calculated that the carbon value taken from landowners under the Np rulemaking is $461M. Table 3 shows that the total asset value forfeited by western Washington private forest landowners if this rule passes is easily $2.275B in today's dollars, exclusive of estimated lost land value of $184M. This DOES NOT include the lost downstream lost jobs, economic multiplier effects, and loss in future values shown in Table 2 and does not estimate the additional impacts lost revenue due to stranded timber (timber made inaccessible due to too many adjacent buffers), and/or additional road construction costs to reach otherwise stranded timber. The estimated overall economic impact for western Washington's rural economy using the UW Team data is about $6 billion based on relationships developed in the WFPA CBA submitted as part of this rule evaluation. These costs assume that our mill infrastructure can survive the supply shock that this Np rule would deliver. If the mill infrastructure were to decline as expected from this kind of supply reduction, the lost value would be even higher.

Table 3: Immediate timber and carbon asset forfeiture resulting from application of the Np rule by landowner type for western Washington's Private Forest Landowners.

	WWA SFLO (<2500 acres; 5-acre minimum parcel)	WWA Industry	Other (Conservation/Utility/ Real Estate and NIPF> 2500 ac)	WWA All Private
total lost timber value	-$276,884,015	-$1,455,510,007	-$81,748,251	-$1,814,142,273
total lost carbon value	-$69,221,564	-$372,289,183	-$19,913,690	-$461,424,438
total lost timber and carbon value	-$346,105,579	-$1,827,799,191	-$101,661,941	-$2,275,566,711

[1] https://corrim.org/wp-content/uploads/2022/11/The-Plant-a-Trillion-Trees-Campaign-to-Reduce-Global-Warming-Fleshing-Out-the-Concept.pdf

In addition to the costs borne by landowners and the economy the Np rule would increase FREP liabilities by about $250 million (90% of $277 million) for the small forest landowner category, and by an unknown amount from the "other" category if entities meet certain criteria. Typical biennial funding allotments for FREP are in the $3-5M range.

In short, the proposed Np rule would remove 200,000+ acres from the harvestable land base, remove nearly $2.3B in asset value (timber, land, carbon) from private forest landowners and at least 4.1 Billion Board Feet from the timber market. It will almost certainly result in the loss of some logging, milling, and marketing infrastructure and would most certainly result in reduced taxes to Washington state and its timber counties. It would also hold the state liable for Forest Riparian Easement Program payments which are estimated to triple (or more) under this rule. For many of the wetter regions of the state, we are moving towards a condition where at some point harvest is no longer economically viable and therefore even FREP cannot be used to address this regulatory taking because it requires an adjacent harvest. It also assumes that FREP continues to be funded – which is a big "if" given current state budget realities.

The Real Benefits

The IEc CBA claims that benefits exceed costs. That assertion is based on much lower estimates of costs than shown above. It is also based on general assumptions about perceived benefits that don't stand up to scrutiny – even using their own data. Willingness-to-Pay is a standard method used in economic analyses to estimate values for ecosystem services that have no market. This method generates a numeric estimate of benefits used to generate a Cost-Benefit (CB) ratio. Ratios less than one indicate that benefits do not exceed costs. While not shown in the executive summary, the IEc numeric willingness-to-pay assessment in the appendix can be used to calculate that costs exceed benefits even using their data from regions with no similarity to our west coast forests. From our WFFA volunteer with 50+ years of forest appraisal expertise (See Vic Musselman testimony) who sat on the IEc CBA adhoc committee.

> *In their April report, IEc states that the benefits identified by qualitative analysis outweigh the costs arrived at by a quantitative analysis that did not follow accepted forest valuation methodology. They estimated that the annualized cost of the loss in land value at a 2% discount rate ranges from $11 million to $35 million and at a 4.5% discount rate from $17 million to $54 million. In summarizing the benefits of the proposed new rule, IEc does attempt to quantify values for the benefits analyzed by estimating the present value of all benefits at $210 million over ten years at a 2% discount rate and $190 million at a 4.5% discount rate. Those numbers would work out to approximately an average of $21 million per year at 2% and $19 million per year at 4.5%.*
>
> *Using the reported annualized costs and my annual calculation of their benefits at a 2% DR, I have derived a series of cost benefit ratios as follows:*
>
> > *$21,000,000 / $11,000,000 = 1.91; $21,000,000 / $35,000,000 = 0.60*
> >
> > *At an average of the estimated annualized costs equal to $23 million, the ratio would be:*
> >
> > *$21,000,000 / $23,000,000 = 0.91*
>
> *Using the reported annualized costs and my annual calculation of their benefits at a 4.5% DR, the cost benefit ratios would be:*
>
> > *$19,000,000 / $17,000,000 = 1.12; $19,000,000 / $54,000,000 = 0.35*

At an average of the estimated annualized costs to $36 million, the ratio would be:

$19,000,000 / $36,000,000 = 0.53

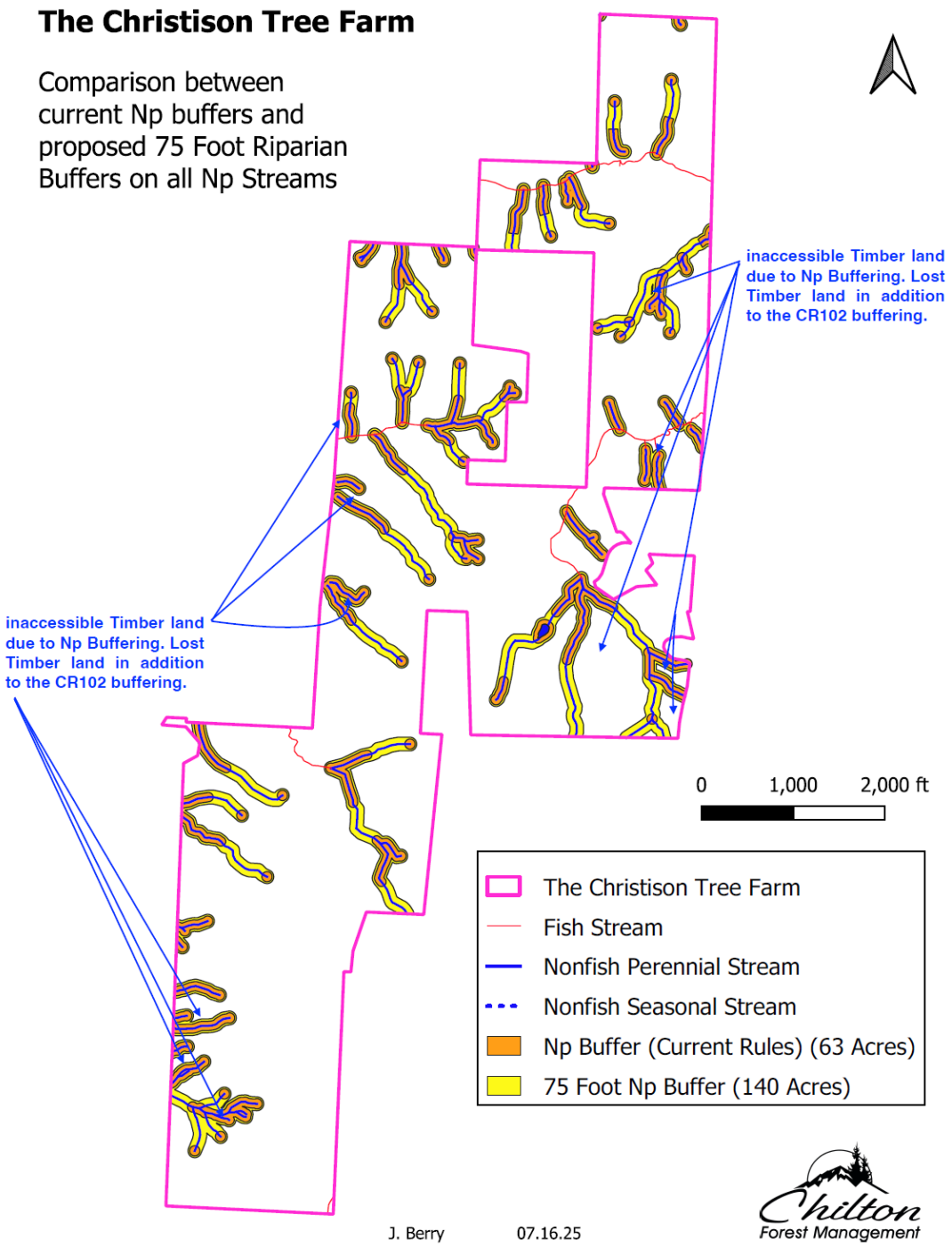
It is obvious that the benefits do not outweigh the costs as reported by IEc.

These calculated CB ratios are based on IEc willingness-to-pay estimates which were drawn from east coast sources where Forest Practices rely on Best Management Practices, not regulation. As such, they represent the willingness to pay for rare ecosystem elements, not common ones. Washington currently has over 50% of its forests in some kind of reserved status including over 200,000 forested acres in riparian reserves, most of which receive no payment for ecosystem values. We also have a subset of acres where payments for ecosystem services are provided to a subset of small forest landowners that meet certain criteria – namely the Forest Riparian Easement Program (FREP). FREP pays for an easement on the timber required to be left standing to support the ecosystem services inherent in buffers. Since its inception the FREP program has disbursed an average $1.6M/year of state appropriated funds. This amount more accurately represents what our state's citizens are willing to pay for the ecosystem services these riparian buffers provide, sometimes after significant lobbying efforts by WFFA when budgets are lean. If the 204,000 acres removed by the Np rule were harvested on a 40-year rotation the overall Benefit payment at Washington's current willingness-to-pay rate is equivalent to $320/acre or if a 50-year rotation, $400/acre. This calculation assumes that FREP would become available to all to support the purported ecosystem benefits these Np buffers provide. Clearly Washington's overall willingness-to-pay is much less than the current standing inventory value of $8,889/acre. Regardless of the qualitative values that one might feel are appropriate in this instance, real data from real examples in Washington state where ecosystem services are paid for by the general public indicate a willingness to pay ratio of 0.04 to 0.03 depending on if the timber is harvested on a 40 or 50-year rotation. In other words, using a willingness to pay methodology benefits are approximately 3-4% of costs, when examining only lost assets values, not downstream costs. Simply put, these data do not support the Forest Practices Board accepting the CBA findings as sufficient to proceed with the Np rulemaking as a least cost alternative.

Forest Riparian Easement Program

The IEc SBEIS supporting the Np rule asserts that there will be a disproportionate impact on small forest landowners, though they provide no data to support it. The IEc SBEIS asserts that because Washington has a Forest Riparian Easement Program (FREP), landowners will be compensated for this taking. In theory, 90% of the lost timber value could be obtained from the state under RCW 76.13.120 and RCW 76.13.140, if and when small forest landowners have an **adjacent commercially viable harvest**. This assumes that the stranded timber between adjacent buffers would be economically accessible and also assumes that the harvesting and milling infrastructure survives this supply shock so that an economically viable harvest is still possible. No analysis of either assumption has been included or even considered in the CBA and SBEIS. The additional economic costs – primarily additional road building, or more expensive harvest techniques, have not been considered either. As demonstrated by public testimony from a WFFA member (Christison Tree Farm) during the Longview hearing, a 10% reduction in available timber due to the Np buffer could easily become a 20% reduction due to stranded timber made inaccessible due to terrain and road limitations. This can be shown in Figure 1. There is no estimate of FREP liability for stranded timber, and no clear guidance of how much of it would be reimbursable under the program. While IEc claims that the process to develop the proposed Np rule included an economic analysis, a quick check with the Type Np workgroup lead indicates this is false. A simple model of ranking likely impact by number of acres removed from production is all that was considered in that workgroup. The majority report, which is the only Np proposal under consideration for this rulemaking did not choose options with the fewest number of acres, so the point is moot anyway.

Figure 1: Example of additional buffers and stranded (inaccessible) timber due to terrain and road access limitations. See full description in Christison Tree Farm testimony from 7/23/25. Used with permission.



Without considering the extra costs as noted above, and stranded timber as depicted in Figure 1, the estimated **extra** costs from the state budget to cover the regulatory taking from the Np rule change would be in the range of $250M (90% of 276M) based on current forest inventory and value, or about $12.5M

extra per biennium for true SFL only. It will be higher if FREP funds continue to be used for the "other" category identified in this analysis. WFFA works hard every biennium to advocate for full funding of FREP to meet current needs. In state budget deficit years, we struggle to meet that goal. In state budget surplus years, it's easier, but it is never easy to ensure that the funds are there to meet the need. Assuming FREP will have the funds to triple (or quintuple) its payments ($3-5M/biennium to $15.5-17.5M/biennium) to small forest landowners is not supported by historical precedent, or by current budget realities. The analysis of this impact and discussion with state legislators responsible for budget decisions on FREP are needed prior to advancing this rule.

In short, the Np rule is the most significant taking of private forestland, since the 1999 Forests and Fish law. How did we get here?

No change at no time in no place

The entire premise for the FPB's rule making proposal rests on Department of Ecology's novel and erroneous interpretation of the Tier II antidegradation rule. Specifically, that temperature change ≥0.3 °C in Tier II waters means current Np buffers violate water quality standards, and the only cure is to increase buffer widths and lengths as specified by Ecology.[2] That interpretation of Tier II antidegradation is inconsistent with the Tier II rule and Ecology's interpretation and application of that law since its adoption more than 20 years ago. Ecology's Tier II rule itself allows measurable temperature change in Tier II waters, so long as the regulated action does not violate the water quality criteria (i.e. 16^{o}C) and there are compensating public benefits.[3]

A BRIEF HISTORY

Discussions on these Np study findings were in play at the Policy table of the Adaptive Management Program (AMP)when the Department of Ecology introduced a new interpretation of the Tier II Antidegradation standard in 2019. That interpretation was that no temperature change is allowed beyond 0.3C (i.e. no measurable change), no matter if the water is already cold enough. Ecology's interpretation followed from a settlement agreement (SA) between EPA, Ecology, and Northwest Environmental Advocates. The SA included a provision to strike the specific cumulative warming allowance for nonpoint sources of 2.8 °C, or the designated use criteria whichever is less. Up to 2019 the warming allowance provision had been in WAC 173-201A-200 for many years, it still contains a warming allowance for point sources. The interpretation of Tier II began to shift, coincidentally, when it became clear harvest treatments of entire Np basins (something that is rarely done in practice, but was implemented for the science test) were not resulting in widespread exceedance of designated use temperature standards.

The glaringly obvious problem with using the no measurable change criterion (<0.3^{o}C) is that none of the treatments, including the reference (no-harvest) site met Ecology's modifed WQS criteria most of the time (Table 4). Only two reference (unharvested) sites meet the no-temperature-change criteria in year 2 post-harvest, only 1 in 4 of the continuous buffer sites meet the no-temperature-change criteria in year 8 and

[2] This does not concede that Ecology's Tier II antidegradation rule applies.

[3] *See e.g.*, WFPA letter to Ecology, p. 4 (Dec. 14, 2023) (quoting an Ecology email correctly stating how Tier II operates: "Also wanted to reiterate that we do allow degradation beyond measurable change – Tier II – so long as it meets [the overriding public interest analysis]"); WFPA letter to FPB, p. 6 (Aug. 4, 2023) (same); Tupper Mack Wells letter on behalf of WFPA to FPB, p.5 (April 7, 2023) (quoting Ecology's response to comments document on its 2003 adoption of the Tier II law: "Allowing degradation that doesn't violate the water quality criteria established to protect uses is consistent with state and federal laws and regulations on antidegradation. Tier II just ensures that such degradation is necessary and that it provides compensating public benefits."); K&L Gates letter on behalf of WFPA to FPB, p. 7 (March 15, 2023) (same).

even more surprising, only 1 in 4 of the continuous buffer sites and 2 of 4 unbuffered (cut to the stream bank) meet the no-temperature-change criteria for year 15. By these data, one could as easily assert that even no treatment will not achieve Ecology's stated Anti-degradation standard most of the time, but sometimes harvesting all the way to the stream bank will get you there (eventually). This suggests that we need to take a closer look at this unattainable, and as the Np workgroup stated - biologically irrelevant - temperature standard.

Table 4: Temperature Differences by Site relative to Pre-harvest – Hardrock Np sites

	Avg Temps by Period		
Treatment type	2yr change	8 yr change	15 year change
Control (unharvested) site	0.40	0.60	2.55
Control (unharvested) site	0.12	0.67	not measured
Control (unharvested) site	1.07	0.77	not measured
Control (unharvested) site	-0.10	0.95	0.50
Control (unharvested) site	0.38	0.88	0.53
Control (unharvested) site avg	0.37	0.77	0.66
Continuous 50' Buffer	0.45	0.50	1.00
Continuous 50' Buffer	1.33	0.53	0.43
Continuous 50' Buffer	1.38	0.13	-0.77
Continuous 50' Buffer	2.75	0.65	1.25
Continuous 50' Buffer Avg	1.48	0.45	0.48
Current Rule	0.97	1.32	0.77
Current Rule	2.50	2.75	1.20
Current Rule	0.40	0.70	1.90
Current Rule Avg	1.29	1.59	1.29
No buffer	1.57	0.52	0.17
No buffer	4.92	1.12	2.47
No buffer	3.20	1.05	1.90
No buffer	4.10	2.50	-2.20
No buffer Avg	3.45	1.30	0.58
Avg All	1.65	1.03	0.75

The Ecology 2019 Cost/Benefit Analysis (CBA) for the rulemaking which gave effect to this SA provision stated that there would be no societal costs or benefits associated with the rule amendment.[4] This finding does not align with the FPB's preliminary CBA for the proposed Np buffer rule making and it certainly doesn't align with the impacts generated using the UW Team's evaluation of current private forest land takings. This is perhaps why, at the last minute (April 24, 2025 Tier II preliminary findings memo from Ecology to the FPB), that Department of Ecology modified their interpretation of antidegradation of Tier II waters to suggest the 0.3C was a trigger and not a limit. Ecology's acknowledgement that tier II does allow for some temperature change >0.3 °C is an about face that must be reconciled with multiple verbal and written edicts provided to the AMP and the FPB from ~2019 - 2023 that 0.3 °C is a limit on temperature change. Their policy preference for no change has significant consequences as noted below in our discussion on the Type Np workgroup and its findings.

[4] WAC173-201A-revisions - Washington State Department of Ecology

Type Np Workgroup

The Type Np working group endeavored to use CMER Np science to come up with alternatives that worked for everyone. The original December 2018 FPB-approved charter for the Type N Technical Workgroup was to deliver a set of proposed Np Buffer alternative recommendations that met state water quality standards. There was no mention of designing alternatives specifically to prevent measurable temperature change. However, by the time the Technical Workgroup produced its May 2021 Final Report for TFW Policy, the goal had changed to meet the "measurable change standard," which the Technical Workgroup, following Ecology's direction, misinterpreted as prohibiting temperature increase ≥ 0.3°C.

The **Technical Workgroup noted the biological irrelevance of measurable temperature change in streams well below the designated use temperature criteria**. That is because the core summer salmonid habitat designated use criterion of 16 °C is geographically the most common criterion applicable on forestland subject to the Forest Practices Rules. The Hard and Soft Rock studies confirmed forest practices Np stream buffering and harvest treatment of entire Np stream basins in a single entry - an extreme harvest scenario rarely encountered in actual practice - are generally not exceeding this temperature criterion. Most Hardrock study sites using current Np buffer rules remained below the designated use temperature standard before, during and after harvest.[5] The Softrock study determined, "even the current Np stream harvest rules were unlikely to pose a great threat, thermally, to stream biota including amphibians" in the Np stream segments.[6] While the Hardrock and Softrock studies showed timber harvesting may temporarily increase water temperatures (by ~0.5 - 1 °C on average), most study streams were in the ~12-14 °C range before and after harvest. Temperature changes were also temporary, recovering in 3-4 years for Softrock treatment sites and 3-10 years for the Hardrock sites.[7] Temperature changes were also spatially limited, dissipating after the stream left the harvest area and passed through 100+ meters (~300 feet) of Type F stream buffer.[8]

The Type N Technical Workgroup noted that "[t]he Hard Rock and Soft Rock studies found the number of available sites that met study criteria extremely limited due to the limitation that harvests needed to virtually encompass entire basins.[9] The Technical Workgroup acknowledged that, in real-world forest practices, basin-wide harvest are rare.[10] The Technical Workgroup acknowledged that Hard and Softrock studies "**ability [to] inform us about treatment performance regarding the measurable change standard is limited.**"[11] "The metrics used in the Hard Rock and Soft Rock studies introduce additional uncertainty into our assessment of the measurable change standards, as they did not directly test compliance with the

[5] Aimee McIntyre et al., Type N Experimental Buffer Treatment Project in Hard Rock Lithologies: Phase II Extended Monitoring, Landscape and Wildlife Scientific Association Group, p. 7 (Nov. 9, 2021) (hereafter "Hard Rock Phase II"); Minority Recommendations to the Forest Practices FPB: Large Forest Landowners, Small Forest Landowners, Washington State Association of Counties, p. 9 (Oct. 10, 2022) (hereafter "Minority proposal").
[6] Technical Type Np Prescription Workgroup, Review of current and proposed riparian management zone prescriptions in meeting westside Washington State anti-degradation temperature criterion, Final Report, p. 43 (May 20, 2021) (hereafter "Technical Workgroup Final Report").
[7] Minority proposal, p. 10, 12 (recovery of 100% buffer sites within 2-3 years, current Np Buffer sites within 4-5 years, and 0% buffer sites within 9-10 years); Hard Rock Phase II, p. 9.
[8] Aimee P. McIntyre, et al., Effectiveness of Experimental Riparian Buffers on Perennial Non-fish-bearing Streams on Competent Lithologies in Western Washington, Cooperative Monitoring, Evaluation, and Research Committee, CMER#18-100, p. 7-35 (Sep. 2018) (hereafter "Hard Rock Phase I").
[9] Technical Workgroup Final Report, p. 40.
[10] *Id*. at p. 40.
[11] *Id*. at p. 48.

standard, rather approximate it."[12] The Type N Technical Workgroup stated, for example, that habitat protection could be achieved without avoiding measurable temperature change.[13] **The Technical Workgroup called measurable temperature change an arbitrary threshold; questioned its biological relevance; noted that measurable change dissipates quickly; noted salmon adapt to small temperature changes; and recommended alternative measurements be considered.**[14] Alternative approaches such as exposure duration or other methods of establishing thermal criteria and that lower the cost of proposed rules could be developed if TFW Policy was not seeking only to minimize measurable temperature change.[15]

Despite these Np Workgroup findings that question the underlying premise of no measurable change, the FPB, driven by the Department of Ecology's insistence that they, and only they, controlled the process for water quality standards, moved forward with this rulemaking. We assert that this is in error for the following reasons.

- In 1999, the Legislature adopted the FFR and directed changes to state laws and rules to satisfy the Endangered Species Act (ESA) with respect to salmon and other aquatic resources and the Clean Water Act (CWA) with respect to nonpoint sources of pollution attributable to forest practices.[16] The Legislature sought to manage water quality in harmony with "a viable forest products industry,"[17] "the public and private interest in the profitable growing and harvesting of timber,"[18] and in "compliance with all applicable requirements of federal and state law with respect to nonpoint sources of water pollution from forest practices."[19] The Legislature directed the FPB to adopt rules that accomplish the statute's goals and objective "**without jeopardizing the economic viability of the forest products industry**."[20]

- The parties to the FFR - including Ecology - did not select measurable temperature change of ≥0.3 °C as the limit for forest practices.[21] The parties identified Overall Performance Goals as represented by Resource Objectives and Performance Targets in Schedule L-1.[22] The parties' Overall Performance Goals were forest practices "will not ***significantly impair the capacity*** of aquatic habitat to: (a) Support harvestable levels of salmonids; (b) Support the long-term viability of other covered species; or (c) Meet or exceed water quality standards (protection of beneficial uses, narrative and numeric criteria, and antidegradation)."[23] The Goals contain the FFR's only reference to antidegradation.

- The parties - including Ecology - agreed *the FPB* would assess forest practices, and do so based on ***significant impairment***, not an indication of measurable change. By including the "significant impairment" language, the parties expected that streams subject to forest practices might show insignificant impairment, and this insignificant impairment would not necessarily require rule

[12] *Id*. at p. 49.
[13] *Id*. at p. 25, 70.
[14] *Id*. at p. 24, 25, 70.
[15] *Id*. at p. 15, 24, 68.
[16] RCW 77.85.180(2).
[17] RCW 76.09.010(1).
[18] RCW 76.09.010(2)(c).
[19] RCW 76.09.010(2)(g).
[20] RCW 76.09.370(2).
[21] *See* Forest and Fish Report, Schedule L-1, p. 156, codified in WAC 222-12-045(2)(a)(ii).
[22] Forest Practices HCP Schedule L-1
[23] Forest and Fish Report, Schedule L-1, p. 156 (emphasis added); *see also* WAC 222-12-045(2)(a)(ii).

revisions. In other words, no change at no time in no place (i.e. any measurable change) is not the standard for rule revisions and should not compel forest practices rule revisions.

- The Np Buffer rule proposed for adoption cannot be necessary to meet the statute's goals and objectives until the FPB determines current forest practices are not meeting the resource objectives.[24] The FPB never made the required determination (that existing rules are causing ***significant impairment of capacity*** to meet water quality standards) before determining the form of and need for rulemaking. Without the FPB having applied the standard (significant impairment of capacity), the FPB cannot determine that the rule is necessary to meet the objectives of the statute or evaluate the viability of different alternatives.

- We assert that the FPB has no failure of resource objectives. The resource objective is to "[p]rovide cool water by maintaining shade, groundwater temperature, flow, and other watershed processes controlling stream temperature." The performance target is "[w]ater quality standards - current and anticipated in next triennial review (e.g., for bull trout)." [25] The example reference to bull trout clearly means the performance target is the aquatic life designated use temperature criteria in WAC 173-201A-200 (e.g., 16 °C for core summer salmonid habitat), not the measurable change criteria in Tier II. By definition, Tier II waters are meeting the L-1 target and objective, and the overall performance goal for stream temperature because they are generally colder than the designated use temperature criteria.

We believe that removing the specific warming allowance for non-point sources while leaving the remaining language in WAC 173-201A-200 and 320 unchanged has the legal effect of the designated use criteria (e.g., 16 °C) becoming the warming allowance if found to be in the overriding public interest. Under this assumption, a path forward can be designed. It would mean that a temperature change ≥0.3 °C is a trigger for further analysis, not a hard limit. It means that a further examination of what CMER science is really telling us is in order.

CMER Science Findings on Np streams

In contrast to 1999, the Np rule taking does not address salmon recovery as the streams involved are - by definition - non-fish bearing. The data used to compel this rule were generated from 3 study locations (Willipa Hills, Olympic Peninsula and Cascades) with 16 total replicates across treatments. Rule proponents say adding these continuous buffers will result in cooler water flowing into our fish-bearing streams. There is no clear evidence in either direction to support this claim as for those few sample sites where downstream measurements were taken there was insignificant measurable change downstream; none of which exceeded the threshold for beneficial designated uses (16^{o}C) needed for our cold-water fish species. Where maximum harvest levels were tested, including full basin harvests, there were instances of too much temporary warming for some of our fish species, <u>if they had been in these waters</u>. These same tests also showed that current Np buffer rules on non-fish streams meet the maximum temperature thresholds (designated use threshold for coldwater fish species of which there are none in non-fish streams), even during the hot summers we've had over the past 15 years (Figure 2 – orange circled data). In fact, the current rule does as well as the no-treatment sites when averaged across the few locations used to develop these data (Figure 3).

[24] RCW 76.09.370(7).
[25] Forest and Fish Report, Schedule L-1, p. 158.

Figure 2: Np Hardrock 7 Day rolling average of Maximum Daily Temperature, Pre-harvest, Years 1&2 post-harvest, years 7&8 post-harvest and year 15 post-harvest by site and treatment type.

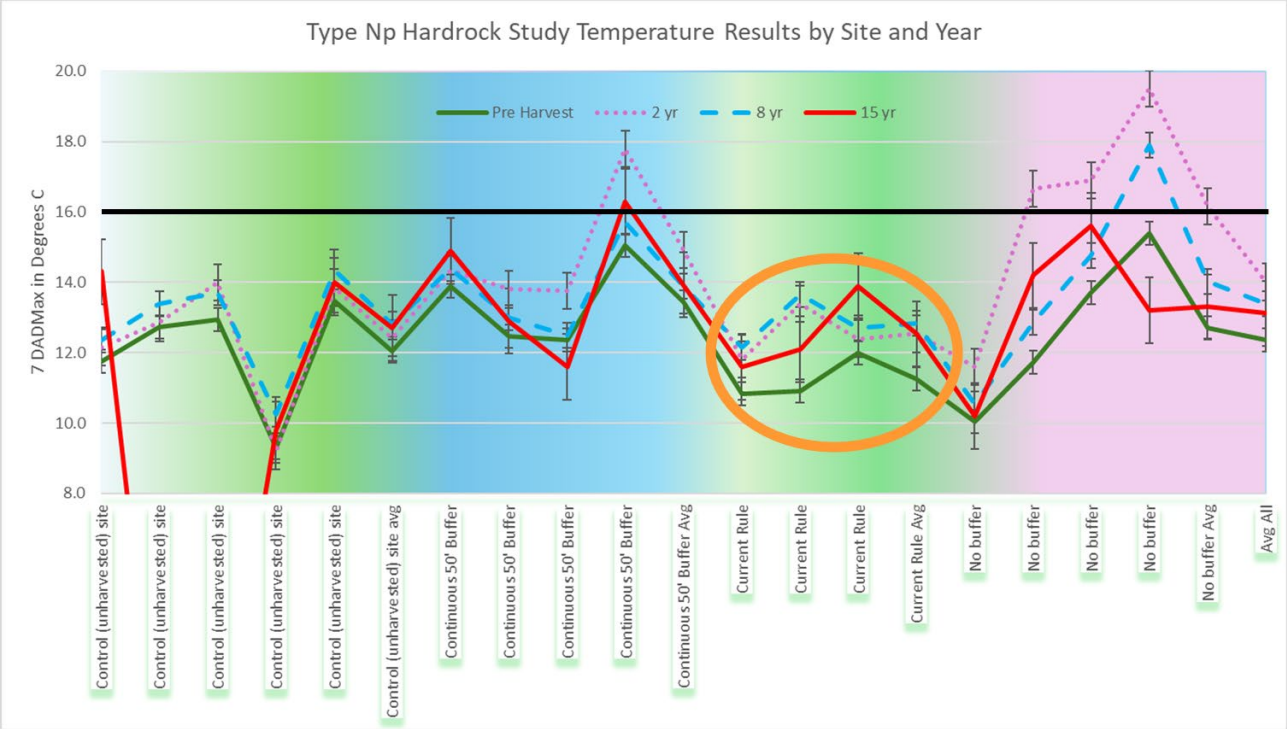
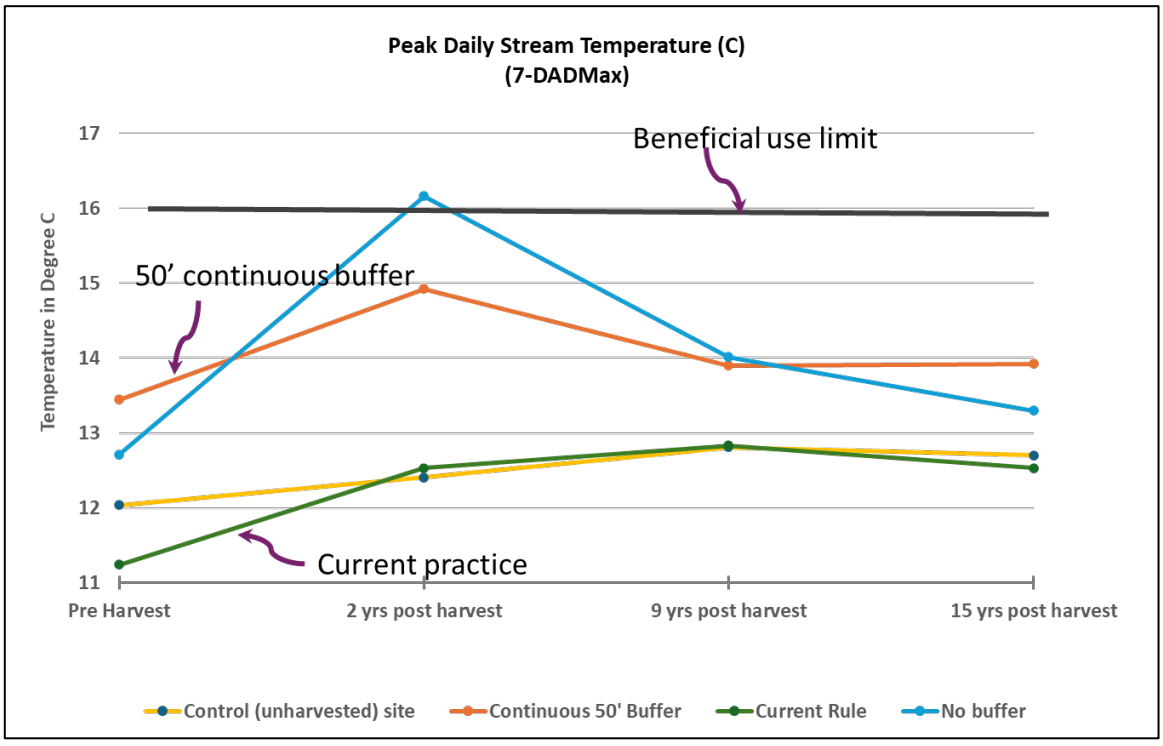


Figure 3: Np Hardrock 7 Day rolling average of Maximum Daily Temperature, Pre-harvest, Years 1&2 post-harvest, years 7&8 post-harvest and year 15 post-harvest average by treatment type.



Given the data shown in Figures 2 and 3 from CMER Np studies, one must ask "what is the benefit we are procuring for this enormous landowner, sector, county, and taxpayer cost?" By definition there are no fish in Np streams so what is the beneficial use that has to be quantified to compare to the costs? Will we have cooler water for downstream uses? Do we even know if the extra shade will be offset by reduced flows from keeping extra trees on site (i.e. extra evapotranspiration) within the system so that no measurable benefit occurs downstream where it is presumably needed? A hydrologic study of every basin would probably be needed to answer these questions with any certainty. However, based on what we see on the landscape we know that either alternative is likely – it is after all why we have this concept of hydrologic green-up. Each of these questions deserves further study which should be initiated as part of the CMER workplan, or via outsourced research if CMER decides to move in that direction. The results and the demands for greater certainty demand a broader understanding of impacts that can only be obtained with monitoring studies – that to date have been very low priority for everyone but the landowner caucuses.

Another alternative that could yield interesting and actionable results also flows from the CMER Np data. It is clear from the sampled site data that there are naturally warm(er) sites and cool sites(er). This finding is consistent with monitoring studies completed by large landowners as part of their HCP commitments. Naturally cool streams and naturally warm streams exist across the landscape. Data mining of site-specific attributes for each type of stream could be combined with a spatially explicit dataset such as that developed by the UW Team to identify areas of potential high/low concern. Utilizing these AI capable technologies combined with data mining techniques is likely to support targeted action with measurable benefits while minimizing costs when those areas of significant concern are identified.

WFFA participants in CMER believed that the Np results showed 'no smoking gun' – i.e. the rules were creating the expected results on the ground per Figures 1 and 2. However, that is not how the findings were taken up in the policy side of the AMP. Insertion of this 'no temperature change' criteria into policy discussions forced discussions into a narrowly constrained bucket of alternatives that ultimately led to the majority and minority reports on the Np buffer rule that came before the FPB in November 2022. Which begs the question: Why were WFFA participants so clear that these temperature increases noted in the Type Np studies were expected and of little consequence?

Forests and Fish HCP Biological Opinion

This section is a synthesis of comments from Bill Vogel, a retired wildlife biologist who formally worked with the US Fish and Wildlife Service (USFWS) where he was responsible for the majority of the Biological Opinion (B.O.) that supports the incidental take permit associated with our Forests and Fish Habitat Conservation Plan (FFHCP). We recommend you read his testimony in full as it has details that can move us past the current impasse.

The FFHCP is an agreement between Washington State and the US Fish and Wildlife Service that authorizes 'an incidental take permit' of listed species if timber harvest is conducted consistent with the Forest Practices Rules (FPR). The Biological Opinion (BO) for the incidental take permit discussed factors affecting stream temperatures, the large variability in those factors, and the poor relationship between temperature and shade. In the BO it was expected that the current Type Np rule would result in some warming of some Type Np streams. Specifically "… a number of Type Np and Ns streams may experience warmer water temperatures for a number of years following timber harvest." (p. 253, B.O.) This B.O. finding is consistent with the variability shown in Figures 2 and 3 for our hardrock studies.

This temporary warming is one of the factors that could lead to "take" for which an incidental take permit was provided to the State in the FFHCP. There are also some situations where warming could reach Type F streams that might result in an increase in stream temperatures within the Type F stream, but also situations where that was less likely. On Page 255 of the B.O., "In some unknown number of cases, increases in temperature may be delivered to downstream Type F waters. This is most likely in moderate-sized bedrock channels, where multiple streams converge in one area, where a single stream changes from Type Np to Type F, and where the sensitive site protections at the confluence of Type Np and F streams have been degraded." So from the outset, the USFWS knew the perennial non-fish portion of the HCP had the most risk with stream temperature increases immediately after harvest expected in some instances. However, they expected that as part of project implementation questions of "statistical significance" and "biological relevance" would be answered.

The Type Np workgroup did note that the warming was biologically irrelevant. Given that there are so few replicates on so few sites, statistical gymnastics are needed to find cause and effect relationships with the data available from these studies. In short, the proposed Np rule is not supported by the findings of the FFHCP biological opinion. Further, it makes a mockery of the "No Surprises" assurances of HCP and its expected 50-year lifespan. And it makes a mockery of the CMER science that is purported to support this rule change.

Questions that must be Addressed as Part of the CR102 process

Given the details on the fatal flaws leading up to Type Np CR102, we believe that the Forest Practices Board should decline to advance this rule to CR103. In support of this finding, answers to the following questions should be provided to the FPB to help in their deliberations.

Actual CB ratios, using IEc's own data indicate that benefits do not exceed costs. Ratios calculated using real data from Washington on willingness to pay metrics show benefits are about 3-4% of costs.

1. **Require a new CBA and SBEIS. If you are unwilling or unable to do so, please justify how the current CBA that characterizes costs, including the immediate asset forfeiture value of $2.275B to private forest landowners, and downstream impacts as high as $6B are somehow less than some amorphous, feel-good qualitative benefits as stated in the CBA you are using to justify the CR102 for the Np rule?**
2. **In that new CBA, identify a plan to reconcile the disproportionate regional impacts, particular as 70% of the impact is in SW Washington.**
3. **How will you ensure counties are made whole given the anticipated lost tax revenue in some of our most financially vulnerable counties and rural communities?**
4. **What strategies will be put forth to address the significant job losses anticipated from this rulemaking?**

Loss of viable markets are a likely outcome from the Np rulemaking.

1. **What economic recommendations will be put forth to address mill closures and lost jobs that are likely to accrue from this rulemaking?**
2. **How do these lost markets interfere with other western Washington policy goals concerning forest land conversion and forest health?**
3. **What recommendations will you endorse and support that will allow landowners to enroll reserved timber in proposed CCA carbon market schemes? How do you plan to ensure that these acres are still considered 'additional', and thus of value in the market place?**

Tripling FREP liabilities without legislature input and support, especially when the perceived public benefit is inconsistent with past commitments may overstep FPB authorities.

1. **How do you plan to address the substantial increase in FREP liability that this Rule creates?**
2. **What assurances can you provide that these liabilities will be honored?**
3. **How will you address the issue of increasing stranded assets (timber that is uneconomic to harvest) in relation to FREP payments?**

Given that the Department of Ecology has backed away from asserting that no measurable change (0.3C is a limit) and it is now just a recommendation (per their April 14th memo to the FPB):

1. **What steps will you be taking to address this changed interpretation and how it affects the proposal before you?**
2. **How do you plan to reconcile no measurable temperature change criteria in the Clean Water Act assurances with the clear acknowledgement and acceptance of change in Np streams identified in the FFHCP biological opinion?**

Thank you.

Elaine Oneil, PhD
Executive Director
Washington Farm Forestry Association
Stewards of the Land, For Generations to Come

Attachments (4):

Oral testimony from Dr. Elaine Oneil for:
July, 23, 2025 in Longview, WA
July 29, 2025 in Sedro Woolley, WA
August 4, 2025 in Port Angeles, WA
August 12, 2025 in Olympia, WA

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Testimony on CR102 for Np Buffer Rule, presented July 23, 2025, at Longview WA.

Chair Young and Members of the Board

I'm Dr. Elaine Oneil, Executive Director of the Washington Farm Forestry Association representing small forest landowners across the state. The more I learn about the intricacies and missteps in the development of the Np rule proposal, the clearer it becomes that to meet all objectives of TFW we need to start over. As in, what is the scope of inference we can make from these Np studies, and what areas provide obvious improvements and lower cost alternatives. This rule needs to be stopped or voted down.

You have seen this summary of the UW analysis of the Np streams on DNR hydro layer (Table 1). You heard how and why it was developed in May, and a summary of outcomes in June. The costs are astronomical: **200,000+ acres and 4.1 BBF removed from our working forests; $2.3Billion of immediate loss in asset value; a $250M increase in FREP liabilities; a $90M dollar reduction in forest excise tax to counties; and a $6B economic hit to our rural economies from lost economic activity.** In short **the most significant taking of private forestland since the 1999 Forests and Fish law**. Even using the lesser impacts predicted in your contracted CBA, the costs exceed the benefits. There is no way to justify the alternative before you as a lower cost alternative.

You've also seen this chart from Table 4A-4 of the Hard Rock Phase 2 report (Table 2). While I have significant concerns about the scope of inference for these studies and how it has been weaponized for this rule, just looking at these data one could conclude that the current F&F buffers do a better job of controlling temperature than the continuous buffers proposed in this rule. Since the biological opinion in the HCP regarding Np waters both expected these temperature changes and recognized them as temporary and biologically insignificant, there is no smoking gun. Amphibian results are equally ambiguous (Table 3). So why are we taking $6B in economic activity out of rural WA when the results do not indicate any significant harm and certainly no benefit from these continuous buffers?

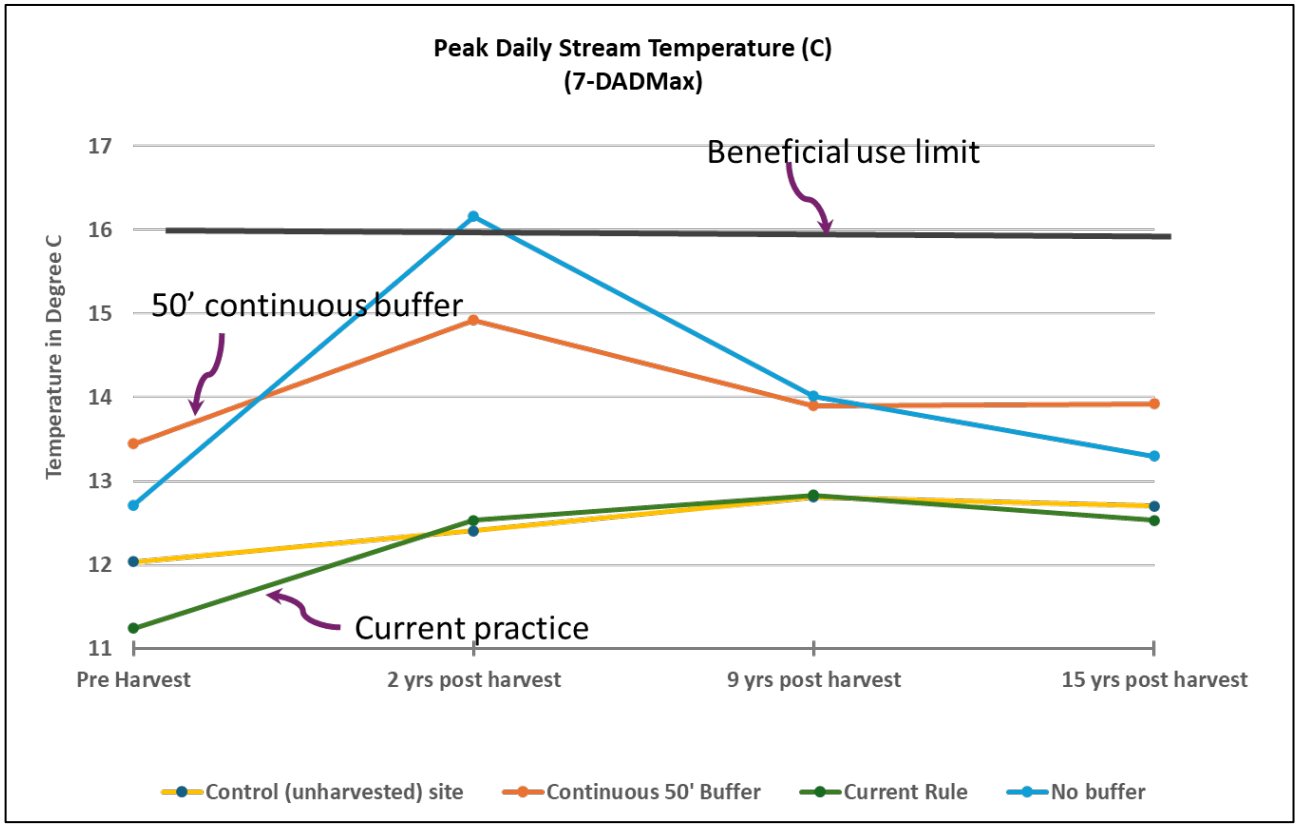
Which takes me to the CWA interpretation for Tier II waters that Ecology inserted into this process in 2018 or so. Their insistence that there can be no temperature change at no time in no place drove the TFW process and its alternatives. It doesn't make sense because this makes Tier II the same as other Tiers in the CWA. It is especially troublesome since their recent Tier II analysis states that the 0.3C limit imposed on the AMP process is suddenly a goal rather than a limit. It can't be both ways. In short, what overriding public interest are we serving by advancing the Np rule towards implementation given these economic and environmental results?

Table 1: Immediate timber asset forfeiture resulting from application of the Np rule on western Washington's Private Forest Landowners by County.

Buffer 60% of Unknown As Np Packed (closest to fish streams) For all Western Washington Private Forest Lands for parcels with forest cover of 5 acres or more.							
Estimated immediate stumpage volume and value lost to the proposed Np buffer rule based on species specific log prices from DOR stumpage value tables Jan-June 2025 applied to forest inventory estimates generated from the UW NRSIG database.							Excise Tax Impact calculated at 5%
Impact ranking by lost asset value	County	Upland acres removed from production	Change in harvestable volume (MBF)	Change in Harvestable Value	Percent Change per County	Percent of Total Lost Value	Total for current standing inventory
6	Clallam	(9,726)	(200,073)	-$80,516,382	-4.4%	4.4%	-$4,025,819
16	Clark	(4,110)	(82,987)	-$33,573,601	-3.6%	1.9%	-$1,678,680
3	Cowlitz	(28,029)	(539,961)	-$245,379,803	-6.8%	13.5%	-$12,268,990
4	Grays Harbor	(24,123)	(481,721)	-$216,034,134	-6.3%	11.9%	-$10,801,707
19	Island	(219)	(7,993)	-$4,040,159	-0.5%	0.2%	-$202,008
10	Jefferson	(5,530)	(123,932)	-$54,796,467	-3.8%	3.0%	-$2,739,823
9	King	(6,644)	(158,713)	-$66,651,683	-3.0%	3.7%	-$3,332,584
17	Kitsap	(1,060)	(31,967)	-$15,275,802	-1.6%	0.8%	-$763,790
1	Lewis	(43,961)	(808,685)	-$371,170,148	-7.2%	20.5%	-$18,558,507
14	Mason	(3,839)	(85,393)	-$40,861,803	-2.2%	2.3%	-$2,043,090
2	Pacific	(32,136)	(601,160)	-$259,652,702	-11.9%	14.3%	-$12,982,635
7	Pierce	(8,741)	(179,462)	-$76,547,688	-3.2%	4.2%	-$3,827,384
18	San Juan	(249)	(8,166)	-$4,118,707	-0.4%	0.2%	-$205,935
5	Skagit	(9,083)	(230,261)	-$98,440,721	-4.3%	5.4%	-$4,922,036
15	Skamania	(4,175)	(79,342)	-$35,361,668	-5.2%	1.9%	-$1,768,083
12	Snohomish	(4,309)	(111,069)	-$47,836,337	-2.1%	2.6%	-$2,391,817
13	Thurston	(5,982)	(96,012)	-$44,907,647	-3.2%	2.5%	-$2,245,382
8	Wahkiakum	(7,249)	(156,599)	-$68,362,217	-10.9%	3.8%	-$3,418,111
11	Whatcom	(4,899)	(119,240)	-$50,614,605	-3.5%	2.8%	-$2,530,730
	Grand Total	(204,066)	(4,102,736)	-$1,814,142,273	-5.0%	100.0%	-$90,707,114

If passed, this Np rule would increase FREP liabilities by about $250 million (90% of $277 million. Typical biennial funding allotments for FREP are in the $3-5M range. This rule would remove 200,000+ acres from the harvestable land base, remove nearly $2.3B in asset value (timber, land, carbon) from private forest landowners and 4.1 Billion Board Feet from the timber market. It will almost certainly result in the loss of some logging, milling, and marketing infrastructure. The estimated overall economic impact for western Washington's rural economy is about $6 billion. Four counties in SW Washington carry the brunt of the economic impact: Lewis (20.5%), Pacific (14.3%), Cowlitz (13.5%) and Grays Harbor (11.9%). Together these counties carry over 60% of the total timber volume and value loss attributable to the proposed Np rule.

Table 2: Average temperature plot from Table 4A-4 of the Hard Rock Phase 2 report



Note that F&F buffers were cooler and changed less than 100% continuous buffers on our study sites. Table 3 data show that the tailed frog larval density proportional changes were both the highest and lowest for the same lowest temperatures for each test period. (**bold** values)

Table3: Tailed frog larval density from Table 9-4 of the Hard Rock Phase 2 report

	Phase 1 (2yrs) Temp	Density	Phase 2 (8 yrs) Temp	Density
REF	**12.4**	**2.07**	**12.8**	**1.79**
100%	**12.5**	**4.28**	**12.8**	**0.13**
FP	14.9	2.83	13.9	0.62
0%	16.2	2.99	14.0	0.28

There doesn't seem to be an association (let alone a cause and effect) between the buffer treatments and temperatures or between tailed frog larval densities and temperatures.

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

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Testimony on CR102 for Np Buffer Rule, presented July 29, 2025, at Sedro Woolley WA.

Chair Young and Members of the Board

I'm Dr. Elaine Oneil, Executive Director of the Washington Farm Forestry Association representing small forest landowners across the state. The facts are that the **no change and no time in no place temperature limit** inserted into the process by Ecology is inconsistent with Tier II waters allowances under the CWA and is contrary to the Forests and Fish HCP which specifically allows for temperature change in Np streams. Therefore the proposed Np rule needs to be voted down. In its place we can and should re-evaluate what the Np data can tell us about the need for management change, if any. Given the paucity of sites, the scope of inference may be limited as stand-alone studies, but there are ample ways to utilize these data to identify areas that can provide improvements using remote sensing without obliterating an industry and the rural lifestyles and livelihoods that go with it.

At the last hearing I talked about the economic impacts of this rule, the Tier II analysis change, and the weaponization of these Np studies with their unsupportable scope of inference given the high variability in the data and lack of clear cause and effect between treatments and temperature. Today I want to focus on the CBA. Willingness-to-Pay is a standard method used in economic analyses to estimate values for ecosystem services that have no market. This method generates a numeric estimate of benefits used to generate a CB ratio. Ratios less than one indicate that benefits do not exceed costs. While not shown in the executive summary, the IEc numeric willingness-to-pay assessment in the appendix can be used to calculate that costs exceed benefits even using their data from regions with no similarity to our west coast forests. But we have excellent data on payments for ecosystem services that better represent our forests – namely the FREP program. It is a program that is available to a subset of landowners that meet certain criteria. It pays for an easement on the timber required to be left standing to support the ecosystem services inherent in buffers. Since its inception the FREP program has disbursed an average $1.6M/year of state appropriated funds. This amount represents what our state's citizens are willing to pay for the ecosystem services these riparian buffers provide, sometimes after significant lobbying efforts by WFFA when budgets are lean. If the 204,000 acres removed by the Np rule were harvested on a 40-year rotation the benefits would be equivalent to $320/acre or if a 50-year rotation, $400/acre if FREP were available to all. Both are a lot less than the current standing inventory value of $8,889/acre. Regardless of the qualitative values that one might feel are appropriate in this instance, real data from real examples in Washington state where ecosystem services are paid for by the general public indicate a willingness to pay ratio of 22 or 28 to 1. (0.04 to 0.03). These data show there is no case that can be made that benefits exceed costs. Given these overwhelming bad CBA ratios, what overriding public interest are we serving by advancing the Np rule towards implementation?

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

Washington FARM FORESTRY ASSOCIATION

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Testimony on CR102 for Np Buffer Rule, presented August 4, 2025, at Port Angeles WA.

Chair Young and Members of the Board

I'm Dr. Elaine Oneil, Executive Director of the Washington Farm Forestry Association representing small forest landowners across the state. *At the hearings I've talked about the economic impacts of this rule, the Tier II analysis change, the weaponization of these Np studies with their unsupportable scope of inference given the high variability in the data and lack of clear cause and effect between treatments and temperature, and the poor quality willingness to pay analysis in the CBA.* Data show that the CBA used to support this rule is fatally flawed. It must be redone. Regardless of the qualitative values that one might feel are appropriate in this instance, real data from real examples in Washington state where ecosystem services are paid for by the general public indicate a cost benefit ratio of 0.04 to 0.03. In other words, benefits are 3-4% of immediate lost asset costs. Even worse, this ignores system wide losses.

So I want to take a closer look at some system wide losses using carbon as an example. The CBA indicates that a minor social benefit, applicable to the whole world, exists from the extra carbon left on the landscape. Nothing could be further from the truth. The carbon value of the standing inventory at $50/ton is -$461,424,438. That is the lost value to the landowner should they choose to enter the carbon market – so if anything carbon should be in the cost column, not the benefit column. But if you want to keep it as a benefit you must look at the system wide impacts. The carbon benefit of using purpose grown trees for the wood products society uses accrues outside the forest. It can, and is, modeled in academic literature, but for public policy purposes it should be measured using internationally recognized standards. For the past 29 years, CORRIM, a team of scientists from 20 research institutions across the US have done just that. They have specific data for the PNW westside forests. Let's use their finding for lumber as an example. Carbon stored in DF/HW lumber is 898 kg CO2/m3, 839 CO2e/m3 net of emissions to produce it. But the biggest benefit is from the carbon impacts of building with wood vs alternative products. Using wood studs vs steel studs in building just 1 m2 of wall stores 17.97 kg co2 and offsets 16.92 kg co2e for a total of 34.89 kg co2e per m2 of wall. Those 15,000 houses that can no longer be built under this rule are causing a planetary emission equal to nearly 35 kg co2 per m3 (about 27 sf) of wall – just in the lumber, never mind the sheathing which also has a storage benefit. If its power poles we can no longer produce, the numbers are even worse – about 2.2 metric tons of extra emissions by using alternatives to wood for every pole we no longer produce. And by the way we produce a lot of them because we grow bigger wood than most other locations in the country. The list of harms to the atmosphere from taking productive PNW forest land out of production are manifold. A thorough analysis of those impacts should be done to fully inform this proposed public policy change.

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Testimony on CR102 for Np Buffer Rule, presented August 12, 2025, at Olympia WA.

Chair Young and Members of the Board

I'm Dr. Elaine Oneil, Executive Director of the Washington Farm Forestry Association representing small forest landowners across the state. *At the hearings I've talked about the economic impacts of this rule, the Tier II analysis change, the weaponization of these Np studies with their unsupportable scope of inference given the high variability in the data and lack of clear cause and effect between treatments and temperature, the poor quality willingness to pay analysis in the CBA, and the carbon consequences of this action.* Today I would like to discuss the concept driving this rule change – namely there can be no measurable change in water temperature at any time, in any place on Np streams. Regardless of any legal or process finding to the contrary, this idea that we can regulate a human activity to ensure no measurable change is nonsensical. Having spent nearly 20 years doing life cycle assessments I can tell you that everything we do has an impact – to the air, the water, the land. Every time you breathe out you release CO2. If you believe CO2 is a danger to society, then even breathing should be a problem for you. Every bit of food we eat has an impact. Every bit of clothing we wear has an impact. Every building we enter carries its own impact – both in its construction and operation – like the air conditioning we are all appreciating today. These things are all measurable and life cycle assessment science is the tool we use to identify opportunities for continuous improvement. To issue a blanket edict that there can be no impact from forestry operations near Np streams is not only unattainable- it is grossly unfair, and smacks of a hatred for the activity while using it's products like a profligate. Take this ruler for example. It represents the wood each person in the world uses every 25 minutes. Except here in the US – we use this much wood in 7 minutes. To advance this Type Np rule works against all of our interests in so many ways - yes there are local impacts to forest landowners, the forest sector and rural economies, but there are also worldwide impacts. For the wood products we don't produce here get produced elsewhere, almost always with a higher footprint. I know, I've done the math on that one and this is the best place in the world to produce structural wood products.

Advancement of this rule would be just another example of an emerging belief system here in Washington state that views people as apart from nature, instead of a part of it. It separates us from our land, eliminates stewardship, and exports our demand for wood products elsewhere. This 'not in my backyard' mantra really is an example of environmental imperialism at its worst. We can do better. We should do better. Please vote this rule down and start with a fresh look at what the CMER science is really telling us and how we might address the few problems that are apparent in that dataset.