WSR 25-13-101
PROPOSED RULES
FOREST PRACTICES BOARD
[Filed June 17, 2025, 3:32 p.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 21-24-070.

Title of Rule and Other Identifying Information: WAC 222-30-021 Type Np water buffer for western Washington. Proposed rules amend the riparian management zone buffers associated with Np stream segments to ensure the buffers protect water quality and other aquatic resources from potential temperature increases.

Hearing Location(s): On July 23, at 4:00 p.m., at McClelland Center, 951 Delaware Street, Longview; on July 29, at 4:00 p.m., at Northwest Conference Center, 703 Pacific Street, Sedro Woolley; on August 4, at 4:00 p.m., at Vern Burton Gym, Parks and Recreation Department, 308 East 4th Street, Port Angeles; and on August 12, at 4:00 p.m., at Office Building 2, 1115 Washington Street S.E., Auditorium, Olympia.

Date of Intended Adoption: November 12, 2025.

Submit Written Comments to: Patricia Anderson, P.O. Box 47012, Olympia, WA 98504-7012, email forest.practicesboard@dnr.wa.gov, beginning June 18, 2025, by August 12, 2025, 5:00 p.m.

Assistance for Persons with Disabilities: Contact forest practices division, phone 360-902-1400, by July 15, 2025.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: The purpose of this rule making is to change the buffer requirements for nonfish streams in western Washington. The rule change will create additional protections for riparian areas associated with Np stream segments to ensure the buffers protect water quality and other aquatic resources from potential temperature increases.

Reasons Supporting Proposal: The new rule will offer additional water quality protections to Type Np streams in western Washington.

Statutory Authority for Adoption: RCW 76.09.040 and 76.09.370.

Statute Being Implemented: RCW 76.09.370 and 76.09.010.

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: Forest practices board (board), governmental.

Name of Agency Personnel Responsible for Drafting: Maggie Franquemont, 1111 Washington Street, Olympia, WA, 564-233-8359; Implementation: John McEntyre, 1111 Washington Street, Olympia, WA, 360-280-2712; and Enforcement: Saboor Jawad, 1111 Washington Street, Olympia, WA, 360-742-7130.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is required under RCW 34.05.328. A preliminary cost-benefit analysis may be obtained by contacting Patricia Anderson, P.O. Box 47012, Olympia, WA 98504-7012, phone 360-890-0277, email forest.practicesboard@dnr.wa.gov or patricia.anderson@dnr.wa.gov.

Scope of exemption for rule proposal from Regulatory Fairness Act requirements:

Is not exempt.

The proposed rule does impose more-than-minor costs on businesses.

Small Business Economic Impact Statement (SBEIS)

Washington State Type Np Water Buffer Proposed Rule
April 23, 2025

Summary: The analysis in this report addresses the requirements of chapter 19.85 RCW that relevant agencies prepare an SBEIS if the proposed rule "will impose more-than-minor costs on businesses in an industry" (RCW 19.85.030). The proposed rule directly regulates forest landowners, a subset of which are businesses. This analysis identifies that the proposed rule is likely to result in more-than-minor costs to businesses, stemming from limitations on timber harvest in riparian forests. This analysis also finds that all affected businesses are most likely to be small businesses; therefore, the rule disproportionately affects small businesses. The analysis also identifies that the rule is likely to result in lost jobs due to restrictions in timber harvest across industries reliant on timber harvest for employment. In accordance with RCW 19.85.040, this SBEIS identifies steps taken to reduce the costs of the rule and opportunities to mitigate costs to small businesses, along with the other required elements of an SBEIS per the Washington Regulatory Fairness Act (RFA).

Section 1. Introduction: WAC 222-30-021 regulates timber harvest within riparian management zones (RMZs) in western Washington. These regulations include requirements for "riparian buffers," which are areas within a specified distance of the outer edge of a stream in which timber harvest is precluded or restricted. Riparian buffer size varies depending on site characteristics, including whether a stream is known fish habitat (Type F) or not fish bearing (Type N). Riparian buffers on Type N waters are designed to protect water quality, stabilize stream banks, provide habitat for riparian and aquatic species, and maintain stream temperatures. Buffering requirements differ between Type N streams that are perennial (Type Np) and that flow only seasonally (Type Ns). Type Np streams are typically found in the upper watersheds and headwaters in western Washington because they begin at the uppermost point of perennial flow.

In 2018, the Cooperative Monitoring, Evaluation, and Research (CMER) Committee's *Type N Experimental Buffer Treatment Project on Hard Rock Lithologies (Phase 1)* ("Hard Rock Study," McIntyre et al. 2018) determined that the current buffer prescriptions for forest adjacent to Type Np waters were insufficient to ensure that streams consistently meet state water quality standards with regard to stream temperature. Specifically, the water quality standards mandate no temperature increase of 0.3°C or greater (measured by the seven-day maximum temperatures) above natural condition (WAC 173-201A-200, 173-201A-300 - 173-201A-320)[1]. As a result, in May 2019, the board accepted the timber, fish, and wildlife policy committee's (TFW policy) recommendation that action was warranted as a result of these findings and directed TFW policy to develop a Type Np buffer recommendation for the board to minimize or prevent temperature increases in streams protected by rule-required riparian buffers (board 2022).

1 Water bodies can have a more stringent temperature criterion based on absolute seven-day maximum temperatures if they are designated for aquatic life or require special protection for salmonid spawning and egg incubation, or one-day maximum temperatures if specified under WAC 173-201A-602. The rules also allow for exceptions where ecology determines that lowering of water quality is necessary and is in the overriding public interest, per WAC 173-201A-320(4).

The 2019 action plan recognized that five additional CMER Type Np studies needed to be completed to complement the Hard Rock Study and better inform a Type Np buffer rule-making proposal. TFW policy established a working group to develop buffer options that would: (1) Minimize the likelihood of exceeding temperature standards in Np streams

after harvest; (2) reduce post-harvest withdrawals to maintain a future supply of large wood; and (3) mitigate economic impacts on landowners (Barnowe-Meyer et al. 2021). The working group developed and evaluated seven alternate prescriptions and concluded that three alternatives could best balance the trade-off between stream temperature protections and economic impact, as follows: (1) A 75-foot, two-sided, no-harvest buffer; (2) a site-specific buffer based on effective shade; and (3) an aspect-based buffer based on Np stream orientation.

Based on the findings of the CMER Hard Rock Study (McIntyre et al. 2021), a 2021 CMER Soft Rock Study (Ehinger et al. 2021), and the Technical Type Np Prescription Workgroup report (Barnowe-Meyer et al. 2021), the board proposes to update the Type Np water buffer rule. The RFA requires that the Washington state department of natural resources (DNR) prepare an SBEIS if the proposed rule "will impose more-than-minor costs on businesses in an industry." This report provides the required components of an SBEIS. Additionally, the preliminary cost-benefit analysis (CBA) of the proposed rule includes a more detailed description of the analysis of the costs of the proposed rule and informs this analysis of the costs incurred by small businesses.

1.1. Objective and Summary of the Proposed Rule: The board proposes to update the Type Np water buffer rule with a primary objective of improving temperature protections for Type Np streams in western Washington to achieve compliance with water pollution control laws (RCW 90.48.420, WAC 222-12-010) and meet the overall performance goals of the forest practices habitat conservation plan (HCP) and WAC 222-12-045 (2)(a)(ii)(C). The strategy to achieve the objective is a proposed rule that expands riparian buffers along Type Np streams relative to baseline conditions in order to prevent an increase in mean seven-day maximum water temperature of 0.3°C or greater from human activities above natural conditions per WAC 173-201A-320, or an increase above specified temperature thresholds on waters designated for aquatic life or else specified in WAC 173-201A-200 and 173-201A-602.

The proposed rule would amend the existing Type Np buffer requirements in WAC 222-30-021(2). Under the current rule, a 50-foot, no-harvest buffer must be established based on the length of the Type Np water from the confluence of Type S or F water (i.e., F/N or F/S breakpoint), with additional buffering around sensitive sites. In the proposed amended rule, sensitive sites must be identified and protected before establishing the Type Np RMZ and buffers. For topographic basins larger than 30 acres in which 85 percent or more of the basin is planned to be harvested within a five-year period, landowners must leave a two-sided, 75-foot, no-harvest buffer along the entire stream reach of each Type Np water.

In all other scenarios, landowners must first leave a two-sided, 75-foot, no-harvest buffer for the first 600 feet upstream from the confluence of Type S or F water, and then evaluate further buffer prescriptions based on bankfull width (BFW) and landowner management strategies. For each Type Np stream of three-foot BFW or greater, the landowner must identify either a partial management strategy or a no-cut strategy. The partial management strategy requires a 75-foot riparian zone, including a 50-foot no-harvest buffer and a 25-foot managed zone where up to 50 percent of trees may be harvested. The no-cut strategy requires a 65-foot no-harvest buffer along the stream reach. For all streams with BFW of less than three feet, landowners are required to leave a 50-foot, continuous no-harvest buffer along the remainder of the stream reach.

The changes in buffer requirements at any specific site are conditional on a range of factors including: Type Np stream length within the landowner-specific harvest unit, basin size, planned forest harvest extent, stream BFW, and other forest management strategies. In most cases, the proposed rule increases buffer width and length relative to the current rule. Table 1 summarizes requirements of the current rule, proposed rule, and changes under specific circumstances. The preliminary CBA of the proposed rule provides more information on the proposed rule requirements relative to the current rule.

Table 1. Proposed Changes to Buffer Requirements on Type Np Streams in Western Washington

Rule			Distance upstream of F/N break (feet)			
			<300'	300'-600'	600'-1000'	>1000'
Current Rule (Baseline)		For all Type Np streams (apart from those with sensitive sites)	50' no-harvest buffer	50' no-harvest buffer that is the greater of 300' or 50% of the entire length of the Type Np water		50' no-harvest buffer on the first 500' + additional % of total stream length
Proposed Rule	Rule Scenario 2	If basin>30 acres and >85% harvest planned within a five-year period	75' no-harvest buffer the entire length of the Type Np Water			
		Incremental change:	*Additional 25' buffer in lengths where buffer is required in the current rule; additional 75' buffer in lengths where no buffer is required in the current rule*			
	Rule Scenario 1A	If basin<30 acres and/or <85% harvest planned within a five-year period **+ partial management strategy and BFW>3'**	75' no-harvest buffer for the first 600' upstream from the confluence		50' no-harvest buffer along the entire stream reach in the harvest unit + additional 25' outer buffer representing 50% harvest zone (partial-harvest zone)	
		Incremental change:	*Additional 25' no-harvest buffer*	*Additional 25' no-harvest buffer, for up to an additional 300'*	*Additional 25' partial harvest buffer, length depends on stream reach length within harvest unit*	
		Scenario 1A, **if BFW<3'**	75' no-harvest buffer for the first 600' upstream from the confluence		50' no-harvest buffer along the entire stream reach in the harvest unit	
		Incremental change:	*Additional 25' no-harvest buffer*	*Additional 25' no-harvest buffer, for up to an additional 300'*	*No change in buffer width where it was required previously, additional 50' buffer where new buffer required; additional buffer length depends on stream reach length within harvest unit*	
	Rule Scenario 1B	If basin<30 acres and/or <85% harvest planned within a five-year period **+ no-cut strategy and BFW>3'**	75' no-harvest buffer for the first 600' upstream from the confluence		65' no-harvest buffer along the entire stream reach in the harvest unit	
		Incremental change:	*Additional 25' no-harvest buffer*	*Additional 25' no-harvest buffer, for up to an additional 300'*	*Additional 15' no-harvest buffer, length of new buffer depends on stream reach length within harvest unit*	
		Scenario 1B, **if BFW<3'**	75' no-harvest buffer for the first 600' upstream from the confluence		50' no-harvest buffer along the entire stream reach in the harvest unit	
		Incremental change:	*Additional 25' no-harvest buffer*	*Additional 25' no-harvest buffer, for up to an additional 300'*	*No change in buffer width where it was required previously, additional 50' buffer where new buffer required; additional buffer length depends on stream reach length within harvest unit*	

Note: The buffers and incremental changes described in the above table do not differentiate between the nuances of the current rule, where landowners must consider the total length of each separate Type Np stream system where at least a portion of the system is within their harvest unit, and the proposed rule, which emphasizes stream length within the landowner-specific harvest unit. Sensitive sites, as outlined in both the current and proposed rule, are also not accounted for in the buffers and incremental changes outlined above. As such, the changes described above are simplified representations of the proposed rule.

1.2. Requirements for an SBEIS: Chapter 19.85 RCW requires that the relevant agency prepare an SBEIS if the proposed rule "will impose more-than-minor costs on businesses in an industry" (RCW 19.85.030). "Minor cost" is defined in RCW 19.85.020 as a cost per business that is less than 0.3 percent of annual revenue or income, or $100, whichever is greater, or one percent of annual payroll (RCW 19.85.020). Per the SBEIS *frequently asked questions* guidance, agencies are required to consider "costs imposed on businesses and costs associated with compliance with the proposed rules" (Washington attorney general office 2021). Agencies are not required under chapter 19.85 RCW to consider indirect costs not associated with compliance with the rule. The SBEIS also requires consideration of whether small businesses are disproportionately affected by the costs of the rule. This report addresses the requirements of chapter 19.85 RCW.

Small Businesses vs. Small Forestland Owners (SFLs)

In Washington, a small business is defined as a business with 50 or fewer employees. Separately, the state defines SFLs as those who harvest less than an average timber volume of two million board feet per year (RCW 76.13.010 and 76.09.450). The term also generally applies to nonindustrial, privately owned forestland of less than 5,000 acres. While there is likely considerable overlap between affected small businesses and affected SFLs, the focus of this analysis is on small businesses.

Although this analysis attempts to mirror the terms and wording of the proposed rule, no attempt is made to precisely replicate the regulatory language and readers are cautioned that the actual finalized regulatory text, not the text of this analysis, is binding.

Section 2. Small Business Impacts: This section evaluates the potential economic impacts of the proposed rule on small businesses in Washington state. As outlined in the RFA and in accordance with other guidance and best practices, this SBEIS addresses the following questions (RCW 19.85.040):

1. What are the industries and universe of businesses that may incur costs as a result of this rule?
2. What are the likely costs of the rule to those businesses, including both compliance costs (e.g., for equipment, supplies, labor, professional services, or increased administrative costs) as well as potential lost sales or revenues?
3. Are those costs resulting from the rule anticipated to be more than minor?
4. Will the rule disproportionately affect small businesses?
5. What steps has the agency taken to reduce the costs of the rule on small businesses?
6. How has the agency involved small businesses in the development of the rule?
7. How many jobs may be created or lost as a result of compliance with the rule?

The subsections that follow address each of these questions.

2.1. Small Businesses in Relevant Industries: The proposed rule directly regulates owners of forestland immediately adjacent to Np streams in western Washington. In some cases, these forestland owners are businesses; in other cases, these landowners are private individu-

als and public entities, including state and local government. The preliminary CBA of the proposed rule finds that on the order of 23,000 SFLs, 11,000 other private landowners, and 440 government landowners may be affected by the proposed rule based on a comparison of the 2019 Washington State Forestland Database and DNR's map of streams in the state (WC Hydro). Analysis by the United States Endowment for Forestry and Communities reports that about 43 percent of all forestland in Washington is privately owned, and approximately half of that is owned by private corporations (Alvarez, n.d.). Among the landowners that we identify as likely affected by the proposed rule, we are unable to determine which portion are businesses. Even among the forestland owners that are incorporated as private businesses, they likely span a wide variety of industry classifications given the diversity of ways that forestland is used for business purposes. For example, due to recent interest in holding forestland as a financial asset, financial institutions (including timberland investment management organizations and real estate investment trusts) are among the industry types that could be subject to the proposed rule (Alvarez, n.d.).

As the proposed rule is relevant to all forest landowners (except federal and tribal entities) across western Washington, the scale of the analysis constrains our ability to accurately characterize the nature of all businesses that own forestland in affected riparian areas. To our knowledge, no publicly available data source exists that identifies the locations and uniform business identification information of small businesses that are landowners. Instead, we identify three North American Industry Classification System (NAICS) codes with businesses most likely to want to harvest timberland in riparian areas that are subject to the proposed rule:

113110 - Timber Tract Operations.

113210 - Forest Nurseries.

113310 - Logging.

While these three NAICS codes do not encompass all business types potentially affected by the proposed rule, they are the sectors most closely tied to the timberland management and harvest industries. We present information on these sectors to determine whether small businesses are disproportionately affected by the proposed rule and whether the costs of the proposed rule are more-than-minor.

Data provided by the Washington department of revenue (DOR) reveal that there was a total of 811 businesses identified using these NAICS codes in 2022 (and virtually the same number in 2021). Of these, approximately 99 percent meet Washington's definition of small business. RCW 19.85.020 defines a small business as, "… any business entity, including a sole proprietorship, corporation, partnership, or other legal entity, that is owned and operated independently from all other businesses, and that has fifty or fewer employees."

Based on data from DOR, all businesses in the "113110 - Timber Tract Operations" and "113210 - Forest Nurseries" industries qualify as small businesses. Table 2 presents these findings. Because the vast majority of businesses in the sample of affected industries are small businesses, *this analysis concludes that small businesses are disproportionately affected by the effects of the proposed rule.*

Table 2. Number of Small Businesses and Minor Cost Threshold in a Sample of Relevant Industries

NAICS Code - Industry Name	Total Number of Businesses in WA	Percent that are Small Businesses	Minor Cost Threshold for SBEIS Consideration (Based on Annual Revenue)
113110 - Timber Tract Operations	19	100%	$5,537
113210 - Forest Nurseries	25	100%	$5,740
113310 - Logging	767	99%	$6,970
Total	**811**	**99%**	-
Source: IEc analysis of data provided by the Washington department of revenue on May 2, 2024. The data characterize fiscal year 2022; very similar numbers were reported in 2021.			

2.2. Costs of the Proposed Rule Relative to Minor Cost Thresholds: For these sampled industries, we calculate the "minor cost" threshold associated with each (see Table 2). For all three, we determine that the minor cost measure derived from revenue data is the greatest of the three options (i.e., based on revenue, payroll, or $100).

Complying with the proposed rule requires that a landowner follow the new requirements for the buffer configurations around Np streams. In most cases, the proposed rule results in both wider and longer Np buffers, increasing the total buffer area and reducing available forestland for timber harvest. Costs to landowners accrue through two mechanisms:

1. ***Increased harvest restrictions on forestland reduce revenue potential of the affected land***: The proposed rule renders additional forested acres near Np streams unharvestable (or only partially harvestable), which reduces the potential future revenues associated with timber harvest for the landowners. Generally, the market value of a parcel of land reflects the discounted present value of expected future rents (i.e., income streams). For example, for forested land, market values include the discounted present value of income from future tree harvests and may include the discounted present values of income from alternative future uses of the parcel (e.g., for development). Accordingly, if a given use of a parcel of land is restricted, it will be worth less than its market value in the previously unrestricted state. Thus, the proposed rule restricting harvest (and associated revenues) results in a reduction in market value of the land, which is a cost to the landowner.

2. ***Increased cable harvest costs in some instances***: In areas that would rely on cable harvest methods absent the rule, increased no-harvest and partial-harvest buffers under the proposed rule are likely to result in increased harvest costs under some circumstances. There are two mechanisms through which the proposed rule increases cable harvest costs:

- For areas that experience an increase in *buffer width* (i.e., the current rule requires some buffer along the Np stream segment), there will be a longer yarding distance over which cables need to be strung, resulting in slightly higher costs and time associated with stringing cables.
- For areas that experience an increase in *buffer length* (i.e., new areas with buffers along Np stream segments that would not be buffered in the baseline), harvesters may need to create additional yarding corridors in order to reach harvestable timber, resulting in increased labor and materials costs. Tree falling to create yarding corridors often requires skilled fallers to ensure directional falling.

Calculating the costs of the rule for specific businesses would require data on the amount of forestland that abuts Np streams, as well as whether and to what extent harvesting timber could be more costly through the cable harvest option, which is very likely to be a site-specific determination. Data are not available to estimate the incremental costs of the rule to specific affected businesses in western Washington. Absent this data, we compare the estimated cost of the rule per Np stream mile with the minor cost thresholds to assess whether the rule is likely to result in more-than-minor costs for a typical business.

As described above, the costs associated with more complex cable harvest operations are highly site-specific. As such, we focus this analysis on the impacts associated with harvest restrictions specifically. We demonstrate these costs to landowners through two approaches: (1) Reduced land values associated with restrictions on harvest; and (2) lost stumpages sales associated with reduced harvest potential of the land. Importantly, these are alternative metrics for evaluating effects of the rule on landowners and both reflect the lost opportunity from timber harvest; therefore, the reduced land values and foregone stumpage sales are not additive effects.

2.2.1. Reduced Land Values:

2.2.1.1. Acres of Affected Forestland Per Np Stream Mile: This analysis relies on modeled geospatial data from Four Peaks as the basis for understanding how buffer extents are likely to change on a selection of Np streams in western Washington. Four Peaks developed synthetic stream networks to model riparian buffers for the proposed rule scenarios across approximately 263 miles of Type Np streams across 150 sample sites in four of the five ecoregions in western Washington. Detailed methods are provided in the Four Peaks report (2024). Four Peaks used this sample of concurred F/N breakpoints to evaluate the differences between (1) applying buffers to Type Np waters using buffer widths and extents defined under the current rule; and (2) buffer widths and extents defined by the proposed Type Np buffer rule for the same stream segments.

To simplify the many possible permutations of the rule that could exist across sites, the Four Peaks analysis offers three "scenarios" that correspond with different possible outcomes of implementing the rule. We aggregate across these scenarios by applying information on the probability of each rule scenario, then also average across sites within the synthetic stream network.[4] In doing so, we identify that the average Np mile is likely to require an additional 3.6 to 3.9 acres with no-harvest restrictions and an additional 0.16 to 0.19 acres with partial harvest restrictions. When treating each partial harvest acre as only "half" affected, we identify 3.7 to 4.0 acres affected per stream mile.[5]

4 Chapter 2 of the preliminary CBA for the proposed rule provides more details on our methods for using the data from Four Peaks.
5 See chapter 6 of the preliminary CBA for the proposed rule for the derivation of these numbers.

2.2.1.2. Lost Land Values Per Stream Mile: We worked with Atterbury Consultants, timberland appraisers experienced in western Washington, to access data from 15 timberland transactions that occurred in western Washington from 2019 to 2023, accounting for 120,000 total acres.[6] The data include a total sale price and total acres represented by the transaction, from which we derive a *market value per acre sold*. The data additionally identify the portion of the area that constitutes harvestable timber, from which we calculate a *market value*

per harvestable acre.[7] Based on practices employed by timberland appraisers, this analysis assigns a residual market value of $100 per acre for unharvestable land. That is, if timber harvest is precluded on an acre of forest land, the market value of that acre is reduced to $100.

6 Data provided by email from Atterbury Consultants on various dates between September and October 2024.

7 The transaction area also includes some unharvestable land (e.g., due to regulations or economic viability) as well as non-forest (e.g., rocks, roads, other infrastructure).
Atterbury's data identifies that on average 23 percent of the transacted area is unharvestable and therefore valued at $100 per acre per their appraisal methods. For example, consider a forestland transaction that included 100 acres valued at $100,000 where 80 acres was harvestable. The market value per acre sold would be $1,000 ($100,000/100 total acres), whereas the market value per harvestable acre would be $1,225 ($100,000-($100*20 unharvestable acres)/80 harvestable acres).

After converting all nominal values to real 2023 dollars using the gross domestic product (GDP) deflator, we observe an increase in average market prices over the five-year period between 2019 and 2023.[8] Given an increase in the real value of forestland over this time frame, we rely on the five most recent transactions (in 2022 and 2023) as the best estimate for forestland values when the rule goes into effect. Over this two-year period, we find that the average market value per acre sold was approximately $4,700 while the average market value per harvestable acre sold was approximately $6,000 (2023 dollars).

8 We adjust all land values to 2023 dollars using the GDP deflator (Source: Bureau of Economic Analysis, National Income and Product Accounts. Available here:https://apps.bea.gov/iTable/iTable.cfm?ReqID=19&step=4&isuri=1&1921=flatfiles. See Section 1 "Domestic Product and Income," Table 1.1.9 "Implicit Price Deflators for Gross Domestic Product," Line 1 "Gross Domestic Product." Accessed February 3, 2025.)

To estimate the *change* in land values per acre attributable to the proposed rule restrictions on harvest in Np buffer areas, we make the following assumptions:

- **Value of harvestable acres:** We rely on the average land values per acre to value forestland not subject to harvest restrictions absent the rule. We apply the average *value per acre sold* at the low end under the assumption that land within the buffers represents a mix of harvestable and unharvestable land absent the rule. At the high end, we apply the average *value per harvestable acre* under the alternate assumption that all acres affected by the rule would be harvestable but for the proposed rule.
- **Value of unharvestable acres:** As described above, we apply conventions used in the timberland appraisal industry that assign a market value of $100 per acre to unharvestable land included in timberland purchases. This value reflects the fact that the land has a nonzero value, which is $100 on average although the specific magnitude will vary by site and context. We assume that all acres that fall within "no harvest" buffers are valued at this level once the proposed rule goes into effect.

Table 3 summarizes these inputs as well as the resulting change in market value when an acre of land goes from harvestable to unharvestable (i.e., $4,600 at the low end; $5,900 at the high end).

Table 3. Change in Forestland Values per Acre Attributable to the Rule (2023 Dollars)

Year of Sale	Low-end	High-end
Market value of harvestable	$4,690	$6,007
Market value of unharvestable	$100	$100
Difference harvestable - unharvestable	**$4,590**	**$5,907**

Year of Sale	Low-end	High-end
Source: IEc analysis of data from Atterbury Consultants described in the main text.		

We multiply the changes in forestland values presented in Table 3 by the total number of acres with harvest restrictions per Np stream mile identified above. In doing so, we estimate that the lost land value per typical Np stream mile is on the order of $17,000 at the low end and $23,000 at the high end.

2.2.1.3. Number of Np Stream Miles Affected to Reach Minor Cost Threshold: Finally, we compare these estimated average land value losses per Np stream mile to the minor cost thresholds for the relevant industries presented in Table 2. Across the three affected industries, a typical small business would need to own forestland that intersects 0.3 to 0.4 Np stream miles for the rule to impose a minor cost. The preliminary CBA of the proposed rule identifies between 19,000 and 44,000 Np stream miles in western Washington likely to be subject to the proposed rule. **Therefore, under this approach, it is highly likely that small businesses will experience more-than-minor costs stemming from the proposed rule.**

2.2.2. Lost Stumpage Sales: Another approach to estimating the costs of the rule on affected landowners is through lost stumpage sales, a direct measure of lost revenue.

2.2.2.1. Reduction in Annual Timber Harvest: To estimate the impact of the proposed rule on stumpage sales, we require information on how the proposed rule is likely to affect timber harvest. The preliminary CBA of the proposed rule provides an in-depth analysis of data from Four Peaks as well as an understanding of the extent of Np streams in western Washington that results in the following estimates:

- **Low end:** 67,000 acres of no-cut buffers and 2,900 acres of partial-cut buffers.
- **High end:** 170,000 acres of no-cut buffers and 8,600 acres of partial-cut buffers.

To translate these numbers of restricted harvest acres to reductions in timber harvest, we use 2017 data from two sources to estimate the average timber harvest per acre of available timberland across private, state, and other local land: Data from the Pacific Northwest Forest Inventory and Analysis (FIA) to identify the total timberland available and data from the Washington Timber Harvest Reports (DNR 2018). Across counties in western Washington, these data identify approximately 7.1 million total timberland acres and a harvest of 2.31 thousand board feet (Mbf) across those acres in the same year.[9,10] This results in an average harvest rate per available acre of approximately 325 bf/acre/year across the counties in western Washington.

9 DNR (2018, page v) identifies harvest volume in western Washington from 2017 as follows: 1,798,044 Mbf from private land, 471,027 Mbf from state lands, and 38,432 from other public lands.

10 We acknowledge that the 7.1 million acres of private (5.3 million acres), state (1.4 million acres), municipal (330,000 acres), and other non-federal public land (12,000 acres) from the 2017 FIA data fall within the range of other estimates of regulated forestland described elsewhere in the preliminary CBA for the proposed rule, including 8.2 million acres of non-federal, non-tribal, and non-state HCP land identified in spatial landownership data from Atterbury Consultants and the 6.1 million acres of land in western Washington DNR describes as subject to the forest practices HCP. One of the major differences across these estimates is the treatment of land subject to the state lands and other HCPs. For this calculation, we rely on the FIA 2017 data to align the acres with the harvest volume by the same landowner types from DNR (2018).

Restricting timber harvest in one area may result in more aggressive harvests in other areas, offsetting the overall reduction in timber harvest. Most of the publications that explore leakage describe effects across a global market for timber, not regional markets. Given

uncertainty regarding this parameter, we apply two assumptions about leakage as a range:

- A publication by Murray et al. (2004) uses data from Wear and Murray (2003) from the western United States to estimate a "regional" leakage rate of 43 percent. In other words, 43 percent of restrictions on harvests were replaced by other harvest within the same region. Using this rate, we assume that 57 percent (one minus 43 percent) of the restricted harvest in western Washington is truly lost from the broader region. We apply this assumption to our low-end scenario.
- The data used to derive the above rate is relatively old (from the period 1990 to 1995), and harvestable forestland in Washington is scarcer today on account of regulatory and other restrictions (e.g., forest management preferences, conservation easements, etc.). To provide perspective on the total regional economic impacts if displaced harvest from Np buffers cannot be absorbed by harvest in other parts of the region (i.e., meaning leakage is more likely to occur outside of Washington), we include a high-end estimate that assumes no leakage within the region. That is, harvest lost in riparian Np buffers is lost entirely.

This results in a reduction in an annual loss in timber harvest on the order of 13,000 Mbf at the low end and 57,000 Mbf at the high end.

2.2.2.2. Reduction in Stumpage Sales: The losses in stumpage sales to landowners are quantified using available information from the Mason, Bruce & Girard, Inc. (2022) report titled, *Contribution of Working Forests to the Washington State Economy: 2021*. The study relies on employment census data for calculating direct effects, primarily from the Quarterly Census of Employment and Wages from Washington and the Bureau of Labor Statistics. Revenue information comes from the DOR data. Indirect and induced effects rely on the Bureau of Economic Analysis RIMS II input-output model multipliers.

Mason, Bruce & Girard, Inc. (2022) report stumpage sales and harvest by Washington county for the year 2021.[11] We first calculate stumpage sales per timber harvest volume (i.e., per million board feet) at the county level by dividing the sales by the total timber harvest by county. Then, we aggregate across counties in western Washington. This process yields an estimate of approximately $360,000 in stumpage sales per million board feet (MMbf) of timber harvest (2023 dollars). Applying this rate to the estimated annual decrease in timber harvest due to the proposed rule yields a range of $5.1 million to $23 million in lost stumpage sales to landowners in western Washington in a given year (based on 2021 stumpage sales and harvest levels).

11 Table 7 of the source study provides stumpage sales by county while Table 12 of the source study provides harvest, both in 2021 specifically.

Distributed across the approximately 34,000 landowners identified in section 2.1 as potentially affected by the proposed rule, this equates to roughly $150 to $680 in lost revenue per year per landowner on average. In reality, revenue losses will only be experienced in the years when harvest would occur absent the rule and will be distributed disproportionately across affected landowners.

Data in Mason, Bruce & Girard, Inc. (2022) identifies approximately $840 million in stumpage sales across western Washington in 2021. The lost annual stumpage sales attributable to the proposed rule are likely on the order of 0.6 percent to 2.7 percent of total stum-

page sales across these counties in a given year, which is greater than the "0.3 percent of annual revenue or income" that defines the minor cost threshold described above (per RCW 19.85.020). While not a measure assigned to specific businesses, **this alternate approach also demonstrates it is highly likely that small businesses will experience more-than-minor costs stemming from the proposed rule.**

2.3. Disproportionate Economic Impact Analysis: When proposed rule changes impose more-than-minor costs to businesses, the RFA (RCW 19.85.040) requires an analysis that compares the cost of compliance for small business with the cost of compliance for the 10 percent of businesses that are the largest businesses required to comply with the proposed rules to determine whether the costs are considered disproportionate. The RFA (RCW 19.85.040(1)) describes the following formula for determining disproportionate impacts:

$$\frac{C_s}{A_s} > \frac{C_L}{A_L}$$

Where:

- *C* indicates the cost of compliance,
- *A* indicates an adjustment factor (total number of employees, total sales, or total labor hours),
- *S* subscripts denote small businesses (those with 50 or fewer employees) required to comply with the proposed rule, and
- *L* subscripts denote large businesses (the top 10 percent) required to comply with the rule.

If the analysis finds that the inequality condition is met, the proposed rule is considered to have a disproportionate impact on small businesses. As described above, data limitations prevent precise identification of sectors, industries, or particular businesses that may be affected. Therefore, there is no way to empirically perform the analysis. **However, given that the firms within the industries affected are effectively all small businesses, we find that the costs are likely disproportionately borne by small businesses.** Accordingly, this SBEIS identifies and documents cost mitigation strategies.[12]

12 In the absence of sufficient data to calculate disproportionate impacts, an agency whose rule imposes more-than-minor costs must mitigate the costs to small businesses, where legal and feasible (RCW 19.85.030(4)).

2.4. Steps Taken to Reduce Costs of the Rule: Before selecting a proposed rule, the board undertook extensive research into different possible options for the composition of Np buffers. In early 2019, TFW policy established a working group to develop buffer options that would: (1) Minimize the likelihood of exceeding temperature standards in Np streams after harvest; (2) reduce post-harvest withdrawals to maintain a future supply of large wood; and (3) mitigate economic impacts on landowners. The working group developed and evaluated seven alternate prescriptions and concluded that three alternatives could best balance the trade-off between stream temperature protections and economic impact. Therefore, consideration of economic impacts has been part of the rule development process from the onset.

DNR also provides significant technical and financial assistance to reduce the burden of compliance with existing forest practices rules. In 1999, the Washington state legislature determined that the regulatory requirements for forestland were "diminish[ing] the economic viability of small forest landowners" and established the small forest landowner office to serve as a resource and focal point for SFL

concerns and policies (RCW 76.13.100). This office provides assistance to eligible SFLs to help them meet the requirements of legislation with significant cost implications. To date, the small forest landowner office has implemented several programs that reduce the compliance costs for businesses. The forestry riparian easement program, in particular, compensates SFLs for the loss of revenue associated with lost timber harvest in riparian buffer areas. Given the expected overlap between SFLs and small businesses in Washington state, these programs are expected to continue to mitigate the cost of compliance with forest practices rules for small businesses by transferring some portion of the compliance costs back to the state government.

Given the finding that the proposed rule generates disproportionate impacts on small businesses, the board and DNR should consider the following types of cost mitigation strategies according to RCW 19.85.030, as relevant and where legal and feasible, in meeting the stated objectives of the statutes upon which the rule is based:

(a) Reducing, modifying, or eliminating substantive regulatory requirements;

(b) Simplifying, reducing, or eliminating recordkeeping and reporting requirements;

(c) Reducing the frequency of inspections;

(d) Delaying compliance timetables;

(e) Reducing or modifying fine schedules for noncompliance; or

(f) Any other mitigation techniques including those suggested by small businesses or small business advocates.

2.5. Involvement of Small Businesses in the Rule-making Process: Throughout the rule development process, the board and DNR engaged with SFLs (which are likely small businesses). Small businesses were involved in the proposed rule development through the inclusion of the industrial forest landowner (some industrial landowners are small business) and SFL caucuses in:

- The development of TFW policy committee recommendations to the board of elements for inclusion in the revised Np buffer rule;
- Stakeholder meetings for the draft rule; and as
- A board member representing SFLs.

2.6. Impact on Jobs: The proposed rule may impact jobs in western Washington through the reduction in harvestable timber. Mason, Bruce & Girard, Inc. (2022), described in more detail in section 2.2.2.2, also calculates the number of jobs across several industries that are directly reliant on timber harvest: Forestry and logging, wood products manufacturing, and transport. Importantly, this larger list of industries goes beyond the regulated landowner businesses that are the subject of this SBEIS.

Following the same approach described in more detail in section 2.2.2.2, we estimate 14 job-years per MMbf of timber harvest across the industries listed above.[13,14] Applying this rate to the estimated annual decrease in timber harvest yields a range of 150 to 710 lost job-years. This is equivalent to approximately 0.5 percent to 2.2 percent of all jobs that fall into these categories.

13 Table 12 of the source study provides number of "direct jobs" per MMbf by county, which includes employment in the various industries described in the main text.

14 Job-years are a measure of the number of jobs (filled jobs, including full-time or part-time, and temporary or permanent) in a year.

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June 17, 2025
Leonard S. Young

RDS-6299.4

AMENDATORY SECTION (Amending WSR 13-21-032, filed 10/8/13, effective 12/30/13)

WAC 222-30-021 *Western Washington Type S and F Waters riparian management zones. These rules apply to all ((~~typed~~)) Type S and F Waters on forest land in Western Washington, except as provided in WAC 222-30-023. RMZs are measured horizontally from the outer edge of the bankfull width or channel migration zone, whichever is greater, and extend to the limits as described in this section. See board manual section 7 for riparian design and layout guidelines.

*((~~(1)~~)) **Western Washington RMZs for Type S and F Waters** have three zones: The core zone is nearest to the water, the inner zone is the middle zone, and the outer zone is furthest from the water. (See definitions in WAC 222-16-010.) RMZ dimensions vary depending on the site class of the land, the management harvest option, and the bankfull width of the stream. See tables for management options 1 and 2 below.

None of the limitations on harvest in each of the three zones listed below will preclude or limit the construction and maintenance of roads for the purpose of crossing streams in WAC 222-24-030 and 222-24-050, or the creation and use of yarding corridors in WAC 222-30-060(1).

The shade requirements in WAC 222-30-040 must be met regardless of harvest opportunities provided in the inner zone RMZ rules. See board manual section 1.

((~~(a)~~)) (1) **Core zones.** No timber harvest or construction is allowed in the core zone except operations related to forest roads as detailed in this subsection ((~~(1) of this section~~)). Any trees cut for or damaged by yarding corridors in the core zone must be left on the site. Any trees cut as a result of road construction to cross a stream may be removed from the site, unless used as part of a large woody debris placement strategy or as needed to reach stand requirements.

((~~(b)~~)) (2) **Inner zones.** Forest practices in the inner zone must be conducted in such a way as to meet or exceed stand requirements to achieve the goal in WAC 222-30-010(2). The width of the inner zone is determined by site class, bankfull width, and management option. Timber harvest in this zone must be consistent with the stand requirements in order to reach the desired future condition targets.

"Stand requirement" means a number of trees per acre, the basal area and the proportion of conifer in the combined inner zone and adjacent core zone so that the growth of the trees would meet desired future conditions. The following table defines basal area targets when the stand is ((~~one hundred forty~~)) 140 years old.

Site Class	Desired future condition target basal area per acre (at 140 years)
I	325 sq. ft.
II	325 sq. ft.

Site Class	Desired future condition target basal area per acre (at 140 years)
III	325 sq. ft.
IV	325 sq. ft.
V	325 sq. ft.

Growth modeling is necessary to calculate whether a particular stand meets stand requirement and is on a trajectory towards these desired future condition basal area target. The appropriate growth model will be based on stand characteristics and will include at a minimum, the following components: The number of trees by diameter class, the percent of conifer and hardwood, and the age of the stand. See board manual section 7.

((~~(i)~~)) (a) **Hardwood conversion in the inner zone.** When the existing stands in the combined core and inner zone do not meet stand requirements, no harvest is permitted in the inner zone, except in connection with hardwood conversion.

The landowner may elect to convert hardwood-dominated stands in the **inner zone** to conifer-dominated stands. Harvesting and replanting shall be in accordance with the following limits:

((~~(A)~~)) (i) Conversion activities in the **inner zone** of any harvest unit are only allowed where all of the following are present:

((~~•~~)) (A) Existing stands in the combined core and inner zone do not meet stand requirements ((~~(WAC 222-30-021 (1)(b))~~)) in this subsection;

((~~•~~)) (B) There are fewer than ((~~fifty-seven~~)) 57 conifer trees per acre eight inches or larger dbh in the conversion area;

((~~•~~)) (C) There are fewer than ((~~one hundred~~)) 100 conifer trees per acre larger than four inches dbh in the conversion area;

((~~•~~)) (D) There is evidence (such as conifer stumps, historical photos, or a conifer understory) that the conversion area can be successfully reforested with conifer and support the development of conifer stands;

((~~•~~)) (E) The landowner owns ((~~five hundred~~)) 500 feet upstream and ((~~five hundred~~)) 500 feet downstream of the harvest unit;

((~~•~~)) (F) The core and inner zones contain no stream adjacent parallel roads;

((~~•~~)) (G) Riparian areas contiguous to the proposed harvest unit are owned by the landowner proposing to conduct the conversion activities, and meet shade requirements of WAC 222-30-040 or have a ((~~seventy-five~~)) 75-foot buffer with trees at least ((~~forty~~)) 40 feet tall on both sides of the stream for ((~~five hundred~~)) 500 feet upstream and ((~~five hundred~~)) 500 feet downstream of the proposed harvest unit (or the length of the stream, if less);

((~~•~~)) (H) If the landowner has previously converted hardwood-dominated stands, then postharvest treatments must have been performed to the satisfaction of the department.

((~~(B)~~)) (ii) In addition to the conditions set forth above, permitted conversion activities in the **inner zone** of any harvest unit are limited by the following:

((~~•~~)) (A) Each continuous conversion area is not more than ((~~five hundred~~)) 500 feet in length; two conversion areas will be considered "continuous" unless the no-harvest area separating the two conversion areas is at least half the length of the larger of the two conversion areas.

((•)) (B) Type S and F ((~~(Type 1, 2, or 3)~~)) Waters: Up to ((~~fifty~~)) 50 percent of the inner zone area of the harvest unit on one side of the stream may be converted provided that:

((♦)) (I) The landowner owns the opposite side of the stream and the landowner's riparian area on the opposite bank meets the shade requirements of WAC 222-30-040 or has a ((~~seventy-five~~)) 75-foot buffer of trees at least ((~~forty~~)) 40 feet tall or:

((♦)) (II) The landowner does not own land on the opposite side of the stream but the riparian area on the opposite bank meets the shade requirements of WAC 222-30-040 or has a ((~~seventy-five~~)) 75-foot buffer of trees at least ((~~forty~~)) 40 feet tall.

((•)) (C) Not more than ((~~twenty-five~~)) 25 percent of the inner zone of the harvest unit on both sides of a Type S or F Water may be converted if the landowner owns both sides.

((~~(C)~~)) (iii) Where conversion is allowed in the **inner zone**, trees within the conversion area may be harvested except that:

((•)) (A) Conifer trees larger than ((~~twenty~~)) 20 inches dbh shall not be harvested;

((•)) (B) Not more than ((~~ten~~)) 10 percent of the conifer stems greater than eight inches dbh, exclusive of the conifer noted above, within the conversion area may be harvested; and

((•)) (C) The landowner must exercise reasonable care in the conduct of harvest activities to minimize damage to all residual conifer trees within the conversion area including conifer trees less than eight inches dbh.

((~~(D)~~)) (iv) Following harvest in conversion areas, the landowner must:

((•)) (A) Reforest the conversion area with **conifer** tree species suitable to the site in accordance with the requirements of WAC 222-34-010; ((~~and~~

•)) (B) Conduct postharvest treatment of the site until the conifer trees necessary to meet acceptable stocking levels in WAC 222-34-010(2) have crowns above the brush or until the conversion area contains a minimum of ((~~one hundred fifty~~)) 150 conifer trees greater than eight inches dbh per acre((~~.~~)); and

((•)) (C) Notify the department in writing within three years of the approval of the forest practices application for hardwood conversion, if the hardwood conversion has been completed.

((~~(E)~~)) (v) **Tracking hardwood conversion.** The purpose of tracking hardwood conversion is to determine if hardwood conversion is resulting in adequate enhancement of riparian functions toward the desired future condition while minimizing the short term impacts on functions. The department will use existing or updated databases developed in cooperation with the Washington Hardwoods Commission to identify watershed administrative units (WAUs) with a high percentage of hardwood-dominated riparian areas and, thus have the potential for excessive hardwood conversion under these rules. The department will track the rate of conversion of hardwoods in the riparian zone: (1) Through the application process on an annual basis; and (2) at a WAU scale on a biennial basis as per WAC 222-30-120 through the adaptive management process which will develop thresholds of impact for hardwood conversion at the watershed scale.

((~~(ii)~~)) (b) **Harvest options.**

((~~(A)~~)) (i) No inner zone management. When the existing stands in the combined core and inner zone do not meet stand requirements, no harvest is permitted in the inner zone. When no harvest is permitted in the inner zone or the landowner chooses not to enter the inner

zone, the width of core, inner and outer zones are as provided in the following table:

No inner zone management RMZ widths for Western Washington

Site Class	RMZ width	Core zone width (measured from outer edge of bankfull width or outer edge of CMZ of water)	Inner zone width (measured from outer edge of core zone)		Outer zone width (measured from outer edge of inner zone)	
			stream width ≤10'	stream width >10'	stream width ≤10'	stream width >10'
I	200'	50'	83'	100'	67'	50'
II	170'	50'	63'	78'	57'	42'
III	140'	50'	43'	55'	47'	35'
IV	110'	50'	23'	33'	37'	27'
V	90'	50'	10'	18'	30'	22'

((~~(B)~~)) (ii) Inner zone management. If trees can be harvested and removed from the inner zone because of surplus basal area consistent with the stand requirement, the harvest and removal of the trees must be undertaken consistent with one of two options:

((~~(I)~~)) (A) **Option 1. Thinning from below.** The objective of thinning is to distribute stand requirement trees in such a way as to shorten the time required to meet large wood, fish habitat and water quality needs. This is achieved by increasing the potential for leave trees to grow larger than they otherwise would without thinning. Thinning harvest under option 1 must comply with the following:

((~~•~~)) (I) Residual trees left in the combined core and inner zones must meet stand requirements necessary to be on a trajectory to desired future condition. See board manual section 7 for guidelines.

((~~•~~)) (II) Thinning must be from below, meaning the smallest dbh trees are selected for harvest first, then progressing to successively larger diameters.

((~~•~~)) (III) Thinning cannot decrease the proportion of conifer in the stand.

((~~•~~)) (IV) Shade retention to meet the shade rule must be confirmed by the landowner for any harvest inside of ((~~seventy-five~~)) 75 feet from the outer edge of bankfull width or outer edge of CMZ, whichever is greater.

((~~•~~)) (V) The number of residual conifer trees per acre in the inner zone will equal or exceed ((~~fifty-seven~~)) 57.

Option 1. Thinning from below.

Site class	RMZ width	Core zone width (measured from outer edge of bankfull width or outer edge of CMZ of water)	Inner zone width (measured from outer edge of core zone)		Outer zone width (measured from outer edge of inner zone)	
			stream width ≤10'	stream width >10'	stream width ≤10'	stream width >10'
I	200'	50'	83'	100'	67'	50'
II	170'	50'	63'	78'	57'	42'
III	140'	50'	43'	55'	47'	35'
IV	110'	50'	23'	33'	37'	27'
V	90'	50'	10'	18'	30'	22'

((~~(II)~~)) (B) **Option 2. Leaving trees closest to the water.** Management option 2 applies only to riparian management zones for site class I, II, and III on streams that are less than or equal to ((~~ten~~))

10 feet wide and RMZs in site class I and II for streams greater than ((~~ten~~)) 10 feet wide. Harvest must comply with the following:

((~~•~~)) (I) Harvest is not permitted within ((~~thirty~~)) 30 feet of the core zone for streams less than or equal to ((~~ten~~)) 10 feet wide and harvest is not permitted within ((~~fifty~~)) 50 feet of the core zone for streams greater than ((~~ten~~)) 10 feet wide;

((~~•~~)) (II) Residual leave trees in the combined core and inner zone must meet stand requirements necessary to be on a trajectory to desired future condition. See board manual section 7 for calculating stand requirements;

((~~•~~)) (III) A minimum of ((~~twenty~~)) 20 conifers per acre, with a minimum ((~~twelve~~)) 12 inch dbh, will be retained in any portion of the inner zone where even-age harvest occurs. These riparian leave trees will be counted towards meeting applicable stand requirements. The number of riparian leave trees cannot be reduced below ((~~twenty~~)) 20 for any reason.

((~~•~~)) (IV) Trees are selected for harvest starting from the outer most portion of the inner zone first then progressively closer to the stream.

((~~•~~)) (V) If ((~~(b)(ii)(B)(II)~~)) (b)(ii)(B) of this subsection results in surplus basal area per the stand requirement, the landowner may take credit for the surplus by harvesting additional riparian leave trees required to be left in the adjacent outer zone on a basal area-for-basal area basis. The number of leave trees in the outer zone can be reduced only to a minimum of ((~~ten~~)) 10 trees per acre.

Option 2. Leaving trees closest to water.

Site Class	RMZ width	Core zone width (measured from outer edge of bankfull width or outer edge of CMZ of water)	Inner zone width				Outer zone width (measured from outer edge of inner zone)	
			stream width ≤10'	stream width ≤10'	stream width >10'	stream width >10'	stream width ≤10'	stream width ≥10'
				minimum floor distance		minimum floor distance		
			(measured from outer edge of core zone)	(measured from outer edge of core zone)	(measured from outer edge of core zone)	(measured from outer edge of core zone)		
I	200'	50'	84'	30'	84'	50'	66'	66'
II	170'	50'	64'	30'	70'	50'	56'	50'
III	140'	50'	44'	30'	**	**	46'	**

** Option 2 for site class III on streams >10' is not permitted because of the minimum floor (100') constraint.

((~~(iii)~~)) (c) **Where the basal area components of the stand requirement cannot be met** within the sum of the areas in the inner and core zone due to the presence of a stream-adjacent parallel road in the inner or core zone, a determination must be made of the approximate basal area that would have been present in the inner and core zones if the road was not occupying space in the core or inner zone and the shortfall in the basal area component of the stand requirement. See definition of "stream-adjacent parallel road" in WAC 222-16-010.

((~~(A)~~)) (i) Trees containing basal area equal to the amount determined in ((~~(b)(iii)~~)) (c) of this subsection will be left elsewhere in the inner or outer zone, or if the zones contain insufficient ri-

parian leave trees, substitute riparian leave trees will be left within the RMZ width of other Type S or F Waters in the same unit or along Type Np or Ns Waters in the same unit in addition to all other RMZ requirements on those same Type S, F, Np or Ns Waters.

((~~(B)~~)) (ii) When the stream-adjacent road basal area calculated in ((~~(b)(iii)~~)) (c) of this subsection results in an excess in basal area (above stand requirement) then the landowner may receive credit for such excess which can be applied on a basal area-by-basal area basis against the landowner's obligation to leave trees in the outer zone of the RMZ of such stream or other waters within the same unit, provided that the number of trees per acre in the outer zone is not reduced to less than ((~~ten~~)) 10 trees per acre.

((~~(C)~~)) (iii) When the basal area requirement cannot be met, as explained in ((~~(b)(iii)~~)) (c) of this subsection, the shortfall may be reduced through the implementation of an acceptable large woody debris placement plan. See board manual section 26 for guidelines.

((~~(iv)~~)) (d) If a harvest operation includes both yarding and harvest activities within the RMZ, all calculations of basal area for stand requirements will be determined as if the yarding corridors were constructed prior to any other harvest activities. If trees cut or damaged by yarding are taken from excess basal area, these trees may be removed from the inner zone. Trees cut or damaged by yarding in a unit which does not meet the basal area target of the stand requirements cannot be removed from the inner zone. Any trees cut or damaged by yarding in the core zone may not be removed.

((~~(c)~~)) (3) **Outer zones.** Timber harvest in the outer zone must leave ((~~twenty~~)) 20 riparian leave trees per acre after harvest. **"Outer zone riparian leave trees"** are trees that must be left after harvest in the outer zone in Western Washington. Riparian leave trees must be left uncut throughout all future harvests:

Outer zone riparian leave tree requirements

Application	Leave tree spacing	Tree species	Minimum dbh required
Outer zone	Dispersed	Conifer	12" dbh or greater
Outer zone	Clumped	Conifer	12" dbh or greater
Protection of sensitive features	Clumped	Trees representative of the overstory including both hardwood and conifer	8" dbh or greater

The ((~~twenty~~)) 20 riparian leave trees to be left can be reduced in number under the circumstances delineated in ((~~(c)(iv)~~)) (d) of this subsection. The riparian leave trees must be left on the landscape according to one of the following two strategies. A third strategy is available to landowners who agree to a LWD placement plan.

((~~(i)~~)) (a) **Dispersal strategy.** Riparian leave trees, which means conifer species with a diameter measured at breast height (dbh) of ((~~twelve~~)) 12 inches or greater, must be left dispersed approximately evenly throughout the outer zone. If riparian leave trees of ((~~twelve~~)) 12 inches dbh or greater are not available, then the next largest conifers must be left. If conifers are not present, riparian leave trees must be left according to the clumping strategy in ((~~(c)(ii)~~)) (b) of this subsection.

((~~(ii)~~)) (b) **Clumping strategy.** Riparian leave trees must be left clumped in the following way:

((~~(A)~~)) (i) Clump trees in or around one or more of the following **sensitive features** to the extent available within the outer zone. When clumping around sensitive features, riparian leave trees must be eight inches dbh or greater and representative of the overstory canopy trees in or around the sensitive feature and may include both hardwood and conifer species. Sensitive features are:

((~~(I)~~)) (A) Seeps and springs;

((~~(II)~~)) (B) Forested wetlands;

((~~(III)~~)) (C) Topographic locations (and orientation) from which leave trees currently on the site will be delivered to the water;

((~~(IV)~~)) (D) Areas where riparian leave trees may provide windthrow protection;

((~~(V)~~)) (E) Small unstable, or potentially unstable, slopes not of sufficient area to be detected by other site evaluations. See WAC 222-16-050 (1)(d)((~~.~~));

((~~(VI)~~)) (F) Archaeological sites or historic archaeological resources as defined in RCW 27.53.030;

((~~(VII)~~)) (G) Historic sites eligible for listing on the National Register of Historic Places or the Washington Heritage Register as determined by the Washington state department of archaeology and historic preservation. See WAC 222-16-050 (1)(f); or

((~~(VIII)~~)) (H) Sites containing evidence of Native American cairns, graves or glyptic records as provided for in chapters 27.44 and 27.53 RCW. See WAC 222-16-050 (1)(f).

((~~(B)~~)) (ii) If sensitive features are not present, then clumps must be well distributed throughout the outer zone and the leave trees must be of conifer species with a dbh of ((~~twelve~~)) 12 inches or greater. When placing clumps, the applicant will consider operational and biological concerns. Tree counts must be satisfied regardless of the presence of stream-adjacent parallel roads in the outer zone.

((~~(iii)~~)) (c) **Large woody debris in-channel placement strategy.**

((~~(A)~~)) (i) In order to reduce the number of required outer zone trees, a landowner may design a LWD placement plan for department approval consistent with guidelines in board manual sections 5 and 26. Landowners are encouraged to consult with the department and the department of fish and wildlife while designing the plan and prior to submitting a forest practices application.

((~~(B)~~)) (ii) Reduction of trees in the outer zone must not go below a minimum of ((~~ten~~)) 10 trees per acre.

((~~(C)~~)) (iii) If this strategy is chosen, a complete forest practices application must include the LWD placement plan.

((~~(iv)~~)) (d) **Twenty riparian leave trees must be left after harvest** with the exception of the following:

((~~(A)~~)) (i) If a landowner agrees to implement a placement strategy, see ((~~(iii)~~)) (c) of this subsection.

((~~(B)~~)) (ii) If trees are left in an associated channel migration zone, the landowner may reduce the number of trees required to be left according to the following:

((~~(I)~~)) (A) Offsets will be measured on a basal area-for-basal area basis.

((~~(II)~~)) (B) Conifer in a CMZ equal to or greater than six inches dbh will offset conifer in the outer zone at a one-to-one ratio.

((~~(III)~~)) (C) Hardwood in a CMZ equal to or greater than ((~~ten~~)) 10 inches dbh will offset hardwood in the outer zone at a one-to-one ratio.

((~~(IV)~~)) (D) Hardwood in a CMZ equal to or greater than ((~~ten~~)) 10 inches dbh will offset conifer in the outer zone at a three-to-one ratio.

((~~*(2) **Western Washington protection for Type Np and Ns Waters.**~~

~~(a) An **equipment limitation zone** is a thirty-foot wide zone measured horizontally from the outer edge of the bankfull width of a Type Np or Ns Water where equipment use and other forest practices that are specifically limited by these rules. It applies to all perennial and seasonal streams.~~

~~(i) On-site mitigation is required if any of the following activities exposes the soil on more than ten percent of the surface area of the zone:~~

~~(A) Ground based equipment;~~

~~(B) Skid trails;~~

~~(C) Stream crossings (other than existing roads); or~~

~~(D) Cabled logs that are partially suspended.~~

~~(ii) Mitigation must be designed to replace the equivalent of lost functions especially prevention of sediment delivery. Examples include water bars, grass seeding, mulching, etc.~~

~~(iii) Nothing in this subsection (2) reduces or eliminates the department's authority to prevent actual or potential material damage to public resources under WAC 222-46-030 or 222-46-040 or any related authority to condition forest practices notifications or applications.~~

~~(b) **Sensitive site and RMZs protection along Type Np Waters.** Forest practices must be conducted to protect Type Np RMZs and sensitive sites as detailed below:~~

~~(i) A fifty-foot, no-harvest buffer, measured horizontally from the outer edge of bankfull width, will be established along each side of the Type Np Water as follows:~~

~~Required no-harvest, 50-foot buffers on Type Np Waters.~~

~~Length of Type Np Water from the confluence of Type S or F Water~~	~~Length of 50' buffer required on Type Np Water (starting at the confluence of the Type Np and connecting water)~~
~~Greater than 1000'~~	~~500'~~
~~Greater than 300' but less than 1000'~~	~~Distance of the greater of 300' or 50% of the entire length of the Type Np Water~~
~~Less than or equal to 300'~~	~~The entire length of Type Np Water~~

~~(ii) No timber harvest is permitted in an area within fifty feet of the outer perimeter of a soil zone perennially saturated from a headwall seep.~~

~~(iii) No timber harvest is permitted in an area within fifty feet of the outer perimeter of a soil zone perennially saturated from a side-slope seep.~~

~~(iv) No timber harvest is permitted within a fifty-six foot radius buffer patch centered on the point of intersection of two or more Type Np Waters.~~

~~(v) No timber harvest is permitted within a fifty-six foot radius buffer patch centered on a headwater spring or, in the absence of a~~

~~headwater spring, on a point at the upper most extent of a Type Np Water as defined in WAC 222-16-030(3) and 222-16-031.~~

~~(vi) No timber harvest is permitted within an alluvial fan.~~

~~(vii) At least fifty percent of a Type Np Waters' length must be protected by buffers on both sides of the stream (2-sided buffers). Buffered segments must be a minimum of one hundred feet in length. If an operating area is located more than five hundred feet upstream from the confluence of a Type S or F Water and the Type Np Water is more than one thousand feet in length, then buffer the Type Np Water according to the following table. If the percentage is not met by protecting sensitive sites listed in (b)(i) through (vii) of this subsection, then additional buffers are required on the Type Np Water to meet the requirements listed in the table.~~

~~Minimum percent of length of Type Np Waters to be buffered when more than 500 feet upstream from the confluence of a Type S or F Water~~

~~Total length of a Type Np Water upstream from the confluence of a Type S or F Water~~	~~Percent of length of Type Np Water that must be protected with a 50 foot no harvest buffer more than 500 feet upstream from the confluence of a Type S or F Water~~
~~1000 feet or less~~	~~Refer to table in this subsection (i) above~~
~~1001 - 1300 feet~~	~~19%~~
~~1301 - 1600 feet~~	~~27%~~
~~1601 - 2000 feet~~	~~33%~~
~~2001 - 2500 feet~~	~~38%~~
~~2501 - 3500 feet~~	~~42%~~
~~3501 - 5000 feet~~	~~44%~~
~~Greater than 5000 feet~~	~~45%~~

~~The landowner must select the necessary priority areas for additional two-sided buffers according to the following priorities:~~

~~(A) Low gradient areas;~~

~~(B) Perennial water reaches of nonsedimentary rock with gradients greater than twenty percent in the tailed frog habitat range;~~

~~(C) Hyporheic and groundwater influence zones; and~~

~~(D) Areas downstream from other buffered areas.~~

~~Except for the construction and maintenance of road crossings and the creation and use of yarding corridors, no timber harvest will be allowed in the designated priority areas. Landowners must leave additional acres equal to the number of acres (including partial acres) occupied by an existing stream-adjacent parallel road within a designated priority area buffer.~~

~~(c) None of the limitations on harvest in or around Type Np Water RMZs or sensitive sites listed in (b) of this subsection will preclude or limit:~~

~~(i) The construction and maintenance of roads for the purpose of crossing streams in WAC 222-24-030 and 222-24-050.~~

~~(ii) The creation and use of yarding corridors in WAC 222-30-060(1).~~

~~To the extent reasonably practical, the operation will both avoid creating yarding corridors or road crossings through Type Np Water RMZ~~

~~or sensitive sites and associated buffers, and avoid management activities which would result in soil compaction, the loss of protective vegetation or sedimentation in perennially moist areas.~~

~~Where yarding corridors or road crossings through Type Np Water RMZs or sensitive sites and their buffers cannot reasonably be avoided, the buffer area must be expanded to protect the sensitive site by an area equivalent to the disturbed area or by providing comparable functions through other management initiated efforts.~~

~~Landowners must leave additional acres equal to the number of acres (including partial acres) occupied by an existing stream-adjacent parallel road within a Type Np Water RMZs or sensitive site buffer.~~))

NEW SECTION

WAC 222-30-0211 Western Washington Type Np Water riparian management zones and Type Ns Water riparian protections. These rules apply to all Type Np and Ns Waters on forest land in Western Washington, except as provided in WAC 222-30-023. Riparian management zones (RMZ) are measured horizontally from the outer edge of the bankfull width or channel migration zone, whichever is greater, and extend to the limits as described in this section. See board manual section 7 for guidelines.

(1) An **equipment limitation zone** is a 30-foot wide zone measured horizontally from the outer edge of the bankfull width of a Type Np or Ns Water where equipment use and other forest practices that are specifically limited by these rules. It applies to all nonfish perennial and seasonal streams.

(a) On-site mitigation is required if any of the following activities exposes the soil on more than 10 percent of the surface area of the zone:

(i) Ground based equipment;

(ii) Skid trails;

(iii) Stream crossings (other than existing roads); or

(iv) Cabled logs that are partially suspended.

(b) Mitigation must be designed to replace the equivalent of lost functions, especially prevention of sediment delivery. Examples include water bars, grass seeding, mulching, etc.

(c) Nothing in this section reduces or eliminates the department's authority to prevent actual or potential material damage to public resources under WAC 222-46-030 or 222-46-040 or any related authority to condition forest practices notifications or applications.

(2) **Sensitive site protections along Type Np Waters.** Forest practices must be conducted to protect Type Np Water sensitive sites. The sensitive sites must be identified and protected before establishing the Type Np RMZ as required in subsection (3) of this section. Sensitive sites and their protections are detailed below:

(a) No timber harvest is permitted in an area within 50 feet of the outer perimeter of a soil zone perennially saturated from a headwall seep.

(b) No timber harvest is permitted in an area within 50 feet of the outer perimeter of a soil zone perennially saturated from a sideslope seep.

(c) No timber harvest is permitted within a 56-foot radius buffer patch centered on the point of intersection of two or more Type Np Waters.

(d) No timber harvest is permitted within a 56-foot radius buffer patch centered on a headwater spring or, in the absence of a headwater spring, on a point at the upper most extent of a Type Np Water as defined in WAC 222-16-030(3).

(e) No timber harvest is permitted within an alluvial fan.

(3) **Riparian management zones (RMZ) protection along Type Np Waters.** Forest practices must be conducted to protect Type Np RMZs as detailed below. Where sensitive site protections, as outlined in subsection (2) of this section, exceed the no-harvest RMZ requirements in this subsection (3), the wider no-harvest buffer requirement shall apply.

(a) When the topographic basin in which harvest will occur is larger than 30 acres and 85 percent or more of the basin is planned, or reasonably expected, to be harvested within a five-year period, the landowner must designate a two-sided 75-foot no-harvest buffer along the entire stream reach of each Type Np Water.

(b) For all other topographic basins and harvests, a 75-foot no-harvest buffer will be established along both sides of the Type Np Water for the first 600 feet upstream from the confluence of Type S or F Water or, for Type Np streams without an above-ground confluence to a Type S or F Water, the lowest 600-foot length of the isolated stream. Upstream of the first 600 feet of a Type Np Water, the RMZ will be established based on stream bankfull width, as follows:

(i) For each Type Np stream three feet bankfull width or greater, the landowner must identify either a partial management strategy or no cut strategy:

(A) For partial management strategy, the landowner must designate a two-sided 75-foot RMZ along the entire stream reach in the harvest unit, and establish:

(I) A no-harvest buffer measuring 50 feet wide, or contained within the sensitive site protection area as described in subsection (2)(a) through (d) of this section; and

(II) A managed zone, either 25 feet wide measured from outer edge of the no-harvest buffer, or the remaining width from the outer edge of the sensitive site to the outer edge of the 75-foot RMZ where:

• Up to 50 percent of the trees may be harvested with an evenly-spaced distribution of leave trees; and

• Leave trees shall be representative of diameters found within the managed zone, and shall be representative of the tree species distribution within the managed zone.

(B) For no cut strategy, the landowner must designate a two-sided 65-foot no-harvest buffer along the entire stream reach in the harvest unit.

(ii) For each Type Np stream less than three feet bankfull width, the landowner must identify and protect the sensitive sites as detailed in subsection (2) of this section, then designate a two-sided no-harvest 50-foot buffer along the entire stream reach in the harvest unit. Where the outer edge of sensitive sites protections are less than 50-feet from bankfull width or the alluvial fan, the 50-foot buffer shall apply.

(4) Except for the construction and maintenance of road crossings and the creation and use of yarding corridors, no timber harvest will be allowed in the designated no-harvest buffers. Landowners must leave additional acres equal to the number of acres (including partial

acres) occupied by an existing stream-adjacent parallel road within a designated additional buffer.

(5) None of the limitations on harvest in or around Type Np Water RMZs or sensitive sites listed in this section will preclude or limit:

(a) The construction and maintenance of roads for the purpose of crossing streams in WAC 222-24-030 and 222-24-050.

(b) The creation and use of yarding corridors in WAC 222-30-060(1): To the extent reasonably practical, the operation will both avoid creating yarding corridors or road crossings through Type Np Water RMZs or sensitive sites and associated buffers, and avoid management activities which would result in soil compaction, the loss of protective vegetation, or sedimentation in perennially moist areas. Where yarding corridors or road crossings through Type Np Water RMZs or sensitive sites and their buffers cannot reasonably be avoided, the buffer area must be expanded to protect the sensitive site by an area equivalent to the disturbed area or by providing comparable functions through other management-initiated efforts. Landowners must leave additional acres equal to the number of acres (including partial acres) occupied by an existing stream-adjacent parallel road within a Type Np Water RMZs or sensitive site buffer.