

RIPARIAN MANAGEMENT ZONES

Most of the rules summarized below are simplified and are not complete. All of the chapters are hyperlinked for the reader's convenience to review rules in their entirety if desired. Please note, rules marked with an asterisk (*) pertain to water quality protection and have been adopted by the Forest Practices Board with agreement from the Department of Ecology per WAC 222-12-010.

Chapter 222-10 WAC, State Environmental Policy Act Guidelines

WAC 222-10-010 Policies and authorities.

- A forest practices application or notification that requires a threshold determination will be conditioned when necessary to mitigate specific adverse impacts identified in environmental documents prepared under SEPA.
- An application or notification will be disapproved when the proposal would result in significant adverse impacts identified in a final or supplemental environmental impact statement prepared under SEPA, and reasonable mitigation measures are insufficient to mitigate the identified impacts and denial is consistent with all provisions of (the authority granted in RCW 76.09.010 and the SEPA law and rules.)

Chapter 222-12 WAC, Policy and Organization

The policies in this section all apply to biomass harvest. These may be of particular interest:

WAC 222-12-010 Authority: Promulgation of all forest practices rules shall be accomplished so that compliance with such forest practices rules will achieve compliance with the water quality laws.

WAC 222-12-040 Alternate plans—Policy: All forest practice operations must comply with both the act and the rules promulgated pursuant to the act, unless an alternate plan has been approved by the department.

WAC 222-12-045 Adaptive Management Program: (1) **Purpose:** The purpose of the program is to provide science-based recommendations and technical information to assist the board in determining if and when it is necessary or advisable to adjust rules and guidance for aquatic resources to achieve resource goals and objectives. The board may also use this program to adjust other rules and guidance. The goal of the program is to affect change when it is necessary or advisable to adjust rules and guidance to achieve the goals of the forests and fish report or other goals identified by the board. There are three desired outcomes: Certainty of change as needed to protect targeted resources; predictability and stability of the process of change so that landowners, regulators and interested members of the public can anticipate and prepare for change; and application of quality controls to study design and execution and to the interpreted results.

WAC 222-12-050 Notices to comply—stop work orders and WAC 222-12-070 Enforcement policies *These WACs explain enforcement policies – see detail under Chapter 222-46 WAC in this document.*

Chapter 222-16 WAC, Definitions

WAC 222-16-010, General Definitions.

"Channel migration zone (CMZ)" means the area where the active channel of a stream is prone to move and this results in a potential near-term loss of riparian function and associated habitat adjacent to the stream, except as modified by a permanent levee or dike. For this purpose, near-term means the time scale required to grow a mature forest. (See board manual section 2 for descriptions and illustrations of CMZs and delineation guidelines.)

"Equipment limitation zone" means a 30-foot wide zone measured horizontally from the outer edge of the bankfull width of a Type Np or Ns Water. It applies to all perennial and seasonal nonfish bearing streams.

"Riparian function" includes bank stability, the recruitment of woody debris, leaf litter fall, nutrients, sediment filtering, shade, and other riparian features that are important to both riparian forest and aquatic system conditions.

"RMZ core zone" means:

- 1) **For Western Washington**, the 50 foot buffer of a Type S or F Water, measured horizontally from the outer edge of the bankfull width or the outer edge of the channel migration zone, whichever is greater. (See WAC 222-30-021.)
- 2) **For Eastern Washington**, the thirty foot buffer of a Type S or F Water, measured horizontally from the outer edge of the bankfull width or the outer edge of the channel migration zone, whichever is greater. (See WAC 222-30-022.)

"RMZ inner zone" means:

- 1) **For Western Washington**, the area measured horizontally from the outer boundary of the core zone of a Type S or F Water to the outer limit of the inner zone. The outer limit of the inner zone is determined based on the width of the affected water, site class and the management option chosen for timber harvest within the inner zone. (See WAC 222-30-021.)
- 2) **For Eastern Washington**, the area measured horizontally from the outer boundary of the core zone 45 feet (for streams less than 15 feet wide) or 70 feet (for streams more than 15 feet wide) from the outer boundary of the core zone. (See WAC 222-30-022.)

"RMZ outer zone" means the area measured horizontally between the outer boundary of the inner zone and the RMZ width as specified in the riparian management zone definition above. RMZ width is measured from the outer edge of the bankfull width or the outer edge of the channel migration zone, whichever is greater. (See WAC 222-30-021 and 222-30-022.)

"Sensitive sites" are areas near or adjacent to Type Np Water and have one or more of the following:

- 1) **Headwall seep** is a seep located at the toe of a cliff or other steep topographical feature and at the head of a Type Np Water which connects to the stream channel network via overland flow, and is characterized by loose substrate and/or fractured bedrock with perennial water at or near the surface throughout the year.
- 2) **Side-slope seep** is a seep within 100 feet of a Type Np Water located on side -slopes which are greater than 20 percent, connected to the stream channel network via overland flow, and characterized by loose substrate and fractured bedrock, excluding muck with perennial water at or near the surface throughout the year. Water delivery to the Type Np channel is visible by someone standing in or near the stream.

- 3) **Type Np intersection** is the intersection of two or more Type Np Waters.
- 4) **Headwater spring** means a permanent spring at the head of a perennial channel. Where a headwater spring can be found, it will coincide with the uppermost extent of Type Np Water.
- 5) **Alluvial fan** means a depositional land form consisting of cone-shaped deposit of water-borne, often coarse-sized sediments.
 - a) The upstream end of the fan (cone apex) is typically characterized by a distinct increase in channel width where a stream emerges from a narrow valley;
 - b) The downstream edge of the fan is defined as the sediment confluence with a higher order channel; and
 - c) The lateral margins of a fan are characterized by distinct local changes in sediment elevation and often show disturbed vegetation.Alluvial fan does not include features that were formed under climatic or geologic conditions which are not currently present or that are no longer dynamic.

Chapter 222-24 WAC, Road Construction and Maintenance

WAC 222-24-035 Landing location and construction.

- 1) Landing location:

Locate landings to prevent potential or actual damage to public resources. Avoid excessive excavation and filling. Landings shall not be located within natural drainage channels, channel migration zones, RMZ core and inner zones, Type Np RMZs, sensitive sites, equipment limitation zones, and Type A or B Wetlands or their wetland management zones. Minimize placement and size of landings within forested wetlands. (See WAC 222-24-015, Construction in wetlands.)
- 2) Landing construction.
 - a) Landings requiring sidecast or fill shall be no larger than reasonably necessary for safe operation of the equipment expected to be used.
 - b) Where the slopes exceed 60 percent, fill material used in construction of landings shall be free from loose stumps and excessive accumulations of slash and shall be mechanically compacted where necessary and practical in layers by tractor to prevent soil erosion and mass soil movement. Chemical compacting agents may be used in accordance with WAC 222-38-020.
 - c) Truck roads, skid trails, and fire trails shall be outsloped or cross drained uphill of landings and the water diverted onto the forest floor away from the toe of any landing fill.
 - d) Landings shall be sloped to minimize accumulation of water on the landing.
 - e) Excavation material shall not be sidecast where there is high potential for material to enter wetland management zones or within the bankfull width of any stream or the 100-year flood level of any typed water.
 - f) All spoils shall be located outside of Type A and Type B Wetlands and their wetland management zones. Spoils shall not be located within the boundaries of forested wetlands without written approval of the department and unless a less environmentally damaging location is unavailable. No spoil area greater than 0.5 acre in size shall be allowed within wetlands. (See WAC 222-24-015, Construction in wetlands.)

3) **Temporary landings.**

- a) A temporary landing is intended for use during the life of an approved application/notification.
- b) It must be constructed to facilitate abandonment when the intended use is complete or upon seasonal shutdown, whichever is sooner.
- c) It must be designed to provide the same level of protection for public resources as provided by the rules during the length of its intended use.
- d) Temporary landings must be identified on the forest practices application or notification, along with an abandonment date.
- e) Temporary landings must be abandoned to the specifications approved by the department by the date specified on the approved forest practices application.

Chapter 222-30 WAC, Timber Harvesting

Per WAC 222-30-010, “This chapter covers all removal of timber for commercial operations, commercial thinning, salvage of timber, relogging merchantable material left after prior harvests, postharvest cleanup, clearing of merchantable timber from lands being converted to another use. It does not cover removal of incidental vegetation or removal of firewood for personal use.”

WAC 222-30-020 Harvest unit planning and design.

- Logging systems should be appropriate for terrain, soils, and timber type so that yarding or skidding can be economically accomplished and achieve the ecological goals of WAC [222-30-010](#) (2), (3) and (4) in compliance with these rules.
- Landing location should be located to prevent damage to public resources. Avoid excessive excavation and filling.
- RMZs and riparian leave tree areas are detailed in WAC 222-30-021 and -022.
- Forested wetlands:
 - Harvest methods shall be limited to low impact harvest or cable systems. Where feasible, at least one end of the log shall be suspended during yarding. (Note: “low impact harvest” is defined in WAC 222-16-010: “... means use of any logging equipment, methods, or systems that minimize compaction or disturbance of soils and vegetation during the yarding process. The department shall determine such equipment, methods or systems in consultation with the department of ecology.”)
 - When forested wetlands are included within the harvest area, landowners are encouraged to leave a portion (30 to 70%) of the wildlife reserve tree requirement for the harvest area within a wetland. In order to retain undisturbed habitat within forested wetlands, these trees should be left in clumps. Leave tree areas should be clumped adjacent to streams, riparian management zones, or wetland management zones where possible and they exist within forested wetlands. Green recruitment trees should be representative of the size and species found within the wetland. Leave nonmerchantable trees standing where feasible.
 - If an RMZ or WMZ lies within a forested wetland, the leave tree requirement associated with those areas may be counted toward the percentages in (a) of this subsection.
 - Where riparian associated wetlands are present in the outer zone of a RMZ, trees may be left in the zone to maximize wetland function. See WAC [222-30-021](#) *(1)(c)(ii).

- When forested wetlands are included within the harvest area, or if an RMZ or WMZ lies within a forested wetland, the distribution requirements for wildlife reserve trees and green recruitment trees are modified as follows: For purposes of distribution, no point within the harvest unit shall be more than 1000 feet from a wildlife reserve tree and green recruitment tree retention area.
- Approximate determination of the boundaries of forested wetlands greater than 3 acres shall be required. Approximate boundaries and areas shall be deemed to be sufficient for harvest operations.
- DNR shall consult with the department of fish and wildlife and affected Indian tribes about site specific impacts of forest practices on wetland-sensitive species in forested wetlands.
- Wetland management zones (WMZs): dependent on whether wetland includes bogs, and size (acres) of wetland.
 - Leave trees 75 trees per acre greater than 6 inches (W. WA) and greater than 4 inches dbh (E. WA)
 - Leave wildlife reserve trees where feasible.
 - Leave all cull logs on site.
 - Max width of openings not to exceed 100 feet.
 - Openings shall be no closer than 200 feet.
 - No tractor, wheeled skidders, other ground based harvesting systems in WMZ without DNR approval.
- Type A and B Wetlands:
 - Leave individual trees in Type A or B wetland, or trees of forested wetlands areas less than 0.5 acre; can be counted toward WMZ requirement.
 - DNR-approved plan required for harvest of upland areas or forested wetlands surrounded by Type A or B wetlands.
 - No harvest allowed within Type A or B wetland that meets the definition of a bog.
- Future productivity:
 - Harvesting must leave land in condition conducive to future timber production, except:
 - to the degree required by RMZs
 - where lands being converted to another use or classified as urban
- Wildlife habitat.
 - Applicants should make reasonable effort to identify critical habitats (state), as identified in WAC 222-16-080) with WDFW.
 - Harvesting methods and patterns in establishing big game winter ranges should be designed to ensure adequate access routes and escape cover where practical.
- Wildlife reserve management (leave tree requirements)
 - Western Washington:
 - 3 wildlife reserve trees (≥ 10 feet and ≥ 12 inches dbh)
 - 2 green recruitment trees (≥ 30 feet and ≥ 10 inches dbh)
 - 2 down logs per acre (≥ 20 feet and ≥ 12 inches dbh at small end)
 - Eastern Washington:
 - 2 wildlife reserve trees (≥ 10 feet and ≥ 10 inches dbh)
 - 2 green recruitment trees (≥ 30 feet and ≥ 10 inches dbh)
 - 2 down logs per acre (≥ 20 feet and ≥ 12 inches dbh at small end)

- Channel migration zones. No harvest, construction or salvage within CMZ, except road crossings and creation and use of yarding corridors.
- Bankfull width. No harvest, construction or salvage within the bankfull width of any Type S or F Water or any buffered length of Type Np Water, except for the construction and maintenance of road crossings in accordance with applicable rules and creation and use of yarding corridors.

WAC 222-30-021 Western Washington riparian management zones.

Type S and F Waters

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

RMZs are 90-200 feet wide depending on site class and stream width.

- Core zone: 50 foot no harvest.
- Inner zone 10-100 feet wide depending on site class and stream width. Harvest must meet stand requirement to "...protect aquatic resources and related habitat to achieve restoration of riparian function, and the maintenance of these resources once they are restored" (WAC 222-30-010(2))
 - Option 1, Thinning from below.
 - Must retain ≥ 57 trees per acre
 - Option 2, Leaving trees closest to the water.
 - Streams ≤ 10 feet bankfull width. No harvest permitted within 30 feet of core zone.
 - Streams > 10 feet bankfull width. No harvest permitted within 50 feet of core zone. for large streams.
- Outer zone:
 - 22-67 feet wide depending on site class and streams width;
 - Must leave 20 trees per acre.
 - Leave trees must be left uncut throughout all future harvests.
 - One of three strategies
 - dispersal
 - clumping
 - large woody debris in-channel placement – number of leave trees may be reduced up to 10 trees per acre if approved LWD placement plan.

Type Np and Ns Waters

- Equipment limitation zone: 30 feet wide to limit surface disturbances caused by equipment.
- 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.
 - Ground based equipment;
 - Skid trails;
 - Stream crossings, other than existing roads; or
 - Cabled logs that are partially suspended.

- Mitigation must be designed to replace the equivalent of lost functions especially prevention of sediment delivery. Examples include water bars, grass seeding, mulching, etc. **DNR is authorized to prevent actual or potential material damage to public resources under WAC 222-46-030 or -040 (notice to comply and stop work order) to condition FPAs.**
- Sensitive site and RMZ protection.
 - 50 foot no-harvest buffer along each side of Type Np Water; at least 50 percent if stream length must be protected by buffers on both sides. Buffered segments must be at least 100 feet in length.
 - No harvest permitted:
 - within 50 of outer perimeter of a soil zone perennially saturated from a headwall seep or side-slope seep;
 - within 56 foot radius buffer patch centered intersection of 2 or more Type Np Waters, or centered on a headwater spring or point at the uppermost extent of a Type Np Water;
 - on an alluvial fan.
 - None of the limitation on harvest in or around sensitive sites will preclude or limit construction or maintenance of roads for the purpose of crossing streams, or the creation and use of yarding corridors.
 - To the extent reasonably practical, the operation will both avoid creating yarding corridors or road crossings through Type Np 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.

WAC 222-30-022 Eastern Washington riparian management zones.

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

RMZs are 75-130 feet wide depending on site class and stream width.

Type S and F Waters

Permitted harvest varies by timber habitat type and site class

- Core zone: 30 foot no harvest buffer.
- Inner zone 45 or 70 feet depending on stream width (≤ 15 feet or > 15 feet).
 - Permitted harvest depends on inner zone basal area;
 - Required leave trees depends on existing stand density in the inner zone and timber habitat type (Ponderosa pine, mixed conifer, high elevation); generally, 50 trees per acre for stands with high basal area and 100-120 trees per acre for stands with low basal area and high density. **See Attachment A for a complete list of Eastern Washington leave tree requirements for Type S and F Waters.**
 - Must leave down wood as follows:

- Ponderosa pine
 - ≥ 12 tons per acre
 - 6 pieces greater than 16 inches diameter and 20 feet long
 - 4 pieces greater than 6 inches diameter and 20 feet long
 - Mixed conifer
 - ≥ 20 tons per acre
 - 8 pieces greater than 16 inches diameter and 20 feet long
 - 8 pieces greater than 6 inches diameter and 20 feet long
 - High elevation
 - ≥ 30 tons per acre
 - 8 pieces greater than 16 inches diameter and 20 feet long
 - 8 pieces greater than 6 inches diameter and 20 feet long
- Outer zone: 0-55 feet depending on site class and stream width. Leave trees per acre:
 - 10 or 15 trees per acre for Ponderosa pine and mixed conifer timber habitat type respectively; or
 - 5 or 8 if landowner voluntarily implements a LWD placement plan.

Type Np Waters

- Equipment limitation zone: 30 feet wide. Mitigation required if harvest activities expose the soil on more than 10 percent of the equipment limitation zone length. **DNR authorized to prevent actual or potential material damage to public resources under WAC 222-46-030 or -040 or any related authority to condition FPAs.**
- Harvest may occur within 50 feet of stream; must choose either partial cut strategy or clearcut strategy.
 - Partial cut:
 - Required leave trees generally 50 trees ≥ 10 inches dbh. Leave tree selection based on priority: bank stability, shade to water, lean toward water, preferred species defined in WAC 222-16-010, or evenly distributed.
 - Side slope seeps must be protected with 50-foot partial cut buffer.
 - Clearcut:
 - 2-sided 50 foot no harvest buffer.
 - No harvest within 50 feet of sensitive sites: soil perennially saturated from a headwall seep, side slope seep, headwater spring, alluvial fan, intersection of two or more Type Np Waters.

WAC 222-30-023 Riparian management zones for exempt 20-acre parcels. (landowners with total parcel ownership of less than 80 forested acres)

- RMZ buffers Western Washington
 - Type S and F Water:
 - Must meet shade requirements in WAC 222-30-040.
 - 29-115 foot buffer depending on stream size.
 - Leave tree ratio conifer/deciduous depends on stream size, and number of trees retained per 1000 feet on each side of the stream depends on gravel size (gravel/cobble < 10 inch diameter or boulder/bedrock ≥ 10 inch diameter)

- Type Np Water:
 - Where DNR requires trees to be left to protect public resources:
 - 29 foot buffer
 - leave trees are ≥ 29 conifer or deciduous, ≥ 6 inches diameter, each side of every 1000 feet of stream length
- RMZ buffers Eastern Washington
 - Type S and F Water:
 - Must meet shade requirements in WAC 222-30-040.
 - Buffer width based on adjacent harvest type, defined in WAC 222-16-010 “Partial cutting”
 - When adjacent harvest type is partial cutting, buffer must average 35-58 feet wide.
 - Leave tree counts depend on size available, wildlife reserve trees available.
Minimums:
75 per acre ≤ 4 inches diameter, boulder/bedrock stream bed.
155 per acre ≤ 4 inches diameter, gravel/cobble stream bed.
 - Type Np Water (same as for Western Washington)
 - Where DNR requires trees to be left to protect public resources:
 - 29 foot buffer
 - leave trees are ≥ 29 conifer or deciduous, ≥ 6 inches diameter, each side for every 1000 feet of stream length

The rest of the rules in chapter 222-30 WAC are for both Western and Eastern Washington.

WAC 222-30-030 Stream bank integrity.

Within riparian management zones of Type S, F, and Np Wasters, operators must:

- Avoid disturbing brush and similar understory vegetation;
- Avoid disturbing stumps and root systems and any logs embedded in the bank;
- Leave high stumps where necessary to prevent felled and bucked timber from entering the water;
- Leave trees that display large root systems embedded in the bank.

WAC 222-30-040 Shade requirements to maintain water temperature.

- Type S and F Waters.
- Bulltrout overlay: All available shade retained within 75 feet from stream.
- Outside bulltrout overlay: If a landowner elects to remove any tree within 75 feet of stream, must demonstrate would not be contrary to satisfy shade requirement, by using temperature prediction method in Board Manual Section 1.

WAC 222-30-045 Salvage logging within RMZ

- No salvage in any typed water.
- No salvage in core zone.
- Inner zone: permissible if stand requirements can be met by the residual stand and meets Westside/Eastside down wood guidelines.

- Outer zone: permissible if riparian leave tree requirements can be met of the residual standing or down trees. Only down wood not needed to meet riparian leave tree requirements in outer zone may be salvaged.

WAC 222-30-060 (4) Cable yarding in RMZs, sensitive sites, and WMZs

(in part) Reasonable care shall be taken to minimize damage to the vegetation providing shade to the stream or open water areas and to minimize disturbance to understory vegetation, stumps and root systems.

WAC 222-30-070 Ground-based logging systems

- **Type S or F Water:** no ground-based equipment allowed except with DNR approval and an HPA.
- **Type Np and Ns Waters**
 - ground based transport of logs is not allowed across flowing water.
 - whenever skidding across Type Np or Ns Waters, the direction of the log movement between stream banks shall be designed to minimize potential for damage to public resources.
 - to maintain wetland water movement and water quality, and to prevent soil compaction, ground-based logging systems shall not be used in Type A or B wetlands.
- **Wetlands:**
 - No equipment allowed in Type A or B wetlands.
 - Where harvest in wetlands is permitted, ground-based logging systems limited to low impact harvest systems; only allowed during periods of low soil moisture or frozen soil conditions.
- **RMZs:** any use of ground-based yarding equipment within zone must
 - be approved by DNR;
 - minimize routes through zone;
 - minimize damage to leave trees and vegetation in the zone to the extent practical and consistent with good safety practices.
- **WMZs:**
 - where feasible logs shall be skidded with at least one end suspended from the ground so as to minimize soil disturbance and damage to leave trees and vegetation in the WMZ;
 - ground-based harvesting systems shall not be used within the minimum WMZ unless DNR approved.
- **Deadfalls:** logs firmly embedded in the bed or bank of Type S or F Waters shall not be removed or disturbed without HPA.
- **Moisture conditions:**
 - Systems shall not be used on exposed erodible soils or saturated soils if sediment delivery is likely to disturb a wetland, stream, lake or pond;
 - When soil moisture is high and unrestricted operation of ground-based equipment would result in unreasonable soil compaction, operations shall be restricted to methods that minimize widespread soil compaction or, operations postponed until site conditions improve such that yarding may proceed without causing unreasonable soil

compaction and the long-term impacts to soil productivity and moisture absorption capacity that can result.

- **Protection of residual timber:**
 - Reasonable care shall be taken to minimize damage from skidding to the stems and root systems of residual timber and to young reproduction.
- **Skid trail location and construction:**
 - Shall be kept to the minimum width.
 - Reasonable care shall be taken to minimize the amount of sidecast required and shall only be permitted above the 100-year flood level.
 - Shall be outsloped where practical, but be insloped where necessary to prevent logs from sliding or rolling downhill off the skid trail.
 - Skid trails running parallel or near parallel to streams shall be located outside the no-harvest zone of all typed waters and at least 30 feet from the outer edge of the bankfull width of the unbuffered portions of Type Np or Ns Water unless approved in writing by the department.
 - Skid trails shall cross the drainage point of swales at an angle to minimize the potential for delivering sediment to a typed water or where channelization is likely to occur.
- **Skid trail maintenance.**
 - Upon completion of use and termination of seasonal use, skid trails on slopes in exposed soils shall be water barred where necessary to prevent soil erosion.
 - Skid trails located within 200 feet horizontal distance of any typed water that directly delivers to the stream network shall use water bars, grade breaks, and/or slash to minimize sediment delivery to the stream. Water bars shall be placed at a frequency to minimize gullying and soil erosion. In addition to water barring, skid trails with exposed soil that is erodible and may be reasonably expected to cause damage to a public resource shall be seeded with a noninvasive plant species (preferably a species native to the state) and adapted for rapid revegetation of disturbed soil, or treated with other erosion control measures acceptable to the department.
- **Slope restrictions.** Ground-based systems shall not be used on slopes where in the opinion of the department this method of operation would cause actual or potential material damage to a public resource.

WAC 222-30-080 Landing cleanup.

Except as approved by the department, the following rules shall be met within 60 days after completion of hauling logs from any landing, or as soon thereafter as practical.

1) Drainage.

- a) Clean any ditches and culverts obstructed by dirt or debris during operation(s).
- b) Establish a slope that will prevent water from accumulating on the landing or running from the landing down any erodible fill.

2) Other erosion control measures.

- a) Cut slopes shall be cut back to an angle expected to remain stable.
- b) Where exposed soil is unstable or erodible and may be reasonably expected to cause damage to a public resource, it shall be seeded with grass, clover or ground cover or compacted, ripped, water barred, benched or mulched, or be treated by other means approved by the

department.

WAC 222-30-110 Timber harvesting on islands.

- Landowners are not allowed to clearcut more than 40 contiguous acres of forest land.
- Clearcuts remain in clearcut condition until it reaches canopy closure or has been reforested for at least ten years.
- Within 200 feet of saltwater, only selective harvest allowed – no more than 30 percent of merchantable trees in any 10 year period (there are further caveats).
- This section does not apply to harvest or salvage of trees damaged by wind, disease, insects, fire, or other natural causes.

Chapter 222-34 WAC, Reforestation

WAC 222-34-010 Required reforestation — West of Cascades Summit.

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- 2) **Reforestation standards.** A harvested area is reforested when that area contains an average of 190 or more vigorous, undamaged commercial species seedlings per acre that have survived on the site for at least 1 growing season. Up to 20 percent of the harvested area may contain fewer than 190 seedlings per acre, but no portion of the harvested area with timber growing capacity may contain less than 150 seedlings per acre. The department may determine that less than an average of 190 seedlings per acre is acceptable if fewer seedlings will reasonably utilize the timber growing capacity of the site.

WAC 222-34-020 Required reforestation — East of Cascades Summit.

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- 2) **Reforestation standards.** A harvest area is reforested when that area contains an average of 150 or more vigorous, undamaged commercial species seedlings per acre that have survived on the site for at least 1 growing season. Up to 20 percent of the harvested area may contain fewer than 150 seedlings per acre, but no portion of the harvested area with timber growing capacity may contain less than 120 seedlings per acre. The department may determine that less than an average of 150 seedlings per acre is acceptable if fewer seedlings will reasonably utilize the timber growing capacity of the site.

WAC 222-34-030 Reforestation plans—Reports--Inspections

Reforestation plans. Reforestation plans must be submitted with the application or notification except where no reforestation is required. The department shall designate difficult regeneration areas utilizing silvicultural information. When a forest practice is proposed for such an area, the department may require additional information regarding harvest systems and post harvest site preparation, as well as regeneration. The department shall approve the reforestation plan for difficult regeneration areas if it determines that such a plan will achieve acceptable stocking according to WAC [222-34-010](#) and [222-34-020](#).

WAC 222-34-040 Site preparation and rehabilitation.

- 1) **Heavy equipment.** Heavy equipment shall not be used in connection with site preparation or rehabilitation work: ...

b) Within riparian management zones, Type A and B Wetlands, wetland management zones, or within equipment limitation zones of Type Np and Ns Waters on slopes of 30 percent or less. On slopes greater than 30 percent heavy equipment shall not operate within 50 feet of Type S through Ns Waters unless a site specific plan has been approved by the department...

Chapter 222-46 WAC, Consultation and Enforcement

WAC 222-46-020 Informal conferences.

DNR shall allow for reasonable opportunities to discuss proposed enforcement actions unless DNR determines there may be imminent damages to the public resource.

WAC 222-46-030 Notice to comply.

If a violation, a deviation, material damage or potential for material damage to a public resource has occurred and the department determines that a stop work order is unnecessary, then the department shall issue and serve upon the operator and/or landowner a notice.

WAC 222-46-040 Stop work order.

If the following occurs, DNR shall serve a stop work order which shall be a final order of the department:

- Violation of the provisions of the Forest Practices Act or rules; or
- Deviation from the approved application; or
- Immediate action is necessary to prevent continuation of or to avoid material damage to a public resource.

WAC 222-46-050 Corrective action.

- If operator fails to undertake and complete any required course of action, DNR may determine cost and give written notice to operator, timber owner, landowner.
- If failure to undertake course of action within 30 days, DNR undertakes the course of action and responsible party is liable for costs.
- If not paid within 60 day after DNR takes course of action, such amount to become a lien on forest land and DNR may collect in the same manner provided for in chapter 60.04 RCW for mechanics' liens.
- Immediate corrective action: If operator has failed to obey a stop work order, DNR may take immediate corrective action to prevent continuation of or avoid material damage to public resources.

Chapter 222-50 WAC, Relationship to Other Laws and Regulations

WAC 222-50-010 Policy.

A major policy of the Forest Practices Act and the board is to work toward a comprehensive, statewide system of laws and rules provide for interagency input and cooperation to the extent that can be accomplished without interfering with the authority of the affected federal, state, regional and local agencies.

WAC 222-50-020 Other agency requirements.

(1) Many other laws and rules apply to the conduct of forest practices. Other agencies administer some of these other regulatory programs. Permits may be required by such agencies prior to the conduct of certain forest practices. The department will maintain a list for distribution of state, regional and local regulatory programs that apply to forest practices operations. Affected parties are urged to consult with the specified agencies and independent experts with respect to the regulatory requirements shown on the list.

(2) **Hydraulics project approval law**, chapter [77.55](#) RCW. A hydraulics project approval must be obtained from the department of fish and wildlife prior to constructing any form of hydraulic project or other work that will use, divert, obstruct, or change the natural flow or bed of any river or stream or that will utilize any of the waters of the state or materials from the stream beds. See chapter [77.55](#) RCW and WAC [232-14-010](#).

(3) **Compliance with the Shoreline Management Act**, chapter [90.58](#) RCW, is required. The Shoreline Management Act is implemented by the department of ecology and the applicable local governmental entity. A substantial development permit must be obtained prior to conducting forest practices which are "substantial developments" within the "shoreline" area as those terms are defined by the Shoreline Management Act.

(4) Nothing in these rules is intended to interfere with any authority of the department of fish and wildlife to protect wildlife under any other statutes or regulations, or under any agreements with landowners.

(5) Federal Endangered Species Act, 16 U.S.C. 1531 et seq., and other federal laws. The federal Endangered Species Act and other federal laws may impose certain obligations on persons conducting forest practices. Compliance with the Forest Practices Act or these rules does not ensure compliance with the Endangered Species Act or other federal laws.

WAC 222-50-030 Interagency agreements.

The board recommends that the department negotiate interagency agreements with other governmental agencies. The board further recommends that such agreements include, to the extent acceptable to the other agency, provisions specifying:

- (1) **The law** and rules covered;
- (2) **Any geographical** or other limits on the authority and responsibility under the agreement;
- (3) **Priorities** and standards for resolution of any conflicts between such laws and regulations and the act and these rules;
- (4) **Procedures** for administrative appeals of actions taken;
- (5) **Provisions for** continuing cooperation between the department and the other agency or agencies regarding interpretation of the laws and regulations involved;
- (6) **Procedures for** termination of the interagency agreement; and
- (7) **Procedures for** processing applications and notifications.

The department is directed to provide copies of all such agreements to the board, and to make known to the public that such interagency agreements exist.

WAC 222-50-040 Safety and health.

The forest practices rules contained in chapters [222-24](#) through [222-38](#) WAC are automatically superseded to the extent inconsistent with any applicable safety regulations, or with any orders or directives having the force of law and based on any applicable safety regulations, including:

(1) **Chapter [296-54](#) WAC** (safety standards for logging operations, department of labor and industry's division of safety).

(2) **Chapter [296-24](#) WAC** (general safety and health standards, department of labor and industry's division of safety).

(3) **All applicable** Federal Occupational Safety and Health Administration regulations.

(4) **Regarding aircraft**, chapters [12-24](#), [12-28](#), and [12-32](#) WAC (Washington aeronautics commission).

(5) **Regarding explosives**, chapter [296-52](#) WAC (department of labor and industry) and all applicable federal regulations.

(6) **Regarding chemicals**, chapter [16-228](#) WAC (department of agriculture) and all applicable federal regulations.

(7) **All applicable** state and local sanitation regulations relating to municipal watersheds and sources of domestic water supply.

In such cases of conflict, the department is authorized to seek from other agencies such waivers or modifications in the applicable safety and health regulations as may be necessary for the department to be able to fully enforce the forest practices rules contained in chapters [222-24](#) through [222-38](#) WAC.

Applicants are cautioned that there may be additional safety and health laws and regulations that may be applicable in addition to those specifically listed above.

WAC 222-50-050 Forest fire prevention and suppression.

All laws and rules relating to forest fire prevention and suppression apply in addition to these forest practices rules and, in cases of conflict, supersede the forest practices rules contained in chapters [222-24](#) through [222-38](#) WAC.

WAC 222-50-060 Other regulatory programs administered by the department.

The board recommends that, to the extent permitted by law and when necessary the department adopt rules and policies under which approved applications and notifications can serve to eliminate or reduce the need for separate permits and approvals under regulatory programs administered by the department (such as the power driven machinery permits, RCW [76.04.275](#), dumping mill waste and forest debris permit, RCW [76.04.242](#), and surface mining permits, chapter [78.44](#) RCW) as applied to forest practices. The department is directed to notify the public of the existence of such rules and policies.

Attachment A
Eastern Washington Leave Tree Requirements for Type S and F Waters

Ponderosa pine timber habitat type (stands below 2,500 feet in elevation).

1. Stands with high basal area.

Basal area requirement. Harvest is allowed if the basal area is more than 110 square feet per acre for all tree species equal to or greater than 6 inches dbh in the inner zone.

Leave tree requirements. Harvest must leave at least 50 trees per acre and a basal area of at least 60 sq. ft./ac. You must select leave trees as follows:

- 21 largest trees per acre; and
- An additional 29 trees per acre that are ≥ 10 inches dbh
 - If there are fewer than $29 \geq 10$ -inch dbh trees per acre, leave the 29 largest trees.
 - If there are more than $29 \geq 10$ -inch dbh trees per acre, leave 29
 - ≥ 10 -inch dbh trees per acre based on the following priority order:
 - Trees that provide shade to water;
 - Trees that lean towards the water;
 - Trees of the preferred species as defined in WAC 222-16-010;
 - Trees that are evenly distributed across the inner zone.

If more than 50 trees per acre are needed to meet the minimum leave tree basal area of 60 square feet per acre, then additional trees ≥ 6 inches dbh must be left. If the minimum basal area cannot be met with fewer than 100 trees that are ≥ 6 inches dbh, then no more than 100 trees per acre of the largest remaining trees are required to be left regardless of basal area.

2. Stands with low basal area and high density.

Basal area and density requirements. Thinning is permitted if the basal area of all species is less than 60 square feet per acre AND there are more than 100 trees per acre.

Leave tree requirements.

Thinning in low basal area and high density stands must leave a minimum of 100 trees per acre. The trees to be left shall be selected as follows:

- The 50 largest trees per acre; and
- An additional 50 trees per acre in the 6-inch diameter class or larger. If there are not 50 trees per acre in the 6-inch diameter class or larger, then all trees in the 6-inch diameter class or larger per acre must be left, plus the largest remaining trees to equal 50 trees per acre. Select the additional 50 trees per acre based on the following priority order:
 - Trees that provide shade to water;
 - Trees that lean towards the water;
 - Trees of the preferred species as defined in WAC 222-16-010;
 - Trees that are evenly distributed across the inner zone.

Mixed conifer timber habitat type (stands 2,500 to 5,000 feet in elevation).

The rules for the mixed conifer timber habitat type require knowledge of the site index of a harvest unit. For purposes of carrying out the RMZ rules, site indices are reported in the *Washington State Department of Natural Resources State Soil Survey* and detailed in the associated forest soil summary sheets. Contact a Department of Natural Resources (DNR) region office for site index information. If the soil survey does not report a site index for your location or it indicates noncommercial or marginal forest land, then see (3) of the definition of “site class” in WAC 222-16-010 for guidance.

1. Stands with high basal area.

Basal area requirement. Harvest is allowed if the total basal area of all species greater than 6 inches dbh in the inner zone is more than:

- 100 sq. ft./ac. on low site index (< 90)
- 130 sq. ft./ac. on medium site index (90 to \leq 110)
- 150 sq. ft./ac. on high site index (> 110)

Leave tree requirements. Harvest must leave at least 50 trees per acre AND a basal area of at least:

- 70 sq. ft./ac. on low site index (< 90)
- 90 sq. ft./ac. on medium site index (90 to \leq 110)
- 110 sq. ft./ac. on high site index (> 110)

The trees to be left shall be selected as follows:

- 21 largest trees per acre
- An additional 29 trees per acre that are \geq 10 inches dbh
 - If there are fewer than 29 \geq 10-inch trees per acre, leave the 29 largest trees.
 - If there are more than 29 \geq 10-inch trees per acre, leave 29 \geq 10-inch dbh trees per acre based on the following priority order:
 - Trees that provide shade to water;
 - Trees that lean towards the water;
 - Trees of the preferred species as defined in WAC 222-16-010;
 - Trees that are evenly distributed across the inner zone.

If more than 50 trees per acre are needed to meet the minimum leave tree basal area for the applicable site index, then additional trees \geq 6 inches dbh must be left. If the minimum basal area cannot be met with fewer than 100 trees that are \geq 6 inches dbh, then no more than 100 trees per acre of the largest remaining trees are required to be left regardless of basal area.

2. Stands with low basal area and high density.

Basal area and density requirements. Thinning is permitted if the basal area of all species in the inner zone is less than the minimum requirements for the site index (as shown below) AND there are more than 120 trees per acre:

70 sq. ft./ac. on low site index (< 90)
90 sq. ft./ac. on medium site index (90 to ≤ 110)
110 sq. ft./ac. on high site index (> 110)

Leave tree requirements. Thinning in low basal area and high density stands must leave a minimum of 120 trees per acre. The trees to be left shall be selected as follows:

- The 50 largest trees per acre; and
- An additional 70 trees per acre in the 6-inch diameter class or larger. If there are not 70 trees per acre in the 6-inch diameter class or larger, then all trees in the 6-inch diameter class or larger per acre must be left, plus the largest remaining trees to equal 70 trees per acre. Select the additional 70 trees per acre based on the following priority order:
 - Trees that provide shade to water;
 - Trees that lean towards the water;
 - Trees of the preferred species as defined in WAC 222-16-010;
 - Trees that are evenly distributed across the inner zone.

Additional Leave Tree Requirements.

The 21 largest trees do not have to be evenly spaced.

The 29 additional ≥ 10-inch dbh trees per acre should be selected based on the following priority order:

- Trees that provide shade to water.
- Trees that lean toward the water.
- Trees of the preferred species:
 - Ponderosa pine habitat type All hardwoods, Ponderosa pine, western larch, Douglas-fir, western red cedar
 - Mixed conifer habitat type All hardwoods, western larch, Ponderosa pine, western red cedar, western white pine, Douglas-fir, lodgepole pine
- Trees that are evenly spaced across the inner zone.