Chapter 222-30 WAC
TIMBER HARVESTING

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WAC

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Reviser's note: For an explanation of the rules marked with an asterisk (*), see WAC 222-12-010.

WAC 222-30-010 Policy—Timber harvesting. *(1) This chapter covers all removal of timber from forest lands in commercial operations, commercial thinning, salvage of timber, relogging merchantable material left after prior harvests, postharvest cleanup, and clearing of merchantable timber from lands being converted to other uses. It does not cover removal of incidental vegetation or removal of firewood for personal use. To the extent practicable, the department shall coordinate activities using a multiple disciplinary planning approach.

*(2) The goal of riparian rules is to protect aquatic resources and related habitat to achieve restoration of riparian function; and the maintenance of these resources once they are restored.

*(3) The rules provide for the conversion and/or treatment of riparian forests which may be understocked, overstocked or uncharacteristically hardwood dominated while maintaining minimum acceptable levels of function on a landscape scale. The diversity of riparian forests across the landscapes is addressed by tailoring riparian prescriptions to the site productivity and tree community at any site.

*(4) Wetland areas serve several significant functions in addition to timber production: Providing fish and wildlife habitat, protecting water quality, moderating and preserving water quantity. Wetlands may also contain unique or rare ecological systems. The wetland management zone and wetland requirements specified in this chapter are designed to protect these wetland functions when measured over the length of a harvest rotation, although some of the functions may be reduced until the midpoint of the timber rotation cycle. Landowners are encouraged to voluntarily increase wetland acreage and functions over the long-term. Other laws or rules and/or permit requirements may apply. See chapter 222-50 WAC.

[Statutory Authority: Chapter 34.05 RCW, RCW 76.09.040, [76.09.]050, [76.09.]370, 76.13.120(9). WSR 01-12-042, § 222-30-010, filed 5/30/01, effective 7/1/01. Statutory Authority: RCW 76.09.040, 76.09.050 and chapter 34.05 RCW. WSR 92-15-011, § 222-30-010, filed 7/2/92, effective 8/2/92. Statutory Authority: RCW 76.09.040. WSR 88-19-112 (Order 551, Resolution No. 88-1), § 222-30-010, filed 9/21/88, effective

11/1/88. Statutory Authority: RCW 76.09.040 and 76.09.050. WSR 82-16-077 (Resolution No. 82-1), § 222-30-010, filed 8/3/82, effective 10/1/82; Order 263, § 222-30-010, filed 6/16/76.]

WAC 222-30-020 *Harvest unit planning and design. (1) **Preapplication consultation and harvest-related forest practices hydraulic projects.**

(a) Landowners contemplating forest practices hydraulic projects related to timber harvest are encouraged to consult with the department and the department of fish and wildlife prior to submitting an application to help ensure that project plans and specifications meet fish protection standards.

(b) Harvest-related forest practices hydraulic projects include, but are not limited to, projects associated with:

(i) Felling and bucking (WAC 222-30-050);

(ii) Cable yarding (WAC 222-30-060); and

(iii) Large woody material removal or repositioning (WAC 222-30-062).

(2) **Logging system.** The logging system, including forest biomass removal operations, should be appropriate for the 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.

*(3) **Landing locations.** Locate landings to prevent damage to public resources. Avoid excessive excavation and filling.

*(4) **Western Washington riparian management zones.** (See WAC 222-30-021 and 222-30-023.)

*(5) **Eastern Washington riparian management zones.** (See WAC 222-30-022 and 222-30-023.)

*(6) **Riparian leave tree areas.** (See WAC 222-30-021, 222-30-022, and 222-30-023.)

*(7) **Forested wetlands.** Within the wetland, unless otherwise approved in writing by the department, 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.

(a) When forested wetlands are included within the harvest area, landowners are encouraged to leave a portion (thirty to seventy percent) 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.

(b) If a 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.

(c) 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).

(d) If the conditions described in (a) and (b) of this subsection are met, the distribution requirements for wildlife reserve trees and green recruitment trees (subsection (12)(e) of this section) are modified as follows: For purposes of distribution, no point within the

harvest unit shall be more than one thousand feet from a wildlife reserve tree and green recruitment tree retention area.

(e) Approximate determination of the boundaries of forested wetlands greater than three acres shall be required. Approximate boundaries and areas shall be deemed to be sufficient for harvest operations.

(f) The department 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.

*(8) **Wetland management zones (WMZ).** These zones shall apply to Type A and B Wetlands, as indicated in (a) of this subsection, and shall be measured horizontally from the wetland edge or the point where the nonforested wetland becomes a forested wetland, as determined by the method described in the board manual section 8, and shall be of an average width as described in (a) of this subsection. These zones shall not be less than the minimum nor more than the maximum widths described in (a) of this subsection. When these zones overlap a riparian management zone the requirement which best protects public resources shall apply.

*(a) Wetland management zones (WMZ) shall have variable widths based on the size of the wetland and the wetland type, described as follows:

Wetland Management Zones

Wetland Type	Acres of Nonforested Wetland*	Maximum WMZ Width	Average WMZ Width	Minimum WMZ Width
A (including bogs)	Greater than 5	200 feet	100 feet	50 feet
A (including bogs)	0.5 to 5	100 feet	50 feet	25 feet
A (bogs only)	0.25 to 0.5	100 feet	50 feet	25 feet
B	Greater than 5	100 feet	50 feet	25 feet
B	0.5 to 5			25 feet
B	0.25 to 0.5	No WMZ required	No WMZ required	

* For bogs, both forested and nonforested acres are included.

(b) Within the WMZ, leave a total of seventy-five trees per acre of WMZ greater than six inches dbh in Western Washington and greater than four inches dbh in Eastern Washington, twenty-five of which shall be greater than twelve inches dbh including five trees greater than twenty inches dbh, where they exist. Leave trees shall be representative of the species found within the WMZ.

(c) Retain wildlife reserve trees where feasible. Type 1 and 3 wildlife reserve trees may be counted among, and need not exceed, the trees required in (b) of this subsection. Leave all cull logs on site.

(d) Partial-cutting or removal of groups of trees is acceptable within the WMZ. The maximum width of openings created by harvesting within the WMZ shall not exceed one hundred feet as measured parallel to the wetland edge. Openings within WMZs shall be no closer than two hundred feet. Landowners are encouraged to concentrate leave trees within the WMZ to the wetland edge.

*(e) Tractors, wheeled skidders, or other ground based harvesting systems shall not be used within the minimum WMZ width without written approval of the department.

*(f) When ten percent or more of a harvest unit lies within a wetland management zone and either the harvest unit is a clearcut of thirty acres or less or the harvest unit is a partial cut of eighty

acres or less, leave not less than fifty percent of the trees required in (b) of this subsection.

*(9) **Type A or B Wetlands.** Within the boundaries of Type A or B Wetlands the following shall apply:

(a) Individual trees or forested wetland areas less than 0.5 acre in size may occur. These trees have a high habitat value to the non-forested wetland. Leave individual trees or forested wetlands less than 0.5 acre. These trees may be counted toward the WMZ requirements.

(b) Harvest of upland areas or forested wetlands which are surrounded by Type A or B Wetlands must be conducted in accordance with a plan, approved in writing by the department.

(c) No timber shall be felled into or cable yarded across Type A or B Wetlands without written approval of the department.

(d) Harvest shall not be allowed within a Type A Wetland which meets the definition of a bog.

(10) **Future productivity.** Harvesting shall leave the land in a condition conducive to future timber production except:

(a) To the degree required for riparian management zones; or

(b) Where the lands are being converted to another use or classified urban lands as specified in WAC 222-34-050.

(11) **Wildlife habitat.** This subsection is designed to encourage timber harvest practices that would protect wildlife habitats, provided, that such action shall not unreasonably restrict landowners action without compensation.

(a) The applicant should make every reasonable effort to cooperate with the department of fish and wildlife to identify critical habitats (state) as defined by the board. Where these habitats are known to the applicant, they shall be identified in the application or notification.

(b) Harvesting methods and patterns in established big game winter ranges should be designed to ensure adequate access routes and escape cover where practical.

(i) Where practical, cutting units should be designed to conform with topographical features.

(ii) Where practical on established big game winter ranges, cutting units should be dispersed over the area to provide cover, access for wildlife, and to increase edge effect.

(12) **Wildlife reserve tree management.** In areas where leaving wildlife reserve trees under this section will not create a significant fire hazard, or significant hazard to overhead power lines and operations that are proposed in the vicinity of wildlife reserve trees will not create a significant safety or residential hazard nor conflict with achieving conformance with the limitation of or performance with the provisions of chapter 76.04 RCW (snag falling law) and chapter 49.17 RCW (safety), wildlife reserve trees will be left to protect habitat for cavity nesting wildlife in accordance with the following:

(a) For the purposes of this subsection the following defines eastern and western Washington boundaries for wildlife reserve tree management. Beginning at the International Border and Okanogan National Forest boundary at the N1/4 corner Section 6, T. 40N, R. 24E., W.M., south and west along the Pasayten Wilderness boundary to the west line of Section 30, T. 37N, R. 19E.,

Thence south on range line between R. 18E. and R. 19E., to the Lake Chelan-Sawtooth Wilderness at Section 31, T. 35N, R. 19E.,

Thence south and east along the eastern wilderness boundary of Lake Chelan-Sawtooth Wilderness to the west line of Section 18, T. 31N, R. 19E. on the north shore of Lake Chelan,

Thence south on the range line between R. 18E. and R. 19E. to the SE corner of T. 28N, R. 18E.,

Thence west on the township line between T. 27N, and T. 28N to the NW corner of T. 27N, R. 17E.,

Thence south on range line between R. 16E. and R. 17E. to the Alpine Lakes Wilderness at Section 31, T. 26N, R. 17E.,

Thence south along the eastern wilderness boundary to the west line of Section 6, T. 22N, R. 17E.,

Thence south on range line between R. 16E. and R. 17E. to the SE corner of T. 22N, R. 16E.,

Thence west along township line between T. 21N, and T. 22N to the NW corner of T. 21N, R. 15E.,

Thence south along range line between R. 14E. and R. 15E. to the SW corner of T. 20N, R. 15E.,

Thence east along township line between T. 19N, and T. 20N to the SW corner of T. 20N, R. 16E.,

Thence south along range line between R. 15E. and R. 16E. to the SW corner of T. 18N, R. 16E.,

Thence west along township line between T. 17N, and T. 18N to the SE corner of T. 18N, R. 14E.,

Thence south along range line between T. 14E. and R. 15E. to the SW corner of T. 14N, R. 15E.,

Thence south and west along Wenatchee National Forest boundary to the NW corner of T. 12N, R. 14E.,

Thence south along range line between R. 13E. and R. 14E. to the SE corner of T. 10N, R. 13E.,

Thence west along township line between T. 9N, and T. 10N to the NW corner of T. 9N, R. 12E.,

Thence south along range line between R. 11E. and R. 12E. to the SE corner of T. 8N, R. 11E.,

Thence west along township line between T. 7N, and T. 8N to the Gifford Pinchot National Forest boundary,

Thence south along forest boundary to the SE corner of Section 33, T. 7N, R. 11E.,

Thence west along township line between T. 6N, and T. 7N to the SE corner of T. 7N, R. 9E.,

Thence south along Skamania-Klickitat County line to Oregon-Washington.

(b) In Western Washington, for each acre harvested three wildlife reserve trees, two green recruitment trees, and two down logs shall be left. In Eastern Washington for each acre harvested two wildlife reserve trees, two green recruitment trees, and two down logs shall be left. Type 1 wildlife reserve trees may be counted, at the landowner's option, either as a wildlife reserve tree or as a green recruitment tree. If adequate wildlife reserve trees are not available, no additional green recruitment trees will be required as substitutes. Landowners shall not under any circumstances be required to leave more than two green recruitment trees per acre for the purpose of wildlife reserve tree recruitment, or be required to leave Type 3 or 4 wildlife reserve trees.

(c) In Western Washington, only those wildlife reserve trees ten or more feet in height and twelve or more inches dbh shall be counted toward wildlife reserve tree retention requirements. In Eastern Washington, only those wildlife reserve trees ten or more feet in height and ten or more inches dbh shall be counted toward wildlife reserve tree retention requirements. Green recruitment trees, ten or more inches dbh and thirty or more feet in height and with at least one-third

of their height in live crown, left standing after harvest may be counted toward green recruitment tree requirements. Green recruitment trees and/or wildlife reserve trees left to meet other requirements of the rules or those left voluntarily by the landowner shall be counted toward satisfying the requirements of this section. Large, live defective trees with broken tops, cavities, and other severe defects are preferred as green recruitment trees. Only down logs with a small end diameter greater than or equal to twelve inches and a length greater than or equal to twenty feet or equivalent volume shall be counted under (a) of this subsection. Large cull logs are preferred as down logs.

(d) In the areas where wildlife reserve trees are left, the largest diameter wildlife reserve trees shall be retained to meet the specific needs of cavity nesters. Where the opportunity exists, larger trees with numerous cavities should be retained and count as recruitment trees.

(e) In order to facilitate safe and efficient harvesting operations, wildlife reserve trees and recruitment trees may be left in clumps. For purposes of distribution, no point within the harvest unit shall be more than eight hundred feet from a wildlife reserve tree or green recruitment tree retention area. Subject to this distribution requirement, the location of these retention areas and the selection of recruitment trees shall be at the landowner's discretion. Closer spacing of retention areas through voluntary action of the landowner is encouraged. Wildlife reserve tree and green recruitment tree retention areas may include, but are not limited to, riparian management zones, riparian leave tree areas, other regulatory leave areas, or voluntary leave areas that contain wildlife reserve trees and/or green recruitment trees.

(f) In order to provide for safety, landowners may remove any Type 3 or 4 wildlife reserve tree, which poses a threat to humans working, recreating, or residing within the hazard area of that tree. In order to provide for fire safety, the distribution of wildlife reserve tree retention areas, described in (e) of this subsection, may be modified as necessary based on a wildlife reserve tree management plan proposed by the landowner and approved by the department.

*(13) **Channel migration zones.** No harvest, construction or salvage will be permitted within the boundaries of a channel migration zone except for the construction and maintenance of road crossings in accordance with applicable rules and the creation and use of yarding corridors consistent with WAC 222-24-020(6), 222-30-060(1), and 222-30-045(2).

(14) **Bankfull width.** No harvest or construction will be permitted 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 consistent with WAC 222-30-020 *(6) and 222-24-060(1). No salvage may take place within the bankfull width of any typed water (see WAC 222-30-045).

[Statutory Authority: RCW 76.09.040. WSR 21-06-020, § 222-30-020, filed 2/22/21, effective 3/25/21. Statutory Authority: RCW 76.09.040(3). WSR 13-21-032, § 222-30-020, filed 10/8/13, effective 12/30/13. Statutory Authority: RCW 76.09.040. WSR 05-12-119, § 222-30-020, filed 5/31/05, effective 7/1/05. Statutory Authority: Chapter 34.05 RCW, RCW 76.09.040, [76.09.]050, [76.09.]370, 76.13.120(9). WSR 01-12-042, § 222-30-020, filed 5/30/01, effective

7/1/01. Statutory Authority: RCW 76.09.040 and chapter 34.05 RCW. WSR 97-24-091, § 222-30-020, filed 12/3/97, effective 1/3/98; WSR 97-15-105, § 222-30-020, filed 7/21/97, effective 8/21/97; WSR 94-17-033, § 222-30-020, filed 8/10/94, effective 8/13/94; WSR 93-12-001, § 222-30-020, filed 5/19/93, effective 6/19/93. Statutory Authority: RCW 76.09.060, 76.09.040 and chapter 34.05 RCW. WSR 92-23-056, § 222-30-020, filed 11/17/92, effective 12/18/92. Statutory Authority: RCW 76.09.040, 76.09.050 and chapter 34.05 RCW. WSR 92-15-011, § 222-30-020, filed 7/2/92, effective 8/2/92. Statutory Authority: RCW 76.09.040. WSR 88-19-112 (Order 551, Resolution No. 88-1), § 222-30-020, filed 9/21/88, effective 11/1/88; WSR 87-23-036 (Order 535), § 222-30-020, filed 11/16/87, effective 1/1/88; Order 263, § 222-30-020, filed 6/16/76.]

WAC 222-30-021 *Western Washington Type S and F Waters riparian management zones. These rules apply to all 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.

***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.

(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. 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.

(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 140 years old.

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

(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:

(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 in this subsection;

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

(C) There are fewer than 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 500 feet upstream and 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 75-foot buffer with trees at least 40 feet tall on both sides of the stream for 500 feet upstream and 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.

(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 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 Waters: Up to 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 75-foot buffer of trees at least 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 75-foot buffer of trees at least 40 feet tall.

(C) Not more than 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.

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

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

(B) Not more than 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.

(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;

(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 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.

(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.

(b) **Harvest options.**

(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'

(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:

(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 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 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'

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

(I) Harvest is not permitted within 30 feet of the core zone for streams less than or equal to 10 feet wide and harvest is not permit-

ted within 50 feet of the core zone for streams greater than 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 20 conifers per acre, with a minimum 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 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) 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 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' (measured from outer edge of core zone)	stream width ≤10' minimum floor distance (measured from outer edge of core zone)	stream width >10' (measured from outer edge of core zone)	stream width >10' minimum floor distance (measured from outer edge of core zone)	stream width ≤10'	stream width ≥10'
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.

(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.

(i) Trees containing basal area equal to the amount determined in (c) of this subsection will be left elsewhere in the inner or outer zone, or if the zones contain insufficient riparian 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.

(ii) When the stream-adjacent road basal area calculated in (c) of this subsection results in an excess in basal area (above stand re-

quirement) 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 10 trees per acre.

(iii) When the basal area requirement cannot be met, as explained in (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.

(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.

(3) **Outer zones.** Timber harvest in the outer zone must leave 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 20 riparian leave trees to be left can be reduced in number under the circumstances delineated in (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.

(a) **Dispersal strategy.** Riparian leave trees, which means conifer species with a diameter measured at breast height (dbh) of 12 inches or greater, must be left dispersed approximately evenly throughout the outer zone. If riparian leave trees of 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 (b) of this subsection.

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

(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:

(A) Seeps and springs;

(B) Forested wetlands;

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

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

(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);

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

(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

(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).

(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 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.

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

(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.

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

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

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

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

(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:

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

(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.

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

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

[Statutory Authority: RCW 76.09.040 and 76.09.370. WSR 25-24-022, s 222-30-021, filed 11/21/25, effective 8/31/26. Statutory Authority: RCW 76.09.040(3). WSR 13-21-032, § 222-30-021, filed 10/8/13, effective 12/30/13. Statutory Authority: RCW 76.09.040. WSR 12-05-083, § 222-30-021, filed 2/17/12, effective 3/19/12. Statutory Authority: RCW 76.09.040 and 76.09.370. WSR 09-18-032, § 222-30-021, filed 8/25/09,

effective 9/25/09. Statutory Authority: RCW 76.09.040. WSR 08-24-011, § 222-30-021, filed 11/21/08, effective 12/22/08; WSR 05-12-119, § 222-30-021, filed 5/31/05, effective 7/1/05. Statutory Authority: Chapter 34.05 RCW, RCW 76.09.040, [76.09.]050, [76.09.]370, 76.13.120(9). WSR 01-12-042, § 222-30-021, filed 5/30/01, effective 7/1/01.]

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 sub-

section (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.

[Statutory Authority: RCW 76.09.040 and 76.09.370. WSR 25-24-022, s 222-30-0211, filed 11/21/25, effective 8/31/26.]

WAC 222-30-022 *Eastern Washington riparian management zones. For eastside forests, riparian management is intended to provide stand conditions that vary over time. It is designed to mimic eastside disturbance regimes within a range that meets functional conditions and maintains general forest health. These desired future conditions are a reference point on the pathway to restoration of riparian functions, not an end point of riparian stand development. These rules apply to all typed waters on forest land in Eastern 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 the following section.

Eastern Washington RMZ for streams with bankfull width of less than or equal to 15 feet wide

Site Class	Total RMZ Width	Core Zone Width From outer edge of bankfull width or outer edge of CMZ, whichever is greater	Inner Zone Width	Outer Zone Width
I	130'	30'	45'	55'
II	110'	30'	45'	35'
III	90'	30'	45'	15'
IV	75'	30'	45'	0'
V	75'	30'	45'	0'

Eastern Washington RMZ for streams with bankfull width of greater than 15 feet wide

Site Class	Total RMZ Width	Core Zone Width From outer edge of bankfull width or outer edge of CMZ, whichever is greater	Inner Zone Width	Outer Zone Width
I	130'	30'	70'	30'
II	110'	30'	70'	10'
III	100'	30'	70'	0'
IV	100'	30'	70'	0'
V	100'	30'	70'	0'

*(1) **Eastern Washington RMZs on Type S and F Waters** have three zones: The core zone is nearest to the edge of the bankfull width or outer edge of the CMZ, whichever is greater. The inner zone is the middle zone, and the outer zone is furthest from the water. Permitted forest practices vary by timber habitat type and site class.

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 accordance with WAC 222-24-030 and 222-24-050, or the creation and use of yarding corridors in accordance with 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) **Core zones.** The core zone extends thirty feet measured horizontally from the edge of the bankfull width or outer edge of the CMZ, whichever is greater, for all timber habitat types. No harvest or construction is allowed in the core zone except as detailed in subsection (1) of this section. Any trees cut for or damaged by yarding corridors must be left on 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 replacement strategy.

(b) **Inner zones.** Width and leave tree requirements of the inner zone vary by timber habitat type as outlined below.

(i) **Ponderosa pine timber habitat type.**

(A) The width of the inner zone is seventy feet measured horizontally from the outer edge of the core zone on streams greater than fifteen feet bankfull width or forty-five feet measured horizontally from the outer edge of the core zone on streams with a bankfull width of fifteen feet or less.

(B) No harvest is allowed in the inner zone except as described in (b)(i)(C) or (D) of this subsection, and as allowed for stream crossings and yarding corridors as described in this subsection (1).

(C) **Stands with a high basal area:** Harvest is permitted in the inner zone if the basal area in the inner zone is greater than one hundred ten square feet per acre for conifer and hardwood trees equal to or greater than six inches dbh. The harvest must leave at least fifty trees per acre AND subject to (b)(i)(C)(III) of this subsection, a minimum leave tree basal area of at least sixty square feet per acre. The trees to be left shall be selected as follows:

(I) The twenty-one largest trees per acre must be left; and

(II) An additional twenty-nine trees per acre that are 10-inch dbh or greater must be left. If there are less than twenty-nine ten-inch dbh or greater trees per acre, leave the twenty-nine largest trees. If there are more than twenty-nine ten-inch dbh or greater trees per acre, leave twenty-nine ten-inch dbh or greater 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.

(III) If more than fifty trees per acre are needed to meet the minimum leave tree basal area of sixty square feet per acre, then additional trees greater than six-inch dbh must be left. If the minimum basal area cannot be met with fewer than one hundred trees of at least six inches dbh, then no more than one hundred trees per acre of the largest remaining trees will be required to be left regardless of the basal area.

(D) **Stands with low basal areas and high density:** Thinning is permitted if the basal area of all species is less than sixty square feet per acre AND there are more than one hundred trees per acre. The thinning must leave a minimum of one hundred trees per acre. The trees to be left must be selected as follows:

(I) The fifty largest trees per acre must be left; and

(II) An additional fifty trees per acre that are greater than six inches dbh must be left. If there are not fifty six-inch dbh or greater trees per acre, then all six-inch dbh or greater trees per acre must be left plus the largest remaining trees to equal fifty trees per acre. Select the additional fifty trees 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.

(E) To the extent down wood is available on site prior to harvest, at least twelve tons of down wood per acre must be left following harvest as follows:

(I) Six pieces greater than sixteen inches diameter and twenty feet in length; and

(II) Four pieces greater than six inches in diameter and twenty feet in length.

(III) Landowner/operator is not required to create down wood.

(F) See **stream-adjacent parallel roads for all timber habitat types** in (iv) of this subsection if there is a stream-adjacent parallel road in this zone.

(ii) **Mixed conifer timber habitat type.**

(A) The width of the inner zone is seventy feet measured horizontally from the outer edge of the core zone on streams greater than fifteen feet bankfull width or forty-five feet measured horizontally from the outer edge of the core zone on streams with a bankfull width of fifteen feet or less.

(B) No harvest is allowed in the inner zone except as described in (b)(ii)(C) or (D) of this subsection, and as allowed for stream crossings and yarding corridors as described in subsection (1).

(C) **Stands with a high basal area:**

(I) Harvest is permitted in the inner zone if the combined conifer and hardwood basal area for trees greater than six inches dbh is:

- Greater than one hundred ten square feet per acre on low site indexes (site index less than ninety); or
- Greater than one hundred thirty square feet per acre on medium site indexes (site index between ninety and one hundred ten); or
- Greater than one hundred fifty square feet per acre on high site indexes (site index greater than one hundred ten).

(II) The harvest must leave at least fifty trees per acre AND a minimum leave tree basal area of at least:

- Seventy square feet per acre on low site indexes; or
- Ninety square feet per acre on medium site indexes; or
- One hundred ten square feet per acre on high site indexes.

(III) The trees to be left shall be selected as follows:

- The twenty-one largest trees per acre must be left; and
- An additional twenty-nine trees per acre that are ten-inch dbh or greater must be left. If there are less than twenty-nine ten-inch dbh or greater trees per acre, leave the twenty-nine largest trees. If there are more than twenty-nine ten-inch dbh or greater trees per

acre, leave twenty-nine ten-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; or

• Trees that are evenly distributed across the inner zone.

• If more than fifty trees per acre are needed to meet the minimum leave tree basal area for the site index in (b)(ii)(C)(II) of this subsection, then additional trees greater than six inches dbh must be left. If the minimum basal area cannot be met with fewer than one hundred trees at least six inches dbh, then no more than one hundred trees per acre of the largest remaining trees will be required to be left regardless of the basal area.

(D) **Stands with low basal areas and high density:** Thinning is permitted if the basal area of all species is less than the minimum requirements for the site index in (b)(ii)(C)(II) of this subsection AND there are more than one hundred twenty trees per acre. The thinning must leave a minimum of one hundred twenty trees per acre. The trees to be left shall be selected as follows:

(I) The fifty largest trees per acre must be left; and

(II) An additional seventy trees per acre greater than six inches dbh must be left. If there are not seventy six-inch dbh or greater trees per acre, then all six-inch dbh or greater trees per acre must be left plus the largest remaining trees to equal seventy trees per acre. Select the additional seventy trees 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; or

• Trees that are evenly distributed across the inner zone.

(E) To the extent down wood is available on site prior to harvest, twenty tons of down wood per acre is required to be left following harvest as follows:

(I) Eight pieces greater than sixteen inches diameter and twenty feet in length; and

(II) Eight pieces greater than six inches in diameter and twenty feet in length.

(III) Landowner/operator is not required to create down wood.

(F) **See stream-adjacent parallel roads for all timber habitat types** in (b)(iv) of this subsection if there is a parallel road in this zone.

(iii) **High elevation timber habitat type.**

(A) The width of the inner zone is forty-five feet measured horizontally from the outer edge of the core zone on streams equal to or less than fifteen feet bankfull width or seventy feet measured horizontally from the outer edge of the core zone on streams with a bankfull width of greater than fifteen feet.

(B) Follow stand requirements for Western Washington riparian management zones, WAC 222-30-021 (1)(b).

Note: Option 2 is not permitted for eastside use, because of the minimum floor (100') constraint.

(C) To the extent down wood is available prior to harvest, thirty tons per acre of down wood per acre must be left following harvest as follows:

(I) Eight pieces greater than sixteen inches diameter and twenty feet in length; and

(II) Eight pieces greater than six inches in diameter and twenty feet in length.

(III) Landowner/operator is not required to create down wood.

(D) See **stream-adjacent parallel roads for all timber habitat types** in (b)(iv) of this subsection if there is a parallel road in this zone.

(iv) **Stream-adjacent parallel roads for all timber habitat types in the inner zone.** The shade rule, WAC 222-30-040, must be met whether or not the inner zone includes a stream-adjacent parallel road. Where a stream-adjacent parallel road exists in the inner zone and the minimum required basal area cannot be met due to the presence of the road, then the location of the road determines the allowable operations as follows:

(A) For streams with a bankfull width that is greater than fifteen feet:

(I) If the edge of the road closest to the stream is seventy-five feet or more from the outer edge of bankfull width of the stream or outer edge of CMZ, whichever is greater, **no harvest is permitted in the inner zone.** This includes trees within the inner zone on the uphill side of the road.

(II) No harvest is permitted within the inner zone on the stream-side of the road. If the edge of the road closest to the stream is less than seventy-five feet from the outer edge of bankfull width of the stream or outer edge of CMZ, whichever is greater then:

• Additional leave trees equal in total basal area to the trees lost due to the road must be left near the streams in or adjacent to the unit to be harvested; (See board manual section 7.)

• Where the additional leave trees providing fish habitat for water quality function are determined to be not available or not practical by the department, landowners and operators will employ site specific management activities to replace lost riparian functions that may include placement of large woody debris in streams. (See board manual section 7.)

(B) For streams with a bankfull width less than fifteen feet:

(I) If the edge of the road closest to the stream is fifty feet or more from the outer edge of bankfull width or outer edge of CMZ, whichever is greater, no harvest is permitted in the inner zone. This includes trees within the inner zone on the uphill side of the road.

(II) No harvest is permitted within the inner zone on the stream side of the road. If the edge of the road closest to the stream is less than fifty feet from the bankfull width or CMZ, whichever is greater then:

• Additional leave trees equal in total basal area to the trees lost due to the road must be left near the streams in or adjacent to the unit to be harvested. (See board manual section 7.)

• Where the additional leave trees providing fish habitat for water quality function are determined to be not available or not practical by the department, landowners and operators will employ site specific management activities to replace lost riparian functions that may include placement of large woody debris in streams. (See board manual section 7.)

(C) **Wildlife reserve trees.** Leave all wildlife reserve trees within the inner zone of the riparian management zone where operations in the vicinity do not violate the safety regulations (chapter 296-54 WAC and chapter 49.17 RCW administered by the department of labor and

industries, safety division). Live wildlife reserve trees will contribute to the basal area requirements for inner zone leave trees and to leave tree counts if they are among the twenty-one largest trees per acre; or meet the requirement of an additional twenty-nine leave trees per acre as per (b)(ii)(E) of this subsection.

(c) **Outer zones.** This zone has three categories based on timber habitat type: Ponderosa pine, mixed conifer and high elevation. The width of this zone is zero to fifty-five feet measured horizontally from the outer edge of the inner zone depending on the site class and stream width. (See WAC 222-16-010 definition of "RMZ outer zone.")

(i) Tree counts that must be left per acre, regardless of the presence of an existing stream-adjacent parallel road in the zone, are:

(A) Ponderosa pine habitat type - Ten dominant or codominant trees.

(B) Mixed conifer habitat type - Fifteen dominant or codominant trees.

(C) High elevation habitat type - See requirements for Western Washington RMZs in WAC 222-30-021 (1)(c).

(ii) Outer zone leave tree requirements in (c)(i) of this subsection may be reduced to five trees per acre in the ponderosa pine zone, eight trees per acre in the mixed forest habitat type and ten trees per acre in the high elevation habitat type, if the landowner voluntarily implements a LWD placement plan consistent with 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. If this strategy is chosen, a complete forest practices application must include the LWD placement plan.

*(2) **Eastern Washington protection along Type Np and Ns Waters.**

(a) An **equipment limitation zone** is a thirty-foot wide zone measured horizontally from the outer edge of bankfull width of a Type Np or Ns Water where equipment is limited. It applies to all perennial and seasonal streams.

(i) On-site mitigation is required if any of the following activities exposes the soil 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 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) **Type Np Waters.**

Within fifty horizontal feet of the outer edge of bankfull width of the stream, the landowner must identify either a partial cut and/or clearcut strategy for each unit to be harvested:

Once approved by the department, the selected strategy will remain in effect until July 1, 2051. If a landowner transfers title of the harvest unit, the landowner must provide written notice of this continuing obligation to the new owner and send a copy to the department. See WAC 222-20-055.

(i) **For partial cuts:**

(A) Basal areas requirements are the same as those specified for the timber habitat type in the Eastern Washington RMZ inner zone.

(B) Where a stream-adjacent parallel road exists, the basal area required in (b)(i)(A) of this subsection is required to be left. (See stream-adjacent parallel roads for Type Np Waters in (c) of this subsection.)

(C) The trees to be included in the basal area determination and left after harvest must include:

(I) The ten largest trees per acre;

(II) Up to an additional forty trees per acre greater than or equal to ten inches dbh must be left. If all or some of the trees are not at least ten inches dbh, then the largest of the remaining trees must be left. Select trees based on the following priority order:

- Provide streambank stability;
- Provide shade to water;
- Lean towards the water;
- Preferred species, as defined in WAC 222-16-010; or
- Evenly distributed; and

If the basal area target has not been met with the trees required above, up to an additional fifty trees are required greater than six inches in dbh based on the above priority order.

(D) Side slope seeps must be protected with a fifty-foot partial cut buffer that meets the basal area and leave tree requirements of (b)(i)(A), (B), and (C) of this subsection. The buffer shall be measured from the outer perimeter of the perennially saturated soil zone.

(ii) **For clearcuts:**

When the clearcut strategy in this subsection is selected, the landowner must simultaneously designate a two-sided no-harvest fifty-foot buffer along the stream reach in the harvest unit that:

(A) Is equal in total length to the clearcut portion of the stream reach in the harvest unit; and

(B) Meets the upper end of basal area requirements for each respective timber habitat type in the Eastern Washington RMZ inner zone. See WAC 222-30-022 (1)(b)(i), (ii) or (iii).

(C) The streamside boundary of all clearcuts must:

(I) Not exceed in total thirty percent of the length of the stream reach in the harvest unit;

(II) Not exceed three hundred continuous feet in length;

(III) Not be located within five hundred feet of the intersection of a Type S or F Water; and

(IV) Not occur within fifty feet of the following sensitive sites as defined in WAC 222-16-010:

- The outer perimeter of a soil zone perennially saturated from a headwall seep;
- The outer perimeter of a soil zone perennially saturated from a side-slope seep;
- The center of a headwater spring;
- An alluvial fan;
- The center point of intersection of two or more Type Np Waters.

(c) **Stream-adjacent parallel roads for Type Np Waters.** If a road exists in a Type Np RMZ and the basal area required to be left cannot be met within fifty feet of the outer edge of bankfull width of the stream measured horizontally due to the presence of the road, then the distance of the road to the stream determines the allowable operations as follows:

(i) A road that is within thirty to forty-nine feet measured horizontally from the outer edge of bankfull width of the stream requires:

(A) A total of one hundred feet of riparian management zone measured horizontally (both sides of the stream count towards the total) must be left in a manner to provide maximum functions for nonfish use streams. If harvest is taking place on only one side of the stream, then fifty feet of RMZ width must be left, regardless of presence of a stream-adjacent parallel road. The width of the road is not counted as part of the total width of the RMZ.

(B) The location of the riparian management zone required in (A) of this subsection shall be based on the following priority order:

(I) Preferred: The area between the stream and the stream side edge of the road.

(II) The area that provides the most shade to the channel.

(III) The area that is most likely to deliver large woody debris to the channel.

(ii) A road that is within less than thirty feet from the outer edge of bankfull width of the stream measured horizontally requires, in addition to (c)(i)(A) and (B) of this subsection, that all trees between the stream and the streamside edge of the road must be left.

[Statutory Authority: RCW 76.09.040(3). WSR 13-21-032, § 222-30-022, filed 10/8/13, effective 12/30/13. Statutory Authority: RCW 76.09.040. WSR 05-12-119, § 222-30-022, filed 5/31/05, effective 7/1/05. Statutory Authority: Chapter 34.05 RCW, RCW 76.09.040, [76.09.]050, [76.09.]370, 76.13.120(9). WSR 01-12-042, § 222-30-022, filed 5/30/01, effective 7/1/01.]

WAC 222-30-023 Riparian management zones for exempt 20-acre parcels.

Note: Compliance with this section does not ensure compliance with the federal Endangered Species Act or the Clean Water Act.

On parcels of 20 contiguous acres or less, landowners with total parcel ownership of less than 80 forested acres shall not be required to leave the riparian buffers described in WAC 222-30-021 and 222-30-022. These landowners are required to follow applicable watershed analysis riparian prescriptions in effect as of January 1, 1999, or if there are no watershed analysis riparian prescriptions in effect these landowners are required to follow the riparian management zone rules below.

*(1) **Western Washington RMZs for exempt 20-acre parcels.** Riparian management zones are measured horizontally from the outer edge of bankfull width of a Type S or F Water and extend to the line where vegetation changes from wetland to upland plant community, or the line required to leave sufficient shade as required by WAC 222-30-040, whichever is greater, but must not be less than 29 feet in width nor more than the maximum widths described in (f) of this subsection, provided that the riparian management zone width shall be expanded as necessary to include wetlands or ponds adjacent to the stream. When the riparian management zone overlaps a Type A or B Wetland or a wetland management zone, the requirement which best protects public resources shall apply.

(a) Harvest units shall be designed so that felling, bucking, yarding or skidding, and reforestation can be accomplished in accordance with these rules, including those rules relating to stream bank

integrity and shade requirements to maintain stream temperature. Where the need for additional actions or restrictions adjacent to waters not covered by the following become evident, WAC 222-12-050 and 222-12-060 may apply.

(b) When requested in writing by the applicant, the department shall assist in preparation of an alternate plan for the riparian management zone.

(c) Landowners must meet the following shade requirements in effect January 1, 1999, to maintain stream temperature.

*(i) Determination of adequate shade. The temperature prediction method in (c)(ii) and (iii) of this subsection shall be used to determine appropriate shade levels for flowing Type S and F Waters to prevent excessive water temperatures which may have detrimental impact on aquatic resources.

*(ii) Temperature prediction method. In addition to the riparian management zone requirements described in (f) of this subsection, leave trees shall be retained within the maximum riparian management zones on flowing Type S and F Waters as provided by the method described in the board manual which includes the following considerations:

(A) Minimum shade retention requirements; and

(B) Regional water temperature characteristics; and

(C) Elevation; and

(D) Temperature criteria defined for stream classes in chapter 173-201A WAC.

*(iii) Leave tree requirements for shade. The method described in (c)(ii) of this subsection shall be used to establish the minimum shade cover based on site-specific characteristics. When site-specific data indicate that preharvest conditions do not meet the minimums established by the method, no additional shade removal from riparian management zones will be allowed.

(iv) Waivers. The department may waive or modify the shade requirements where:

(A) The applicant agrees to a staggered setting program producing equal or greater shade requirements to maintain stream temperature; or

(B) The applicant provides alternative means of stream temperature control satisfactory to the department; or

(C) The temperature method indicates that additional shade will not affect stream temperature.

(d) For wildlife habitat within the riparian management zone, leave an average of 5 undisturbed and uncut wildlife trees per acre at the ratio of 1 deciduous tree to 1 conifer tree equal in size to the largest existing trees of those species within the zone. Where the 1 to 1 ratio is not possible, then substitute either species present. Forty percent or more of the leave trees shall be live and undamaged on completion of harvest. Wildlife trees shall be left in clumps whenever possible.

(e) When 10 percent or more of the harvest unit lies within any combination of a riparian management zone of Type S or F Waters or a wetland management zone and the harvest unit is a clearcutting of 20 acres or less, leave not less than 50 percent of the trees required in (f) of this subsection.

(f) Within the riparian management zone, trees shall be left for wildlife and fisheries habitat as provided for in the chart below. Fifty percent or more of the trees shall be live and undamaged on completion of the harvest. The leave trees shall be randomly distributed where feasible; some clumping is allowed to accommodate operational considerations. The number, size, species and ratio of leave trees,

deciduous to conifer, is specified by the bed material and average width of the water type within the harvest unit. Trees left according to (c) of this subsection may be included in the number of required leave trees in this subsection.

Western Washington Riparian Leave Tree Requirements
For exempt 20-acre parcels

Water Type/Average Bankfull Width	RMZ Maximum Width	Ratio of Conifer to Deciduous/ Minimum Size Leave Trees	# Trees/1000 ft. each side	
			Gravel/Cobble <10" Diameter	Boulder/Bedrock
S or F Water greater than or equal to 75'	115'	representative of stand	58 trees	29 trees
S Water less than 75' and F Water less than 75' and greater than or equal to 10'	86'	representative of stand	115 trees	60 trees
F Water less than 10' and greater than or equal to 5'	58'	2 to 1 12" or next largest available[1]	86 trees	29 trees
F Water less than 5'	29'	1 to 1 6" or next largest available[1]	29 trees	29 trees

[1] "Or next largest available" requires that the next largest trees to those specified in the rule be left standing when those available are smaller than the size specified.

Ponds or lakes which are Type S or F Waters shall have the same leave tree requirements as boulder/bedrock streams.

*(2) **Eastern Washington riparian management zones for exempt 20-acre parcels.** These zones shall be measured horizontally from the outer edge of bankfull width of Type S or F Waters and extend to the line where vegetation changes from wetland to upland plant community, or to the line required to leave sufficient shade as required by WAC 222-30-040, whichever is greater, but shall not be less than the minimum width nor more than the maximum widths described in (c) of this subsection, provided that the riparian management zone width shall be expanded as necessary to include wetlands or ponds adjacent to the stream. When the riparian management zone overlaps a Type A or B Wetland or a wetland management zone, the requirement which best protects public resources shall apply.

(a) Harvest units shall be designed so that felling, bucking, yarding or skidding, and reforestation can be accomplished in accordance with these rules, including those rules relating to stream bank integrity and shade requirements to maintain stream temperature. Where the need for additional actions or restrictions adjacent to waters not covered by the following become evident, WAC 222-12-050 and 222-12-060 may apply.

(b) When requested in writing by the applicant, the department shall assist in preparation of an alternate plan for the riparian management zone.

(c) Within the riparian management zone, trees shall be left for wildlife and fisheries habitat as provided for below. Fifty percent or more of the trees shall be live and undamaged on completion of the harvest. The leave trees shall be randomly distributed where feasible; some clumping is allowed to accommodate operational considerations.

(i) The width of the riparian management zone shall be based on the adjacent harvest type as defined in WAC 222-16-010 "Partial cutting." When the adjacent unit harvest type is:

Partial cutting - The riparian management zone width shall be a minimum of 35 feet to a maximum of 58 feet on each side of the stream.

Other harvest types - The riparian management zone shall average 58 feet in width on each side of the stream with a minimum width of 35 feet and a maximum of 345 feet on each side of the stream.

(ii) Leave tree requirements within the riparian management zones of Type S or F Waters:

(A) Leave all trees 12 inches or less in diameter breast height (dbh); and

(B) Leave all wildlife reserve trees within the riparian management zone where operations in the vicinity do not violate the state safety regulations (chapter 296-54 WAC and chapter 49.17 RCW administered by department of labor and industries, safety division); and

(C) Leave 18 live conifer trees per acre between 12 inches dbh and 20 inches dbh distributed by size, as representative of the stand; and

(D) Leave 4 live conifer trees per acre 20 inches dbh or larger and the 2 largest live deciduous trees per acre 16 inches dbh or larger. Where these deciduous trees do not exist, and where 2 wildlife reserve trees per acre 20 inches or larger do not exist, substitute 2 live conifer trees per acre 20 inches dbh or larger. If live conifer trees of 20 inches dbh or larger do not exist within the riparian management zone, then substitute the 5 largest live conifer trees per acre; and

(E) Leave 3 live deciduous trees per acre between 12 inches and 16 inches dbh where they exist.

(iii) Minimum leave tree requirements per acre for Type S or F Waters. Trees left for (c)(ii) of this subsection shall be included in the minimum counts.

(A) On streams with a boulder/bedrock bed, the minimum leave tree requirements shall be 75 trees per acre 4 inches dbh or larger.

(B) On streams with a gravel/cobble (less than 10 inches diameter) bed, the minimum leave tree requirement shall be 155 trees per acre 4 inches dbh or larger.

(C) On lakes or ponds, the minimum leave tree requirement shall be 86 trees per acre 4 inches dbh or larger.

Note: See the board manual for guidelines for calculating trees per acre and average RMZ widths.

(d) When 10 percent or more of the harvest unit lies within any combination of a riparian management zone of Type S or F Waters or a wetland management zone and the harvest unit is 20 acres or less, leave not less than 50 percent of the trees required in (c) of this subsection. (See WAC 222-16-010 "Partial cutting.")

*(3) **Riparian leave tree areas for exempt 20-acre parcels.** The department will require trees to be left along Type Np Waters where such practices are necessary to protect public resources. Where such practices are necessary, leave at least 29 conifer or deciduous trees, 6 inches in diameter or larger, on each side of every 1000 feet of stream length within 29 feet of the stream. The leave trees may be arranged to accommodate the operation.

(4) For the purposes of this section RMZ means: A specified area alongside Type S and F Waters where specific measures are taken to protect water quality and fish and wildlife habitat.

[Statutory Authority: RCW 76.09.040. WSR 10-23-077, § 222-30-023, filed 11/15/10, effective 12/16/10; WSR 08-24-011, § 222-30-023, filed 11/21/08, effective 12/22/08; WSR 05-12-119, § 222-30-023, filed

5/31/05, effective 7/1/05. Statutory Authority: Chapter 34.05 RCW, RCW 76.09.040, [76.09.]050, [76.09.]370, 76.13.120(9). WSR 01-12-042, § 222-30-023, filed 5/30/01, effective 7/1/01.]

WAC 222-30-025 Even-aged harvest—Size and timing. Except as provided in WAC 222-30-110, unit size and timing of timber harvesting by even-aged harvest methods is subject to the following requirements:

(1) Timber harvest which would result in an area larger than one hundred twenty acres and smaller than or equal to two hundred forty acres harvested by even-aged harvest methods on land owned or controlled by one landowner shall be reviewed by an interdisciplinary team, if the department determines that review is necessary. The area harvested by even-aged harvest methods, for the purposes of this subsection, shall be determined in accordance with subsection (3) of this section.

(2) Timber harvest which would result in an area larger than two hundred forty acres harvested by even-aged harvest methods on land owned or controlled by one landowner shall be prohibited. The area harvested by even-aged harvest method for the purposes of this subsection shall be determined in accordance with subsection (3) of this section.

(3) In calculating areas harvested by even-aged harvest methods, the area harvested by even-aged harvest methods shall include the acreage of that harvest unit and, all contiguous acreage harvested by even-aged harvest methods which is owned or controlled by the same landowner, except that acreage harvested by even-aged harvest methods sharing 10% or less of the common perimeter with the harvest unit under consideration shall not be considered contiguous for the purposes of this section.

(4) Harvest units shall be designed so that each harvest unit meets at least one of the following criteria:

(a) At least thirty percent of the unit's perimeter is in stands of trees that are thirty years of age or older;

(b) At least sixty percent of the unit's perimeter is in stands of trees that are fifteen years of age or older; or

(c) At least ninety percent of the unit's perimeter is in stands of trees that have survived on site a minimum of five growing seasons or, if not, have reached an average height of four feet.

Evaluation of unit perimeters is subject to the conditions specified in subsection (6) of this section.

(5) The requirements of subsections (2), (3), and (4) of this section shall apply only to timber harvest by even-aged harvest methods and shall not apply to timber harvest to salvage timber damaged by wind, disease, insects, fire, or other natural causes or to forest practices involving the clearing of land of brush or understocked hardwoods to convert to managed hardwoods or conifers.

(6) In evaluating the perimeters of harvest units pursuant to subsection (4) of this section, the following conditions shall apply:

(a) The following shall be treated as fully stocked, mature stands that will not be counted as contiguous acreage harvested by even-aged methods for the purposes of subsections (1) and (2) of this section and which will be counted as thirty-year-old stands for the purposes of subsection (4) of this section:

(i) In Western Washington, a wetland management zone that is twice the width required by WAC 222-30-021 and 222-30-023(1) along Type S or F Waters;

(ii) In Eastern Washington, wetland management zone that is the width required by WAC 222-30-022 and 222-30-023(2);

(iii) Designated upland management areas;

(iv) Lands in a shoreline of statewide significance where harvest is limited under RCW 90.58.150;

(v) The portions of a perimeter consisting of land in uses other than forest land, such as land in agricultural or residential use and natural openings, and land not owned or controlled by the landowner who has proposed the harvest unit subject to the application under consideration;

*(vi) Along Type S and F Waters, a continuous buffer meeting the requirements of WAC 222-30-021 and 222-30-022;

*(vii) Along Type Np Waters, a continuous 50-foot wide no-harvest, no-salvage buffer.

(b) A stand of trees other than those described in (a) of this subsection shall be treated as a certain age class only if the stand is at least three hundred feet wide;

(c) Timber harvest units subject to an approved application or a notification for timber harvesting shall be treated as if the timber harvesting operation proposed in the application or notification were completed and regeneration not yet established.

[Statutory Authority: RCW 76.09.040. WSR 05-12-119, § 222-30-025, filed 5/31/05, effective 7/1/05. Statutory Authority: Chapter 34.05 RCW, RCW 76.09.040, [76.09.]050, [76.09.]370, 76.13.120(9). WSR 01-12-042, § 222-30-025, filed 5/30/01, effective 7/1/01. Statutory Authority: RCW 76.09.040, 76.09.050 and chapter 34.05 RCW. WSR 92-15-011, § 222-30-025, filed 7/2/92, effective 8/2/92.]

WAC 222-30-030 Stream bank integrity. *In the RMZ core zone for Type S and F Waters and RMZs for Type Np Waters, the operator shall:

(1) **Avoid disturbing brush** and similar understory vegetation;

(2) **Avoid disturbing stumps** and root systems and any logs embedded in the bank;

(3) **Leave high stumps** where necessary to prevent felled and bucked timber from entering the water;

(4) Leave trees which display large root systems embedded in the bank.

[Statutory Authority: Chapter 34.05 RCW, RCW 76.09.040, [76.09.]050, [76.09.]370, 76.13.120(9). WSR 01-12-042, § 222-30-030, filed 5/30/01, effective 7/1/01. Statutory Authority: RCW 76.09.040. WSR 87-23-036 (Order 535), § 222-30-030, filed 11/16/87, effective 1/1/88; Order 263, § 222-30-030, filed 6/16/76.]

WAC 222-30-040 Shade requirements to maintain water temperature. *(1) Within the bull trout overlay, all available shade will be retained within 75 feet from the edge of the bankfull width or the outer edge of the CMZ (whichever is greater) along Type S or F Waters. (See board manual, section 1.)

*(2) Determination of adequate shade outside the bull trout overlay. The temperature prediction method mentioned in subsections (2)

and (3) of this section shall be used to determine appropriate shade levels along Type S and F Waters to prevent excessive water temperatures, which may have detrimental impact on aquatic resources. No tree may be harvested within 75 feet from the edge of the bankfull width or the outer edge of the CMZ (whichever is greater) of any Type S or F Water if, according to the methodology, that tree is providing shade to the stream necessary to maintain compliance with temperature standards. If a landowner elects to remove any tree within 75 feet of any Type S or F Water, the landowner must demonstrate, using the methods in the board manual section 1, that the removal of the tree would not be contrary to the restrictions of this subsection.

*(3) **Temperature prediction method.** In addition to the riparian management zone requirements, leave trees shall be retained in riparian management zones on Type S and F Waters as provided by the method described in the board manual which includes the following considerations:

(a) Minimum shade retention requirements; and

(b) Regional water temperature characteristics; and

(c) Elevation; and

(d) Temperature criteria defined for stream classes in chapter 173-201A WAC.

*(4) Leave tree requirements for shade. The method described in subsection (3) of this section must be used to establish the minimum required shade cover based on site specific characteristics. When site specific data indicate that preharvest conditions do not meet the minimums established by the method, no additional shade removal from riparian management zones will be allowed.

*(5) Shade requirements must be satisfied whether or not the inner zone includes a stream-adjacent parallel road. Nothing will preclude or limit the harvest of shade trees in connection with the construction and maintenance of road crossings or the creation and use of yarding corridors. (See WAC 222-30-060(1).)

*(6) **Waivers.** The department may waive or modify the shade requirements where:

The temperature method indicates that additional shade will not affect water temperature.

[Statutory Authority: Chapter 34.05 RCW, RCW 76.09.040, [76.09.]050, [76.09.]370, 76.13.120(9). WSR 01-12-042, § 222-30-040, filed 5/30/01, effective 7/1/01. Statutory Authority: RCW 76.09.040 and chapter 34.05 RCW. WSR 93-12-001, § 222-30-040, filed 5/19/93, effective 6/19/93. Statutory Authority: RCW 76.09.040, 76.09.050 and chapter 34.05 RCW. WSR 92-15-011, § 222-30-040, filed 7/2/92, effective 8/2/92. Statutory Authority: RCW 76.09.040. WSR 87-23-036 (Order 535), § 222-30-040, filed 11/16/87, effective 1/1/88. Statutory Authority: RCW 76.09.040 and 76.09.050. WSR 82-16-077 (Resolution No. 82-1), § 222-30-040, filed 8/3/82, effective 10/1/82; Order 263, § 222-30-040, filed 6/16/76.]

WAC 222-30-045 Salvage logging within riparian management zones. Salvage logging within a riparian management zone is based upon the zone (core, inner or outer) in which the tree was originally located, applicable riparian stand requirements and the extent of previous harvest activities in the zone.

*(1) **Salvage logging within the outer edge of bankfull width of any typed water.** No salvage may take place within the outer edge of bankfull width of any typed water.

(2) **Salvage logging in a core zone or channel migration zone.** No salvage may take place within the RMZ core zone or a channel migration zone, including any portion of those trees that may have fallen outside of these zones.

(3) **Salvage logging in the inner zone.** Salvage may not take place within the inner zone if the stand requirements cannot be met by the residual stand. If the proposed salvage involves down tree(s) that originated from the inner zone, salvage of down wood may only be permitted if the down wood was not needed to meet stand requirements in the inner zone. Salvage of any existing down wood may not take place if the unremoved balance of down wood is insufficient to meet the regional down wood guidelines in (a) and (b) of this subsection. Salvage within the inner zone must be conducted to protect residual undamaged trees within the inner zone. Down wood guidelines for salvage in RMZ inner zones are:

(a) **In Western Washington:**

Logs with a solid core	< 1 foot diameter	1-2 foot diameter	> 2 foot diameter	Total
Number of logs/ acre	85	83	26	194

(b) **In Eastern Washington** ponderosa pine, mixed conifer, and high elevation habitat types:

Follow the down wood requirements for each habitat type in WAC 222-30-022.

(4) **Salvage logging in the outer zone.** Salvage may not take place within the outer zone if the riparian leave tree requirements cannot be met by the residual standing or down trees. If the proposed salvage involves tree(s) that are down that originated from the outer zone, salvage may only be permitted of down wood if the down wood was not needed to meet riparian leave tree requirements in the outer zone.

(5) Salvage logging in sensitive sites or Type Np riparian management zones. No salvage may take place within a sensitive site or a Type Np RMZ.

[Statutory Authority: Chapter 34.05 RCW, RCW 76.09.040, [76.09.]050, [76.09.]370, 76.13.120(9). WSR 01-12-042, § 222-30-045, filed 5/30/01, effective 7/1/01.]

WAC 222-30-050 Felling and bucking. *(1) **Felling along water.**

(a) Except when removing or repositioning large woody debris per WAC 222-30-062, no trees will be felled into Type S and F Waters RMZ core zones, sensitive sites, or Type A or B Wetlands except trees which cannot practically and safely be felled outside these areas using techniques in general use. Such felling and removing in Type S or F Waters shall incorporate mitigation measures necessary to achieve no-net-loss of productive capacity of fish and shellfish habitat as follows:

(i) Trees shall not be felled into or across the stream except where approved by the department.

(ii) Trees or logs that enter a stream during felling shall remain where they enter unless parts or all of the trees or logs are specifically approved to be removed by the department.

(iii) If limbs or other small debris enter the watercourse as a result of felling timber, they shall be removed concurrently with each change in yarding road or within seventy-two hours after entry into the watercourse and placed on stable locations outside the stream's influence. Limbs or other small debris shall be removed from dry watercourses prior to the normal onset of high flows. Large woody material which was in place prior to felling timber shall not be disturbed.

(iv) Precautions shall be taken to minimize the release of sediment to waters downstream from the felling activity. See board manual section 5 for technical guidance.

(b) Within RMZ inner and outer zones, and wetland management zones, fell trees favorable to the lead consistent with safety standards to yard or skid away from the waters. The use of directional felling, lining, jacking and staged felling techniques are required.

(c) Trees may be felled into Type Np Water if logs are removed as soon thereafter as practical. See forest practices board manual section 4 guidelines for clearing slash and debris from Type Np and Ns Water.

*(2) **Bucking or limbing along water.**

No bucking or limbing shall be done on trees or portions thereof lying within the bankfull width of Type S, F or Np Waters, in the RMZ core zones, in sensitive sites, or in open water areas of Type A Wetlands, except as necessary to remove the timber from the water, or unless it is part of a proposal to remove or reposition large wood debris per WAC 222-30-062. Such bucking or limbing in Type S or F Waters shall incorporate the mitigation measures in subsection (1)(a) of this section.

*(3) **Felling near riparian management zones, wetland management zones and setting boundaries.** Reasonable care shall be taken to avoid felling trees into riparian management zones, wetland management zones and areas outside the harvest unit.

(4) **Felling in selective and partial cuts.** Reasonable care shall be taken to fell trees in directions that minimize damage to residual trees.

(5) **Disturbance avoidance for northern spotted owls.** Felling and bucking within a SOSEA boundary shall not be allowed within 0.25 mile of a northern spotted owl site center between March 1st and August 31st provided that, this restriction shall not apply if:

(a) The landowner demonstrates that the owls are not actively nesting during the current nesting season; or

(b) The forest practice is operating in compliance with a plan or agreement developed for the protection of the northern spotted owl under WAC 222-16-080 (6)(a), (e), or (f).

(6) **Disturbance avoidance for marbled murrelets.** Felling and bucking shall not be allowed within 0.25 mile of an occupied marbled murrelet site during the daily peak activity periods within the critical nesting season, provided that, this restriction shall not apply if the forest practice is operating in compliance with a plan or agreement developed for the protection of the marbled murrelet under WAC 222-16-080 (6)(a) or (c).

[Statutory Authority: RCW 76.09.040(3). WSR 13-21-032, § 222-30-050, filed 10/8/13, effective 12/30/13. Statutory Authority: RCW 76.09.040. WSR 05-12-119, § 222-30-050, filed 5/31/05, effective 7/1/05. Statutory Authority: Chapter 34.05 RCW, RCW 76.09.040, [76.09.]050, [76.09.]370, 76.13.120(9). WSR 01-12-042, § 222-30-050, filed 5/30/01,

effective 7/1/01. Statutory Authority: RCW 76.09.040 and chapter 34.05 RCW. WSR 97-24-091, § 222-30-050, filed 12/3/97, effective 1/3/98; WSR 97-15-105, § 222-30-050, filed 7/21/97, effective 8/21/97. Statutory Authority: Chapters 76.09 and 34.05 RCW. WSR 96-12-038, § 222-30-050, filed 5/31/96, effective 7/1/96. Statutory Authority: RCW 76.09.040, 76.09.050 and chapter 34.05 RCW. WSR 92-15-011, § 222-30-050, filed 7/2/92, effective 8/2/92. Statutory Authority: RCW 76.09.040. WSR 87-23-036 (Order 535), § 222-30-050, filed 11/16/87, effective 1/1/88. Statutory Authority: RCW 76.09.040 and 76.09.050. WSR 82-16-077 (Resolution No. 82-1), § 222-30-050, filed 8/3/82, effective 10/1/82; Order 263, § 222-30-050, filed 6/16/76.]

WAC 222-30-060 Cable yarding. *(1) **Type S and F Waters and sensitive sites.** No timber shall be cable yarded in or across Type S or F Waters except where the logs will not materially damage the bed of waters, banks of sensitive sites, or riparian management zones. If yarding across Type S or F Waters is permitted, then yarding is limited to cable or other aerial logging methods. Any work in or above Type S or F Waters requires an approved forest practices application. Logs must be fully suspended above the water unless otherwise allowed in the applicable forest practices application. Yarding corridors or full suspension shall be required to prevent damage to the bed, banks, and riparian vegetation. Yarding corridors must be no wider or more numerous than necessary to accommodate safe and efficient transport of logs. Generally, yarding corridors should be located no closer to each other than one hundred fifty feet (measured edge to edge) and should be no wider than thirty feet. Safety is a prime consideration in the location of yarding corridors. Total openings resulting from yarding corridors must not exceed twenty percent of the stream length associated with the forest practices application. When changing cable locations, care must be taken to move cables around or clear of the riparian vegetation to avoid damage to riparian vegetation.

Trees, logs, limbs, and other small debris that enter the water shall be managed as follows:

(a) Trees or logs that enter Type S and F Waters with identifiable bed or banks during yarding shall remain where they enter unless parts or all of the trees or logs are specifically approved to be removed by the department.

(b) Logs transported across Type S or F Waters shall be suspended so no portion of the logs or limbs can enter the watercourse or damage the bed and banks.

(c) If limbs or other small debris enter Type S or F Waters with identifiable bed or banks as a result of yarding timber, they shall be removed concurrently with each change in yarding road or within seventy-two hours after entry and placed on stable locations outside the stream's influence. Limbs or other small debris shall be removed from dry portions of watercourses prior to the normal onset of high flows. Large woody material that was in place prior to yarding of timber shall not be disturbed.

*(2) **Type A or B Wetlands.** No timber shall be cable yarded in or across Type A or B Wetlands except with approval by the department.

*(3) **Deadfalls.** Logs which are firmly embedded in the bed or bank of Type S or F Waters shall not be removed or disturbed except with approval by the department.

*(4) **Yarding in riparian management zones, sensitive sites, and wetland management zones.** Where timber is yarded from or across a ri-

parian management zone, sensitive site, or wetland management zone 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. Where practical and consistent with good safety practices, logs shall be yarded in the direction in which they lie and away from Type A or B Wetlands or Type S, F or Np Waters until clear of the wetland management zone or riparian management zone.

*(5) **Precautions shall be taken to minimize the release of sediment** to waters downstream from the yarding activity. See board manual section 5 for technical guidance.

(6) **Direction of yarding.**

(a) Uphill yarding is preferred.

(b) Where downhill yarding is used, reasonable care shall be taken to lift the leading end of the log to minimize downhill movement of slash and soils.

*(c) When yarding parallel to a Type S or F Water channel below the 100-year flood level or within the riparian management zone, reasonable care shall be taken to minimize soil disturbance and to prevent logs from rolling into the stream, lake, pond, or riparian management zone.

(7) **Disturbance avoidance for northern spotted owls.** The operation of heavy equipment within a SOSEA boundary shall not be allowed within 0.25 mile of a northern spotted owl site center between March 1st and August 31st provided that, this restriction shall not apply if:

(a) The landowner demonstrates that the owls are not actively nesting during the current nesting season; or

(b) The forest practice is operating in compliance with a plan or agreement developed for the protection of the northern spotted owl under WAC 222-16-080 (6)(a), (e), or (f).

(8) **Disturbance avoidance for marbled murrelets.** Yarding or operation of heavy equipment shall not be allowed within 0.25 mile of an occupied marbled murrelet site during the daily peak activity periods within the critical nesting season, provided that, this restriction shall not apply if the forest practice is operating in compliance with a plan or agreement developed for the protection of the marbled murrelet under WAC 222-16-080 (6)(a) or (c).

[Statutory Authority: RCW 76.09.040(3). WSR 13-21-032, § 222-30-060, filed 10/8/13, effective 12/30/13. Statutory Authority: RCW 76.09.040. WSR 08-24-011, § 222-30-060, filed 11/21/08, effective 12/22/08. Statutory Authority: Chapter 34.05 RCW, RCW 76.09.040, [76.09.]050, [76.09.]370, 76.13.120(9). WSR 01-12-042, § 222-30-060, filed 5/30/01, effective 7/1/01. Statutory Authority: RCW 76.09.040 and chapter 34.05 RCW. WSR 97-24-091, § 222-30-060, filed 12/3/97, effective 1/3/98; WSR 97-15-105, § 222-30-060, filed 7/21/97, effective 8/21/97. Statutory Authority: Chapters 76.09 and 34.05 RCW. WSR 96-12-038, § 222-30-060, filed 5/31/96, effective 7/1/96. Statutory Authority: RCW 76.09.040, 76.09.050 and chapter 34.05 RCW. WSR 92-15-011, § 222-30-060, filed 7/2/92, effective 8/2/92. Statutory Authority: RCW 76.09.040. WSR 87-23-036 (Order 535), § 222-30-060, filed 11/16/87, effective 1/1/88. Statutory Authority: RCW 76.09.040 and 76.09.050. WSR 82-16-077 (Resolution No. 82-1), § 222-30-060, filed 8/3/82, effective 10/1/82; Order 263, § 222-30-060, filed 6/16/76.]

WAC 222-30-062 *Large woody debris removal or repositioning. Large woody debris removal or repositioning projects shall incorporate mitigation measures as necessary to achieve no-net-loss of productive capacity of fish and shellfish habitat. The following shall apply to large woody debris removal or repositioning:

(1) Large woody debris removal from streams shall only be approved where necessary to address safety considerations, or where its removal would not diminish the fish habitat quality of the watercourse. The department may approve the repositioning of large woody debris within the watercourse to protect life and property or as needed to conduct a forest practices hydraulic project. Repositioned large woody material shall be placed or anchored to provide stable, functional fish habitat.

(2) Large woody debris removal shall be conducted by equipment stationed on the bank, bridge, or other approved methods.

(3) Unless otherwise authorized, large woody debris shall be suspended during its removal so no portion of the large woody debris or limbs can damage the bed or banks. Yarding corridors or full suspension shall be required to avoid damage to riparian vegetation. It may be necessary to cut the large woody debris in place, to a size that allows suspension during removal.

(4) Smaller limb and bark debris associated with the large woody material shall be removed and disposed of so as not to reenter the typed water.

(5) Large woody debris embedded in a bank or bed shall be left undisturbed and intact except where authorized for removal.

(6) Large woody debris removal or repositioning shall be accomplished in a manner which minimizes the release of bedload, logs, or debris downstream.

(7) Depressions created in gravel bars shall be filled, smoothed over, and sloped upwards toward the bank on a minimum two percent gradient.

[Statutory Authority: RCW 76.09.040(3). WSR 13-21-032, § 222-30-062, filed 10/8/13, effective 12/30/13.]

WAC 222-30-065 Helicopter yarding. (1) Helicopter operations within a SOSEA boundary shall not be allowed within 0.25 mile of a northern spotted owl site center between March 1 and August 31, provided that, this restriction shall not apply if:

(a) The landowner demonstrates that the owls are not actively nesting during the current nesting season; or

(b) The forest practice is operating in compliance with a plan or agreement developed for the protection of the northern spotted owl under WAC 222-16-080 (6)(a), (e), or (f).

(2) Helicopter operations shall not be allowed:

(a) Over an occupied marbled murrelet site or the required managed buffer zone adjacent to that site during the critical nesting season; or

(b) Within 0.25 mile of an occupied marbled murrelet site during the daily peak activity periods within the critical nesting season.

(c) Provided that, these restrictions shall not apply if the forest practice is operating in compliance with a plan or agreement developed for the protection of the marbled murrelet under WAC 222-16-080 (6)(a) or (c).

[Statutory Authority: RCW 76.09.040 and chapter 34.05 RCW. WSR 97-15-105, § 222-30-065, filed 7/21/97, effective 8/21/97. Statutory Authority: Chapters 76.09 and 34.05 RCW. WSR 96-12-038, § 222-30-065, filed 5/31/96, effective 7/1/96.]

WAC 222-30-070 Ground-based logging systems. *(1) **Typed waters and wetlands.**

(a) Ground-based equipment shall not be used in Type S or F Water, except with approval by the department. Yarding across Type S or F Waters is limited to cable or other aerial logging methods.

(b) Ground-based transport of logs across Type Np and Ns Waters shall minimize the potential for damage to public resources.

(i) Skidding logs and driving ground-based equipment through defined channels with flowing water is not allowed.

(ii) Ground-based transport of logs to landings across any Typed Np or Ns Water shall minimize the potential to damage public resources.

(iii) Whenever skidding across Type Np or Ns Waters, the direction of log movement between stream banks shall be designed to minimize sediment delivery to the stream.

(c) In order 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.

(d) Where harvest in wetlands is permitted, ground-based logging systems shall be limited to low impact harvest systems. Ground-based logging systems operating in wetlands shall only be allowed during periods of low soil moisture or frozen soil conditions.

(e) Locations of temporary stream crossings to Np Waters shall be shown on the base map of the forest practices application. Whenever skidding in or across Type Np or Ns Waters, the direction of log movement between stream banks shall be designed to minimize sediment delivery to the stream. BMPs for stream crossings can be found in board manual section 5.

*(2) **Riparian management zone.**

(a) Logging will be permitted within the riparian management zone subject to riparian management zone protection in chapter 222-30 WAC. However, any use of ground-based yarding machines within the zone must be as described in an approved forest practices application or otherwise approved in writing by the department.

(b) When transporting logs in or through the riparian management zone with ground-based equipment, the number of routes through the zone shall be minimized.

(c) Logs shall be transported so as to minimize damage to leave trees and vegetation in the riparian management zone, to the extent practical and consistent with good safety practices.

*(3) **Wetlands management zones.**

(a) Logging will be permitted within wetland management zones subject to restrictions in WAC 222-30-020(8).

(b) 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 wetland management zone.

(c) Ground-based harvesting systems shall not be used within the minimum WMZ width unless described in an approved forest practices application or otherwise approved in writing by the department.

*(4) **Deadfalls.** Logs firmly embedded in the bed or bank of Type S or F Waters shall not be removed or disturbed without approval from the department.

*(5) **Moisture conditions.**

(a) Ground-based logging 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.

(b) 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 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.

(6) **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.

*(7) **Skid trail location and construction.**

(a) Skid trails shall be kept to the minimum width.

(b) Reasonable care shall be taken to minimize the amount of sidecast required and shall only be permitted above the 100-year flood level.

(c) Skid trails shall be outsloped where practical, but be insloped where necessary to prevent logs from sliding or rolling downhill off the skid trail.

(d) Skid trails running parallel or near parallel to streams shall be located outside the no-harvest zone of all typed waters and at least thirty 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.

(e) 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. See board manual section 3.

*(8) **Skid trail maintenance.**

(a) 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.

(b) Skid trails located within two hundred 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.

*(9) **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.

(10) **Disturbance avoidance for northern spotted owls.** The operation of heavy equipment within a SOSEA boundary shall not be allowed within 0.25 mile of a northern spotted owl site center between March 1st and August 31st, provided that, this restriction shall not apply if:

(a) The landowner demonstrates that the owls are not actively nesting during the current nesting season; or

(b) The forest practice is operating in compliance with a plan or agreement developed for the protection of the northern spotted owl under WAC 222-16-080 (6)(a), (e), or (f).

(11) **Disturbance avoidance for marbled murrelets.** Operation of heavy equipment shall not be allowed within 0.25 mile of an occupied marbled murrelet site during the daily peak activity periods within the critical nesting season, provided that, this restriction shall not apply if the forest practice is operating in compliance with a plan or agreement developed for the protection of the marbled murrelet under WAC 222-16-080 (6)(a) or (c).

[Statutory Authority: RCW 76.09.040(3). WSR 13-21-032, § 222-30-070, filed 10/8/13, effective 12/30/13. Statutory Authority: RCW 76.09.040. WSR 08-24-011, § 222-30-070, filed 11/21/08, effective 12/22/08. Statutory Authority: Chapter 34.05 RCW, RCW 76.09.040, [76.09.]050, [76.09.]370, 76.13.120(9). WSR 01-12-042, § 222-30-070, filed 5/30/01, effective 7/1/01. Statutory Authority: RCW 76.09.040 and chapter 34.05 RCW. WSR 97-24-091, § 222-30-070, filed 12/3/97, effective 1/3/98; WSR 97-15-105, § 222-30-070, filed 7/21/97, effective 8/21/97. Statutory Authority: Chapters 76.09 and 34.05 RCW. WSR 96-12-038, § 222-30-070, filed 5/31/96, effective 7/1/96. Statutory Authority: RCW 76.09.040, 76.09.050 and chapter 34.05 RCW. WSR 92-15-011, § 222-30-070, filed 7/2/92, effective 8/2/92. Statutory Authority: RCW 76.09.040. WSR 87-23-036 (Order 535), § 222-30-070, filed 11/16/87, effective 1/1/88. Statutory Authority: RCW 76.09.040 and 76.09.050. WSR 82-16-077 (Resolution No. 82-1), § 222-30-070, filed 8/3/82, effective 10/1/82; Order 263, § 222-30-070, filed 6/16/76.]

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, riprapped, water barred, benched or mulched, or be treated by other means approved by the department.

(3) **Cleanup.**

(a) Slash accumulations which would prevent reforestation of otherwise plantable fills, sidecast or cut slopes of landings shall be disposed of or be piled on the landing floor for future disposal.

(b) Slash shall not be buried in any filled portion of the landing in connection with landing cleanup operations.

(c) All cables, machine parts and other inorganic debris resulting from harvest operation(s) shall be removed at the time of landing cleanup.

[Order 263, § 222-30-080, filed 6/16/76.]

WAC 222-30-090 Postharvest site preparation. Unless the application or notification indicates that the landowner or forest landowner specifically agrees to assume responsibility for compliance with this section, the operator shall leave the site in a condition suitable for reforestation following any clear cutting, or any partial cutting west of the summit of the Cascades where 80 percent or more of the cubic volume is removed within any 5 consecutive years unless the department determines that the live trees remaining will reasonably utilize the timber growing capacity of the soils. Lands being converted to another use or classified as urban development lands under WAC 222-34-050 are exempt.

The following site preparation is required when necessary to establish a condition suitable for reforestation:

(1) Cutting, slashing, or other treatment of all noncommercial tree species, other competing vegetation, and nonmerchantable size trees commonly known as "whips" which will not reasonably utilize the growing capacity of the soil except in wetland management zones, riparian management zones; or

(2) Pile or windrow slash; or

(3) Mechanically scatter slash; or

(4) Leave the cutover area in a condition for controlled broadcast burning, and subsequently burn.

[Statutory Authority: RCW 76.09.040, 76.09.050 and chapter 34.05 RCW. WSR 92-15-011, § 222-30-090, filed 7/2/92, effective 8/2/92. Statutory Authority: RCW 76.09.040. WSR 87-23-036 (Order 535), § 222-30-090, filed 11/16/87, effective 1/1/88. Statutory Authority: RCW 76.09.040 and 76.09.050. WSR 82-16-077 (Resolution No. 82-1), § 222-30-090, filed 8/3/82, effective 10/1/82; Order 263, § 222-30-090, filed 6/16/76.]

WAC 222-30-100 Slash disposal or prescribed burning. (1) **Slash disposal or prescribed burning are prohibited in the core zone.**

(2) **Slash disposal** techniques:

*(a) Any conventional method of slash disposal may be used, except in Type A or B Wetlands, wetland management zones, and RMZ core and inner zones, Type Np RMZs, sensitive sites, and on sites where the department determines that a particular method would cause unreasonable risk to leave trees, public resources or site productivity. Conventional methods of slash disposal include the following: Controlled broadcast burning; pile or windrow and burn; pile or windrow without burning; mechanical scatter and compaction; scarification; chip, mulch or lop and scatter; burying; and physical removal from the forest lands: Provided, That on land shown to have low productivity potential the landowner or operator shall obtain the department's approval of its regeneration plan prior to utilizing controlled broadcast burning as a slash disposal technique. In riparian management inner zones, slash disposal shall be by hand, unless approved by the department. Slash disposal methods that employ machine piling, mechanical scatter and/or compaction, scarification or other techniques that result in soil disturbance shall not be allowed in equipment limitation zones. Scarification shall not be allowed within wetlands. Machine piling is

not allowed in Type A and B Wetlands. Department approval, through a burning permit, is required for burning within an equipment limitation zone.

(b) All slash burning requires a burning permit from the department which provides for compliance with the smoke management plan and reasonable care to protect Type A and B Wetlands, wetland management zones, riparian management zones, equipment limitation zones, soil, residual timber, public resources, and other property.

(3) **Slash isolation, reduction, or abatement** is required when the department determines there is an extreme fire hazard according to law (see chapter 332-24 WAC).

(4) **Slash disposal** is required where the forest landowner has applied for and been granted an extension of time for reforestation on the grounds that slash disposal is necessary or desirable before reforestation.

*(5) **Removing slash and** debris from streams.

"Slash" or "debris" which can reasonably be expected to cause significant damage to the public resource shall be removed from Type S, F or Np Waters, to above the 100-year flood level and left in a location or manner minimizing risk of re-entry into the stream, lake or pond and if substantial accumulations of slash exist below the 100-year flood level of Type S, F or Np Waters, slash disposal is required. See WAC 222-16-025(4) for general provisions that apply to forest practices hydraulic projects in Type S and F Waters, and board manual section 4, Guidelines for clearing slash and debris from Type Np and Ns Waters.

*(6) **Fire trails.**

(a) Construct drainage structures as needed to control erosion.

(b) Reasonable care shall be taken to minimize excavation during fire trail construction and sidecast shall only be permitted above the 100-year flood level.

(c) Fire trails shall not be located within Type A or B Wetlands, wetland management zones, equipment limitation zones or riparian zones without prior written approval of the department. Hand constructed fire trails are preferred within forested wetlands. When machine built fire trails are necessary for control of burning, trail width and excavation shall be minimized.

(7) **Disturbance avoidance for northern spotted owls.** Burning within a SOSEA boundary shall not be allowed within 0.25 mile of a northern spotted owl site center between March 1st and August 31st, provided that, this restriction shall not apply if:

(a) The landowner demonstrates that the owls are not actively nesting during the current nesting season; or

(b) The forest practice is operating in compliance with a plan or agreement developed for the protection of the northern spotted owl under WAC 222-16-080 (6)(a), (e), or (f).

(8) **Disturbance avoidance for marbled murrelets.** Slash disposal or prescribed burning shall not be allowed within 0.25 mile of an occupied marbled murrelet site during the critical nesting season, provided that, this restriction shall not apply if the forest practice is operating in compliance with a plan or agreement developed for the protection of the marbled murrelet under WAC 222-16-080 (6)(a) or (c).

[Statutory Authority: RCW 76.09.040(3). WSR 13-21-032, § 222-30-100, filed 10/8/13, effective 12/30/13. Statutory Authority: Chapter 34.05 RCW, RCW 76.09.040, [76.09.]050, [76.09.]370, 76.13.120(9). WSR 01-12-042, § 222-30-100, filed 5/30/01, effective 7/1/01. Statutory

Authority: RCW 76.09.040 and chapter 34.05 RCW. WSR 97-24-091, § 222-30-100, filed 12/3/97, effective 1/3/98; WSR 97-15-105, § 222-30-100, filed 7/21/97, effective 8/21/97. Statutory Authority: Chapters 76.09 and 34.05 RCW. WSR 96-12-038, § 222-30-100, filed 5/31/96, effective 7/1/96. Statutory Authority: RCW 76.09.040, 76.09.050 and chapter 34.05 RCW. WSR 92-15-011, § 222-30-100, filed 7/2/92, effective 8/2/92. Statutory Authority: RCW 76.09.040. WSR 87-23-036 (Order 535), § 222-30-100, filed 11/16/87, effective 1/1/88. Statutory Authority: RCW 76.09.040 and 76.09.050. WSR 82-16-077 (Resolution No. 82-1), § 222-30-100, filed 8/3/82, effective 10/1/82; Order 263, § 222-30-100, filed 6/16/76.]

WAC 222-30-110 Timber harvesting on islands. On an island:

(1) A landowner shall not harvest by clearcut so that more than forty contiguous acres of that landowner's forest land are in a clearcut condition;

(2) Forest land harvested by clearcut remains in the clearcut condition until it has reached canopy closure or it has been reforested for at least ten years;

(3) Clearcut harvest units are contiguous unless separated by a buffer at least two hundred feet wide that has reached canopy closure, has been reforested for at least ten years, or is in a land use other than timber production.

(4) Within two hundred feet of the bankfull width of saltwater timber harvest shall be by selective harvest only, so that no more than thirty percent of the merchantable trees are harvested in any ten-year period: Provided, That other timber harvesting methods may be permitted in those limited instances where the topography, soil conditions, or silvicultural practices necessary for regeneration render selective harvest ecologically detrimental: Provided further, That harvest by clearcut on lands being converted to another use may be approved.

(5) The requirements of this section shall not apply to timber harvest or salvage timber damaged by wind, disease, insects, fire, or other natural causes.

[Statutory Authority: RCW 76.09.040. WSR 05-12-119, § 222-30-110, filed 5/31/05, effective 7/1/05. Statutory Authority: Chapter 34.05 RCW, RCW 76.09.040, [76.09.]050, [76.09.]370, 76.13.120(9). WSR 01-12-042, § 222-30-110, filed 5/30/01, effective 7/1/01. Statutory Authority: RCW 76.09.040, 76.09.050 and chapter 34.05 RCW. WSR 92-15-011, § 222-30-110, filed 7/2/92, effective 8/2/92.]

WAC 222-30-120 Rate of harvest monitoring. (1) Purpose. A monitoring program will be established to determine the rate of timber harvest so that this information will be available, in combination with other information, for examining the relationship of the rate of timber harvest to sustainability of the timber industry and protection of public resources.

(2) Monitoring program. The department shall monitor the rate at which forest land is harvested. The geographic base for monitoring will be a water resource inventory area.

(3) Annual report to the board. In addition to the report provided for in WAC 222-08-160, the department shall report monitoring results to the board, annually, beginning in August 1992, including:

(a) A summary of rate of harvest by water resource inventory area; and

(b) Any other information considered to be significant in understanding the status of the rate of harvest.

Actual reporting periods may be modified as dictated by the availability of satellite imagery.

[Statutory Authority: RCW 76.09.040. WSR 08-24-011, § 222-30-120, filed 11/21/08, effective 12/22/08; WSR 92-08-025, § 222-30-120, filed 3/23/92, effective 4/23/92.]