

WSR 24-24-107

PROPOSED RULES

FOREST PRACTICES BOARD

[Filed December 4, 2024, 9:56 a.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 16-24-072.

Title of Rule and Other Identifying Information: Permanent water typing system.

Hearing Location(s): On January 14, 2025, at 4 p.m., in Burlington, Comfort Suites, 500 East George Hopper Road; on January 23, 2025, at 4 p.m., in Kelso, Red Lion Hotel Kelso, 510 Kelso Drive; on January 28, 2025, at 4 p.m., in Spokane, Courtyard Spokane Downtown, 401 North Riverpoint Boulevard; on January 29, 2025, at 4 p.m., in Ellensburg, Best Western Plus, 211 West Umptanum Road; and on February 11, 2025, at 4 p.m., in Olympia, Natural Resources Building, Room 172.

Date of Intended Adoption: May 14, 2025.

Submit Written Comments to: Patricia Anderson, P.O. Box 47012, Olympia, WA 98504-7012, email forest.practicesboard@dnr.wa.gov, beginning 8 a.m. on December 4, 2024, by 5 p.m. on February 12, 2025.

Assistance for Persons with Disabilities: Contact forest practices division, phone 360-902-1400, TTY 360-902-1125, by January 2, 2025.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: The purpose of this rule making is to codify the permanent water typing system rule to accurately determine the extent of fish habitat and to inform the appropriate application of riparian protections needed while undertaking forest practice activities. The rule will replace the interim water typing system and includes a fish habitat assessment methodology for establishing the break between fish and nonfish bearing waters; a description of off-channel habitat for fish use; and direction on when to use a default physical criteria for fish use.

Reasons Supporting Proposal: The new rule will clarify the water typing system creating ease for landowner compliance and implementable for enforcement by the department of natural resources (DNR).

Statutory Authority for Adoption: RCW 76.09.040, 76.09.370.

Statute Being Implemented: RCW 76.09.370.

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

Name of Proponent: Forest practices board, governmental.

Name of Agency Personnel Responsible for Drafting: Karen Zirkle, 1111 Washington Street, Olympia, 564-200-4702; Implementation: John McEntyre, 1111 Washington Street, Olympia, 360-280-2712; and Enforcement: Saboor Jawad, 1111 Washington Street, Olympia, 360-742-7130.

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

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

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

Is not exempt.

The proposed rule does not impose more-than-minor costs on businesses. Following is a summary of the agency's analysis showing how costs were calculated. The proposed rule is not anticipated to result

in probable costs to small businesses to which the rule applies. This is because the rule is unlikely to significantly change how small businesses establish water types relative to current practice and is unlikely to change the outcomes of any water type surveys. Therefore, DNR does not anticipate an increase in costs associated with surveys or other cost increases associated with rule compliance. For additional information regarding DNR's determination, see the preliminary cost-benefit analysis for the proposed water typing system rule.

December 3, 2024
Leonard S. Young
Chair

OTS-5923.1

AMENDATORY SECTION (Amending WSR 23-17-127, filed 8/21/23, effective 1/1/24)

WAC 222-12-090 *Forest practices board manual. When approved by the board the manual serves as an advisory technical supplement to these forest practices rules. The department, in cooperation with the departments of fish and wildlife, agriculture, ecology, and such other agencies, affected Indian tribes, or interested parties as may have appropriate expertise, is directed to prepare, and submit to the board for approval, revisions to the forest practices board manual. The manual shall include:

- (1) **Method for determination of adequate shade requirements on streams** needed for use with WAC 222-30-040.
- (2) Standards for identifying channel migration zones and bank-full channel features.
- (3) **Guidelines** for forest roads.
- (4) **Guidelines** for clearing slash and debris from Type Np and Ns Waters.
- (5) **Guidelines** for forest practices hydraulic projects.
- (6) **Guidelines** for determining acceptable stocking levels.
- (7) **Guidelines** for riparian management zones.
- (8) **Guidelines** for wetland delineation.
- (9) **Guidelines** for wetland replacement or substitution.
- (10) A list of nonnative wetland plant species.
- (11) The standard methodology for conducting watershed analysis shall specify the quantitative methods, indices of resource conditions, and definitions, for conducting watershed analysis under chapter 222-22 WAC. The methodology shall also include a cultural resource module that shall specify the quantitative and qualitative methods, indices of resource conditions, and guidelines for developing voluntary management strategies for cultural resources. Except for cultural resources, the department, in consultation with Timber/Fish/Wildlife's Cooperative Monitoring, Evaluation and Research Committee (CMER), may make minor modifications to the version of the standard methodology approved by the board. Substantial amendments to the standard methodology requires approval by the board.
- (12) **Guidelines** for forest chemicals.

(a) A list of special concerns related to aerial application of pesticides developed under WAC 222-16-070(3).

(b) Guidelines for aerial applications of pesticides and other forest chemicals under chapter 222-38 WAC.

(13) (~~Guidelines for determining fish use for the purpose of typing waters under WAC 222-16-031.~~) Reserved.

(14) **Survey protocol for marbled murrelets.** The most current Pacific Seabird Group terrestrial survey protocol shall be used when surveying for marbled murrelets in a stand. Surveys are valid if they were conducted in compliance with the board-recognized Pacific Seabird Group survey protocols in effect at the beginning of the season in which the surveys were conducted.

(15) The department shall, in consultation with the department of fish and wildlife, develop:

(a) **Platform protocols** for use by applicants in estimating the number of platforms, and by the department in reviewing and classifying forest practices under WAC 222-16-050. These protocols shall include:

(i) A sampling method to determine platforms per acre in the field;

(ii) A method to predict the number of platforms per acre based on information measurable from typical forest inventories. The method shall be derived from regression models or other accepted statistical methodology, and incorporate the best available data; and

(iii) Other methods determined to be reliable by the department, in consultation with the department of fish and wildlife.

(b) Guidance for applications classified by the department under WAC 222-16-080 (1)(h)(v) to be Class IV-Special forest practices for lands designated as critical habitat (state) for marbled murrelet (*Brachyramphus marmoratus*) for the following two forest practices activities:

(i) Harvesting within a 150-foot no-cut inner zone buffer of a 300-foot managed buffer zone adjacent to an occupied marbled murrelet site.

(ii) Harvesting within a 150-foot outer zone managed buffer of a 300-foot managed buffer zone adjacent to an occupied marbled murrelet site that results in less than a residual stand relative density of 35 for Douglas-fir or red alder dominant species group or a residual stand relative density of 50 for Western hemlock dominant species group.

(16) **Guidelines** for evaluating potentially unstable slopes and landforms.

(17) **Guidelines** for the small forest landowner forestry riparian easement program.

(18) **Guidelines** for rivers and habitat open space program.

(19) **Guidelines** for hardwood conversion.

(20) **Guidelines** for financial assurances.

(21) **Guidelines** for alternate plans.

(22) **Guidelines** for adaptive management program.

(23) **Guidelines** for field protocol to locate mapped divisions between stream types and perennial stream identification.

(24) **Guidelines** for interim modification of bull trout habitat overlay.

(25) **Guidelines** for bull trout presence survey protocol.

(26) **Guidelines** for placement strategy for woody debris in streams.

OTS-5924.3

AMENDATORY SECTION (Amending WSR 06-23-096, filed 11/15/06, effective 12/16/06)

WAC 222-16-030 Water typing system. ((Until the fish habitat water type maps described below are adopted by the board, the Interim Water Typing System established in WAC 222-16-031 will continue to be used.)) The objective of the water typing system is to correctly classify waters to inform the appropriate application of riparian protections and to accurately determine the extent of fish habitat at the landscape scale. This section identifies the criteria to classify waters. The requirements for determining fish use are described in WAC 222-16-0301.

The department classifies streams, lakes, and ponds on state and private forest lands of Washington state in cooperation with the departments of fish and wildlife, and ecology, and in consultation with affected Indian tribes ((will classify streams, lakes and ponds. The department will)). To assist applicants in determining water type classifications, the department shall prepare and update water type maps showing the location of Type S, F, and N (Np and Ns) Waters within the forested areas of the state. ((The maps will be based on a multiparameter, field-verified geographic information system (GIS) logistic regression model. The multiparameter model will be designed to identify fish habitat by using geomorphic parameters such as basin size, gradient, elevation and other indicators. The modeling process shall be designed to achieve a level of statistical accuracy of 95% in separating fish habitat streams and nonfish habitat streams. Furthermore, the demarcation of fish and nonfish habitat waters shall be equally likely to over and under estimate the presence of fish habitat. These maps shall be referred to as "fish habitat water typing maps" and shall, when completed, be available for public inspection at region offices of the department.

Fish habitat water type maps will be updated every five years where necessary to better reflect observed, in-field conditions. Except for these periodic revisions of the maps, on-the-ground observations of fish or habitat characteristics will generally not be used to adjust mapped water types. However, if an on-site interdisciplinary team using nonlethal methods identifies fish, or finds that habitat is not accessible due to naturally occurring conditions and no fish reside above the blockage, then the water type will be immediately changed to reflect the findings of the interdisciplinary team. The finding will be documented on a water type update form provided by the department and the fish habitat water type map will be updated as soon as practicable. If a dispute arises concerning a water type the department shall make available informal conferences, as established in WAC 222-46-020 which shall include the departments of fish and wildlife, and ecology, and affected Indian tribes and those contesting the adopted water types.

The waters will be)) All Type S Waters, and department concurred Type F and N Water breaks and Type Np and Ns Water breaks shown on the water type map are official and may be relied upon by landowners.

The water type maps and instructions for use are available for public review from the department. All water breaks concurred by the department are regulatory water type classifications; all other mapped, and unknown Type F and N Water breaks or Type Np and Ns Water

breaks must be determined, in the field, by forest landowners or their representative. The water type break can be determined per this section or, for fish use, WAC 222-16-0301. Small forest landowners can contact the department for technical assistance and/or interdisciplinary teams to determine water typing breaks.

The department may convene an interdisciplinary team, as defined in WAC 222-16-010, to consider proposed modifications to the department's water type map; to address observed in-field conditions, including observations of fish; to address naturally occurring stream conditions or blockages making habitat inaccessible to fish; or, if a dispute arises concerning a water type classification in accordance with WAC 222-46-020.

Waters are classified using the following criteria:

* (1) **"Type S Water"** means all waters, within their bankfull width, as inventoried as "shorelines of the state" under chapter 90.58 RCW and the rules promulgated pursuant to chapter 90.58 RCW including periodically inundated areas of (~~their~~) associated wetlands.

* (2) **"Type F Water"** means segments of natural waters (~~other than Type S Waters, which are within the bankfull widths of defined channels and~~) including periodically inundated areas of their associated wetlands, (~~or within lakes, ponds, or impoundments having a surface area of 0.5 acre or greater at seasonal low water and~~) not classified as Type S Waters, which have a fish, wildlife, or human use; which in any case contain fish habitat or are described by one of the following (~~four~~) seven categories:

(a) Waters (~~, which are~~) within lakes, ponds, or impoundments having a surface of 0.5 acre or greater at seasonal low water;

(b) Stream segments having a defined channel 20 feet or greater within the bankfull width and having a gradient of less than four percent;

(c) Waters which are off-channel habitat. These are areas important for rearing and survival of fish and include riverine ponds, wall-based channels, and stream associated wetlands. The area must be connected to Type F or Type S Water and accessible to fish during some portion of the year.

(i) For channelized streams, the edge of off-channel habitat is determined based on the outer edge of inundation of the stream at the bankfull elevation flow.

(ii) For nonchannelized streams, including stream associated wetlands, off-channel habitat is the outer edge of the area periodically inundated at the ordinary high water line.

(d) Waters used by fish. The department has prepared water type maps showing the location of Type F Waters. All department concurred Type F and N Water breaks shown on the water type map are official. Where fish use has not been determined:

(i) Waters having any of the following characteristics are presumed to have fish use:

(A) Stream segments having a defined channel of two feet or greater within the bankfull width in western Washington; or three feet or greater in width in eastern Washington; and having a gradient of 16 percent or less;

(B) Stream segments having a defined channel of two feet or greater within the bankfull width in western Washington; or three feet or greater within the bankfull width in eastern Washington, and having a gradient greater than 16 percent and less than or equal to 20 percent, and having greater than 50 acres in contributing basin size in

western Washington or greater than 175 acres contributing basin size in eastern Washington, based on hydrographic boundaries;

(C) Ponds or impoundments having a surface area of less than one acre at seasonal low water and having an outlet to a fish stream;

(D) Ponds of impoundments having a surface area of 0.5 acre or greater at seasonal low water;

(E) Waters within the anadromous fish floor, see WAC 222-16-0301.

(ii) The department shall waive or modify the characteristics in (d)(i) of this subsection where:

(A) Waters have confirmed, long term, naturally occurring water quality parameters incapable of supporting fish;

(B) Snowmelt streams with short flow cycles that do not support successful life history phases of fish. These streams typically have no flow in the winter months and discontinue flow by June 1st; or

(C) Sufficient information about a geomorphic region is available to support a departure from the characteristics in (d)(i) of this subsection, as determined in consultation with the department of fish and wildlife, department of ecology, affected tribes, and interested parties.

(e) Waters diverted for domestic use by more than 10 residential or camping units or by a public accommodation facility licensed to serve more than 10 persons, where ((such diversion is determined by the department to be a valid appropriation of water and the only practical water source for such users. Such)) the department determines the diversion is a valid appropriation of water. These waters shall be considered ((to be)) Type F Water upstream from the point of ((such)) diversion for 1,500 feet or until the drainage area is reduced by 50 percent, whichever is less;

((b)) (f) Waters((, which are)) diverted for use by a federal, state, tribal or private fish ((hatcheries. Such)) hatchery. These waters shall be considered Type F Water upstream from the point of diversion for 1,500 feet, including tributaries if highly significant for protection of downstream water quality. The department may allow additional harvest beyond the requirements of Type F Water ((designation provided)) classification if the department determines after a landowner-requested ((on-site assessment by the department of fish and wildlife, department of ecology, the affected tribes and interested parties)) interdisciplinary team assessment that:

(i) The management practices proposed by the landowner will adequately protect water quality for the fish hatchery; and

(ii) ((Such)) The additional harvest within the riparian management zone meets the requirements of the water type ((designation)) classification that would apply in the absence of the hatchery;

((e)) (g) Waters((, which are)) within a federal, state, local governmental entity, or private campground having more than 10 camping units((: Provided, That the water shall not be considered to enter a campground until it reaches)). These are waters that enter a campground at the boundary of the park lands available for public use and come((s)) within 100 feet of a camping unit, trail or other park improvement;

((d) Riverine ponds, wall-based channels, and other channel features that are used by fish for off-channel habitat. These areas are critical to the maintenance of optimum survival of fish. This habitat shall be identified based on the following criteria:

(i) The site must be connected to a fish habitat stream and accessible during some period of the year; and

(ii) The off-channel water must be accessible to fish.)

(3) **"Type Np Water"** means all segments of natural waters within the bankfull width of (~~defined channels that are~~) perennial nonfish habitat streams. Perennial streams are flowing waters that do not go dry any time of a year of normal rainfall and include the intermittent dry portions of the perennial channel below the uppermost point of perennial flow.

(4) **"Type Ns Water"** means all segments of natural waters within the bankfull width of the defined channels that are not Type S, F, or Np Waters. These are seasonal, nonfish habitat streams in which surface flow is not present for at least some portion of a year of normal rainfall and are not located downstream from (~~any stream reach that is~~) a Type Np Water. Type Ns Waters must be physically connected by an above-ground channel system to Type S, F, or Np Waters.

* (5) For purposes of this section:

(a) "Residential unit" means a home, apartment, (~~residential~~) condominium unit or mobile home, serving as the principal place of residence.

(b) "Camping unit" means an area intended and used for:

(i) Overnight camping or picnicking by the public containing at least a fireplace, picnic table and access to water and sanitary facilities; or

(ii) A permanent home or condominium unit or mobile home not qualifying as a "residential unit" because of part time occupancy.

(c) "Public accommodation facility" means a business establishment (~~open to and~~) licensed to serve the public, such as a restaurant, tavern, motel or hotel.

(d) "Natural waters" only excludes water conveyance systems which are artificially constructed and actively maintained for irrigation.

(e) "Seasonal low (~~flow~~ and ~~seasonal low~~) water" means the conditions of the 7-day, 2-year low water situation, as measured or estimated by accepted hydrologic techniques recognized by the department.

(f) (~~"Channel width and gradient"~~) "Bankfull width" for defined channels means a measurement over a representative section of at least 500 linear feet with at least 10 evenly spaced measurement points along the normal stream channel but excluding unusually wide areas of negligible gradient such as marshy or swampy areas, beaver ponds and impoundments. (~~Channel gradient may be determined utilizing stream profiles plotted from United States geological survey topographic maps~~) See board manual section 23(~~+~~).

(g) "Intermittent (~~streams~~)" means those segments of streams that normally go dry.

(~~(h) "Fish habitat" means habitat which is used by any fish at any life stage at any time of the year, including potential habitat likely to be used by fish which could be recovered by restoration or management and includes off-channel habitat.~~)

NEW SECTION

WAC 222-16-0301 Verification of fish habitat and the break between Type F and Type N Water. To assist applicants in determining the water type classification, the department prepares water type maps showing the location of Type S, F, and N (Np and Ns) Waters within the forested areas of the state. The mapping tool and instructions for viewing water type maps is available on the department's website.

For the purposes of forest practices, landowners are required to verify the water type break between Type F and N Waters where fish use has not previously been determined. Department concurred breaks between Type F and N Waters are shown on the water type map. These breaks are official and can be used by the landowner. All other mapped stream breaks, and the establishment of the Type F and N Water break on streams not shown on the map, need to have the Type F and N Water break established through the application of the default physical characteristics, per WAC 222-16-030 (2)(d)(i); or, through the application of the fish habitat assessment method (FHAM) described in subsection (1) of this section.

The application of FHAM is intended to establish the line of demarcation between fish and nonfish habitat waters. No application of default physical characteristics or FHAM to determine the Type F and N Water break is allowed within the anadromous fish floor (AFF), unless a landowner requests an interdisciplinary team, as defined in WAC 222-16-010. The AFF is delineated on waters connected to saltwater by measurable physical stream characteristics, within which anadromous fish habitat is presumed, and upstream of which the default physical characteristics or a protocol fish survey under FHAM may be applied to establish the Type F and N Water type break. Board manual section 23 provides guidance on how to delineate the AFF.

* (1) **Fish habitat assessment methodology (FHAM)**. The FHAM is a series of steps used to delineate the upper extent of fish habitat coincident with the regulatory water type break between Type F and Type N Waters. Proposals to change the department water type map must include documentation of the use of the FHAM on a form designated by the department. FHAM shall be applied in waters situated upstream from the anadromous fish floor or known fish use. Board manual section 23 provides additional technical guidance for conducting the FHAM.

The FHAM requires the identification of geomorphic features meeting the definition of a potential habitat break (PHB) as described in subsection (2) of this section.

(2) **"Potential habitat break"** means a permanent, distinct, and measurable change to in-stream physical characteristics. PHBs are typically associated with underlying geomorphic conditions and may consist of natural obstacles that physically limit fish access to upstream reaches or a distinct measurable change in channel gradient, bankfull width, or a combination of the two. Natural, nondeformable obstacle PHB includes vertical drops, steep cascades, bedrock sheets and bedrock chutes. Guidance on how to identify PHB is contained in board manual section 23.

(3) The steps to conduct FHAM are:

Step 1	Locate the upstream extent of the AFF or other upstream most point of known fish use, whichever is furthest upstream. The process and sources used to determine known presence or fish habitat must be documented. Proponents are encouraged to contact the department of fish and wildlife and/or affected Indian tribes to assist in determining areas of known fish use.
Step 2	Locate the first PHB situated upstream of the stream segment with known fish use point, determined in Step 1. See the PHB criteria in subsection (2) of this section and associated guidance in board manual section 23.
Step 3	Begin the fish habitat assessment directly upstream of the PHB identified in Step 2. If a fish is observed in the stream segment upstream from the first PHB, stop the electrofishing survey and proceed upstream to the next PHB. Repeat this process until no fish are observed upstream of a PHB.

Step 4	When fish are not observed in the stream segment directly above a PHB, continue protocol surveying of all available habitats for 1/4 mile upstream of the PHB. If no fish are observed, this point becomes the end of fish habitat for the stream segment and the proposed water type break between Type F and Type N Waters. Document this location as the proposed habitat break.
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REPEALER

The following section of the Washington Administrative Code is repealed:

WAC 222-16-031 Interim water typing system.

OTS-5925.2

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

WAC 222-24-040 *Water crossing structures for all typed waters.

(1) When a department approved water type change causes the location of the break between Type F and Type N Water to be upstream beyond an existing water crossing structure, it must be replaced with a fish passable structure. Replacement is not required if the existing structure is fish passable per WAC 222-24-041, or the structure is functioning with little risk to public resources and has been installed under a forest practices hydraulic project in an approved forest practices application or a hydraulic project approval by the department of fish and wildlife.

(2) Bridges are required for new crossings and reconstructed crossings of any typed waters regularly used for recreational boating.

~~((2))~~ (3) Structures containing concrete must be sufficiently cured prior to contact with water.

~~((3))~~ (4) One end of each new or reconstructed permanent log or wood bridge shall be tied or firmly anchored if any of the bridge structure is within ~~((ten))~~ 10 vertical feet of the 100-year flood level.

~~((4))~~ (5) Alterations or disturbance of the stream bed, bank or bank vegetation must be limited to that necessary to construct the project. All disturbed areas must be stabilized and restored according to the recommended schedule and procedures found in board manual section 5. This requirement may be modified or waived by the department, in consultation with the department of fish and wildlife, if precluded by engineering or safety factors.

~~((5))~~ (6) When earthen materials are used for bridge surfacing, only clean sorted gravel may be used, a geotextile lining must be installed and curbs of sufficient size shall be installed to a height above the surface material to prevent surface material from falling into the stream bed.

~~((6))~~ (7) Wood removed from the upstream end of culverts and bridges will be placed at the downstream end of such culverts and bridges in such a way as to minimize obstruction of fish passage and

to the extent practical, while avoiding significant disturbance of sediment in connection with maintenance activities.

~~((7))~~ (8) Fords.

(a) New ford construction requires a forest practices application.

(b) The entry and exit points of a new ford must not be within ~~(one hundred)~~ 100 feet upstream or downstream of another ford.

(c) The following activities associated with established fords require a forest practices application:

(i) Ford repair with equipment or construction work waterward of the ordinary high water line;

(ii) Driving a vehicle or operating equipment on or across wetted stream beds at areas other than established fords.

(d) Driving a vehicle or operating equipment on or across an established ford does not require a forest practices application. "Established ford" means a crossing place in a watercourse that was in existence and annually used prior to 1986 or subsequently permitted by the department of fish and wildlife or the department, and has identifiable approaches on the banks.

OTS-5926.1

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

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

These rules apply to all typed waters on forest land in western Washington, except as provided in WAC 222-30-023. RMZs are measured horizontally from the outer edge of the bankfull width or channel migration zone, whichever is greater, and extend to the limits as described in this section. See board manual section 7 for riparian design and layout guidelines.

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

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

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

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

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

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

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

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

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

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

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

- Existing stands in the combined core and inner zone do not meet stand requirements (WAC 222-30-021 (1)(b));
- There are fewer than (~~fifty-seven~~) 57 conifer trees per acre eight inches or larger dbh in the conversion area;
- There are fewer than (~~one hundred~~) 100 conifer trees per acre larger than four inches dbh in the conversion area;
- 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;
- The landowner owns (~~five hundred~~) 500 feet upstream and (~~five hundred~~) 500 feet downstream of the harvest unit;
- The core and inner zones contain no stream adjacent parallel roads;
- Riparian areas contiguous to the proposed harvest unit are owned by the landowner proposing to conduct the conversion activities, and meet shade requirements of WAC 222-30-040 or have a (~~seventy-five~~) 75 foot buffer with trees at least (~~forty~~) 40 feet tall on both sides of the stream for (~~five hundred~~) 500 feet upstream and (~~five hundred~~) 500 feet downstream of the proposed harvest unit (or the length of the stream, if less);

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(E) **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 applica-

tion process on an annual basis; and (2) at a WAU scale on a biennial basis as per WAC 222-30-120 through the adaptive management process which will develop thresholds of impact for hardwood conversion at the watershed scale.

(ii) **Harvest options.**

(A) No inner zone management. When the existing stands in the combined core and inner zone do not meet stand requirements, no harvest is permitted in the inner zone. When no harvest is permitted in the inner zone or the landowner chooses not to enter the inner zone, the width of core, inner and outer zones are as provided in the following table:

No inner zone management RMZ widths for western Washington

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

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

(I) **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:

- 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.

- Thinning must be from below, meaning the smallest dbh trees are selected for harvest first, then progressing to successively larger diameters.

- Thinning cannot decrease the proportion of conifer in the stand.

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

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

Option 1. Thinning from below.

Site class	RMZ width	Core zone width (measured from outer edge of bankfull width or outer edge of CMZ of water)	Inner zone width (measured from outer edge of core zone)		Outer zone width (measured from outer edge of inner zone)	
			stream width ≤10'	stream width >10'	stream width ≤10'	stream width >10'
I	200'	50'	83'	100'	67'	50'

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'
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) **Option 2. Leaving trees closest to the water.** Management option 2 applies only to riparian management zones for site class I, II, and III on streams that are less than or equal to ~~((ten))~~ 10 feet wide and RMZs in site class I and II for streams greater than ~~((ten))~~ 10 feet wide. Harvest must comply with the following:

- Harvest is not permitted within ~~((thirty))~~ 30 feet of the core zone for streams less than or equal to ~~((ten))~~ 10 feet wide and harvest is not permitted within ~~((fifty))~~ 50 feet of the core zone for streams greater than ~~((ten))~~ 10 feet wide;
- 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;
- A minimum of ~~((twenty))~~ 20 conifers per acre, with a minimum ~~((twelve))~~ 12 inch dbh, will be retained in any portion of the inner zone where even-age harvest occurs. These riparian leave trees will be counted towards meeting applicable stand requirements. The number of riparian leave trees cannot be reduced below ~~((twenty))~~ 20 for any reason.
- Trees are selected for harvest starting from the outer most portion of the inner zone first then progressively closer to the stream.
- If (b) (ii) (B) (II) of this subsection results in surplus basal area per the stand requirement, the landowner may take credit for the surplus by harvesting additional riparian leave trees required to be left in the adjacent outer zone on a basal area-for-basal area basis. The number of leave trees in the outer zone can be reduced only to a minimum of ~~((ten))~~ 10 trees per acre.

Option 2. Leaving trees closest to water.

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

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

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

(A) Trees containing basal area equal to the amount determined in (b) (iii) 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.

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

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

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

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

Outer zone riparian leave tree requirements

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

The ~~(twenty)~~ 20 riparian leave trees to be left can be reduced in number under the circumstances delineated in (c) (iv) of this subsection. The riparian leave trees must be left on the landscape ac-

ording to one of the following two strategies. A third strategy is available to landowners who agree to a LWD placement plan.

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

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

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

(I) Seeps and springs;

(II) Forested wetlands;

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(a) An **equipment limitation zone** is a ~~((thirty))~~ 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 perennial and seasonal streams.

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

- (A) Ground based equipment;
- (B) Skid trails;
- (C) Stream crossings (other than existing roads); or
- (D) Cabled logs that are partially suspended.

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

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

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

(i) A ~~((fifty))~~ 50-foot, no-harvest buffer, measured horizontally from the outer edge of bankfull width, will be established along each side of the Type Np Water as follows:

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

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

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

(iii) No timber harvest is permitted in an area within ~~((fifty))~~ 50 feet of the outer perimeter of a soil zone perennially saturated from a side-slope seep.

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

(v) No timber harvest is permitted within a ~~((fifty-six))~~ 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) ~~((and 222-16-031))~~.

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

(vii) At least ~~((fifty))~~ 50 percent of a Type Np Waters' length must be protected by buffers on both sides of the stream ~~((2))~~ two-sided buffers). Buffered segments must be a minimum of ~~((one hundred))~~ 100 feet in length. If an operating area is located more than ~~((five hundred))~~ 500 feet upstream from the confluence of a Type S or F Water and the Type Np Water is more than ~~((one thousand))~~ 1,000 feet in length, then buffer the Type Np Water according to the following table. If the percentage is not met by protecting sensitive sites listed in (b) (i) through (vii) of this subsection, then additional buffers are required on the Type Np Water to meet the requirements listed in the table.

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

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

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

- (A) Low gradient areas;
- (B) Perennial water reaches of nonsedimentary rock with gradients greater than ~~((twenty))~~ 20 percent in the tailed frog habitat range;
- (C) Hyporheic and groundwater influence zones; and
- (D) Areas downstream from other buffered areas.

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

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

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

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

To the extent reasonably practical, the operation will both avoid creating yarding corridors or road crossings through Type Np Water RMZ or sensitive sites and associated buffers, and avoid management activities which would result in soil compaction, the loss of protective vegetation or sedimentation in perennially moist areas.

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

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