

MEMORANDUM

January 24, 2024

To: Forest Practices Board

FROM: Saboor Jawad, Forest Regulation Division Manager

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SUBJECT: Progress Update: Developing Rule Materials for Water Typing System Rule and Type Np Rule

DNR is implementing a series of Board decisions on two rules: the permanent Water Typing System Rule (WTR), and the Type Np Water buffer rule (Type Np). Staff are also following Board guidance on sequencing the rule development work. This memo is a summary of progress to date. I will provide similar updates to the Board on a monthly basis.

For each rule, staff are developing the following materials:

- Administrative rule language
- Spatial analysis
- Preliminary cost-benefit analysis (CBA)
- Preliminary Small Business Economic Impact Statement (SBEIS)
- State Environmental Policy Act (SEPA) analysis
- Board Manual technical guidance

The rule packet materials are requirements of the Administrative Procedures Act (APA); the Regulatory Fairness Act (RFA); and the State environmental Policy Act (SEPA). Spatial analysis is not a rule requirement but its results partially informs the CBA and SEPA. Board Manual guidance is required under the Forest Practices Rules, and is included to help understand how the rule requirements would be applied during the public comment period.

Attachment A illustrates the rule making timeline as well as denotes all completed and ongoing activities. While no major delays have occurred, the following are likely sources and reasons for any potential delay in rule material development: 1) all contracted work including cost-benefit analysis and spatial analysis requiring both DNR quality assurance and, where applicable, stakeholder review; 2) all work items requiring additional stakeholder engagement and public review; 3) potential delays in negotiating contracts and completing procurement processes (i.e., RFP, RFQQ and etc.); and 4) a SEPA determination of significance requiring an Environmental Impact Statement.

In a letter to the Board, the Department of Ecology (DOE) shared their intent to conduct a Tier II analysis for the Type Np Water buffer rule. Staff are coordinating with DOE and are holding monthly meetings. This is in addition to DOE participation in rule material development efforts and meetings. A key point to note is that the current rule development timeline may only allow up to three weeks for the DOE to complete Tier II analysis – if based on final drafts - before the Board considers a decision to direct staff to file a CR102 for the Type Np Water buffer rule. Draft products, however, will be available for DOE use in Tier II analysis as early as April, 2024. As of this update, it is not clear whether these timelines are adequate for Tier II analysis.

The following is a summary of progress as of this update:

- 1- **Rule Language:** In a series of stakeholder meetings, staff has coordinated the development of rule language for both rules. This effort is largely complete. The Board received draft rule language for WTR at the November 2023 regular meeting and will receive draft language for Type Np rule at the February 2024 regular meeting. The latest draft rule language for both rules is in attachment B.

Water Typing System Rule: Following public comments at the Board's November 2024 regular meeting, staff has revised the WTR rule language to 1) align the definition of Off-Channel Habitat with prior Board decisions on the subject; 2) correct a typographical error in PHB Option B; and 3) correct a reference to the relevant Board Manual Guidance.

Type Np Water buffer rule: The Board is receiving the draft Type Np Water buffer rules amending WAC 222-30-021 and adding a new WAC 222-30-0211 or -024 *Western Washington riparian protections for Type Np and Ns Waters*, for review and approval by the Board to continue development of the full rule making packet in preparation of final Board review and direction for staff to initiate rule making through the filing of the CR-102.

The draft rule separates the western Washington riparian management zone protections for Type S and F Waters from the riparian protections for Type Np and Ns waters, and only incorporates the Board approved recommendations for Type Np Water buffers. Beyond what the Board has approved for Type Np rule, the draft rule does not contain any amendments to the rule including any minor changes ensuring the rule is implementable and operationally feasible or address other stakeholder concerns. The Board has approved recommendations to provide 100% buffers for all Type Np Waters. The current rule establishing a 50% buffer to Type Np buffers applies a number of steps to assure application of equipment limitation zone and sensitive site protections, any potential amending of the rule to provide clarity and emphasize the continued protection of these sites are not included in the draft rule.

- 2- **Spatial Analysis:** DNR issued a request for proposal (RFP) and contracted a firm to conduct spatial analysis for both rules. This work is well underway with approximately 40% completion reported as of early January 2024. Spatial analysis has so far been a challenging process requiring numerous reviews of spatial products for quality and precision. Staff expect this iterative process to continue until completion with potential delays. Attachment C provides an overview of the spatial analysis process. DNR staff plans to share the final draft spatial analysis and all data and products along with a detailed methodology once DNR accepts deliverables under this contract and the work is entirely complete. TFW stakeholders will be provided up to two weeks to review and provide written comments on the final report. Afterwards, the final draft will be shared with the Board and forwarded for use in the CBA. Unless directed otherwise by the Board, DNR staff will follow the above stakeholder engagement strategy.
- 3- **CBA and SBEIS:** DNR reconvened the stakeholder economist workgroup for the WTR. The group held its first meeting on December 21, 2023 and approved a charter for the workgroup. In parallel, DNR is pursuing a sole source contract to complete the remainder

of the CBA and SBIES work which last paused in 2020. Sole source contracts are subject to Department of Enterprise Services (DES) approval. DNR is confident that this contract meets the qualifying conditions for sole sourcing. Separately, DNR has prepared and will issue a Request for Qualifications and Quotes (RFQQ) to solicit bids for Type Np CBA. The RFQQ is expected to be issued in early February 2024.

- 4- **SEPA:** work on SEPA determination started in January this year for WTR and will be conducted by DNR staff with the Board Chair, as the Responsible Official, issuing a threshold determination of Non-Significance. A determination of Non-Significance for WTR would complete the SEPA analysis by July 2024.

DNR staff is also discussing the SEPA process for the Type Np rulemaking. Based on DNR staff conducting the analysis and the issuance of a Determination of Non-Significance the current estimated completion date is November 2024. If the threshold determination is of a significant environmental impact, DNR will issue an RFQQ to bring expertise in to conduct an environmental impact analysis and issue an Environmental Impact Statement (EIS). Recent EIS efforts within the agency are taking upwards of two years and over \$250k to complete, depending on complexity. See attachment A for an illustration of the timeline and sequence of work.

- 5- **Board Manual Guidance:** For WTR, work on developing Board Manual Section 23 is planned to start in February 2024. DNR will convene a stakeholder group to accomplish this component. Work on amending Board Manual Section Seven for the Type Np rule will start in August 2024.

Marc Engel, Senior Policy Advisor, and I will both attend your February regular meeting to provide an oral update on rulemaking and answer your questions. In the meanwhile, please feel free to reach out to either one of us for any questions or clarifications.

Attachments:

- A- Rule making timeline
- B- Rule language
- C- Spatial analysis overview

Rule and Rule Materials	% Complete	Status	Feb-24	May-24	Aug-24	Nov-24	Feb-25	May-25	Aug-25	Nov-25	Feb-26	May-26	Aug-26	Nov-26
Type Np Buffer Rule w/SEPA DNS														
Rule Language	100%	Complete												
Synthetic Streams Spatial Analysis	40%													
Conduct Spatial analysis		Ongoing	■	■										
Draft Report including methodology available for stakeholder review				■										
SEPA Analysis	0%													
DNS			■	■	■	■								
Final SEPA Determination signed before FPB CR102 approval						■								
SEPA public comment period						■	■							
Cost Benefit Analysis & SBEIS	0%													
Conduct Analysis				■	■	■								
Preliminary CBA & SBEIS Complete						■								
Final CBA & SBEIS Complete							■	■						
Concise Explanatory Statement	0%							■	■					
Initiate Rulemaking	0%													
CR102, public meetings, public comment, etc						■	■	■						
CR103 adopts rule by the FPB & approves BM23								■	■					
Rule in effect 30 days after filing														

Type Np Buffer Rule w/SEPA DS and EIS													
DS and EIS													
Final SEPA Determination signed before FPB CR102 approval													
SEPA public comment period													
Cost Benefit Analysis & SBEIS	0%												
Conduct Analysis													
Preliminary CBA & SBEIS Complete													
Final CBA & SBEIS Complete													
Concise Explanatory Statement	0%												
Initiate Rulemaking	0%												
CR102, public meetings, public comment, etc													
CR103 adopts rule by the FPB & approves BM23													
30 days rule official													

Attachment B1: Draft Rule Proposal for Type Np Water Buffer
FOREST PRACTICES BOARD
February 14, 2024

WAC 222-30-021 *Western Washington Type S and F waters riparian management zones.
[Effective 12/30/13]

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 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.

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

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

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

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

- 14 · Existing stands in the combined core and inner zone do not meet stand
15 requirements (WAC 222-30-021 (1)(b));
- 16 · There are fewer than fifty-seven conifer trees per acre eight inches or
17 larger dbh in the conversion area;
- 18 · There are fewer than one hundred conifer trees per acre larger than four
19 inches dbh in the conversion area;
- 20 · There is evidence (such as conifer stumps, historical photos, or a conifer
21 understory) that the conversion area can be successfully reforested with
22 conifer and support the development of conifer stands;
- 23 · The landowner owns five hundred feet upstream and five hundred feet
24 downstream of the harvest unit;
- 25 · The core and inner zones contain no stream adjacent parallel roads;
- 26 · Riparian areas contiguous to the proposed harvest unit are owned by the
27 landowner proposing to conduct the conversion activities, and meet shade
28 requirements of WAC 222-30-040 or have a seventy-five foot buffer with
29 trees at least forty feet tall on both sides of the stream for five hundred
30 feet upstream and five hundred feet downstream of the proposed harvest
31 unit (or the length of the stream, if less);
- 32 · If the landowner has previously converted hardwood-dominated stands,
33 then post-harvest treatments must have been performed to the satisfaction
34 of the department.

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

- 37 · Each continuous conversion area is not more than five hundred feet in
38 length; two conversion areas will be considered "continuous" unless the
39 no-harvest area separating the two conversion areas is at least half the
40 length of the larger of the two conversion areas.
- 41 · Type S and F (Type 1, 2, or 3) Water: Up to fifty percent of the inner
42 zone area of the harvest unit on one side of the stream may be converted
43 provided that:
 - 44 " The landowner owns the opposite side of the stream and the
45 landowner's riparian area on the opposite bank meets the shade
46 requirements of WAC 222-30-040 or has a seventy-five foot buffer
47 of trees at least forty feet tall or:
 - 48 " The landowner does not own land on the opposite side of the stream

1 but the riparian area on the opposite bank meets the shade
2 requirements of WAC 222-30-040 or has a seventy-five foot buffer
3 of trees at least forty feet tall.

- 4 · Not more than twenty-five percent of the inner zone of the harvest unit on
5 both sides of a Type S or F Water may be converted if the landowner
6 owns both sides.

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

- 9 · Conifer trees larger than twenty inches dbh shall not be harvested;
- 10 · Not more than ten percent of the conifer stems greater than eight inches
11 dbh, exclusive of the conifer noted above, within the conversion area may
12 be harvested; and
- 13 · The landowner must exercise reasonable care in the conduct of harvest
14 activities to minimize damage to all residual conifer trees within the
15 conversion area including conifer trees less than eight inches dbh.

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

- 17 · Reforest the conversion area with **conifer** tree species suitable to the site
18 in accordance with the requirements of WAC 222-34-010; and
- 19 · Conduct post-harvest treatment of the site until the conifer trees necessary
20 to meet acceptable stocking levels in WAC 222-34-010(2) have crowns
21 above the brush or until the conversion area contains a minimum of one
22 hundred fifty conifer trees greater than eight inches dbh per acre.
- 23 · Notify the department in writing within three years of the approval of the
24 forest practices application for hardwood conversion, if the hardwood
25 conversion has been completed.

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

39 (ii) **Harvest options.**

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

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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'

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(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 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.

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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'

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

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- Harvest is not permitted within thirty feet of the core zone for streams less than or equal to ten feet wide and harvest is not permitted within fifty feet of the core zone for streams greater than ten 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 conifers per acre, with a minimum twelve 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 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 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)					
I	200'	50'	84'	30'	84'	50'	66'	66'
II	170'	50'	64'	30'	70'	50'	56'	50'
III	140'	50'	44'	30'	**	**	46'	**

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

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

11 (A) Trees containing basal area equal to the amount determined in (b)(iii) of this
12 subsection will be left elsewhere in the inner or outer zone, or if the zones
13 contain insufficient riparian leave trees, substitute riparian leave trees will
14 be left within the RMZ width of other Type S or F Waters in the same unit
15 or along Type Np or Ns Waters in the same unit in addition to all other
16 RMZ requirements on those same Type S, F, Np or Ns Waters.

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

24 (C) When the basal area requirement cannot be met, as explained in (b)(iii) of
25 this subsection, the shortfall may be reduced through the implementation of

1 an acceptable large woody debris placement plan. See board manual section
2 26 for guidelines.

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

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

15 **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

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

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

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

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

34 (I) Seeps and springs;

35 (II) Forested wetlands;

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

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

40 (V) Small unstable, or potentially unstable, slopes not of sufficient
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1 area to be detected by other site evaluations. See WAC 222-16-
2 050 (1)(d).

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

- ~~(A) Ground based equipment;~~
 - ~~(B) Skid trails;~~
 - ~~(C) Stream crossings (other than existing roads); or~~
 - ~~(D) Cabled logs that are partially suspended.~~
 - ~~(ii) Mitigation must be designed to replace the equivalent of lost functions especially prevention of sediment delivery. Examples include water bars, grass seeding, mulching, etc.~~
 - ~~(iii) Nothing in this subsection (2) reduces or eliminates the department's authority to prevent actual or potential material damage to public resources under WAC 222-46-030 or 222-46-040 or any related authority to condition forest practices notifications or applications.~~
- ~~(b) Sensitive site and RMZs protection along Type Np Waters. Forest practices must be conducted to protect Type Np RMZs and sensitive sites as detailed below:~~
- ~~(i) A fifty foot, no harvest buffer, measured horizontally from the outer edge of bankfull width, will be established along each side of the Type Np Water as follows:~~

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

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

- ~~(ii) No timber harvest is permitted in an area within fifty feet of the outer perimeter of a soil zone perennially saturated from a headwall seep.~~
- ~~(iii) No timber harvest is permitted in an area within fifty feet of the outer perimeter of a soil zone perennially saturated from a side slope seep.~~
- ~~(iv) No timber harvest is permitted within a fifty six foot radius buffer patch centered on the point of intersection of two or more Type Np Waters.~~
- ~~(v) No timber harvest is permitted within a fifty six foot radius buffer patch centered on a headwater spring or, in the absence of a headwater spring, on a point at the upper most extent of a Type Np Water as defined in WAC 222-16-030(3) and 222-16-031.~~
- ~~(vi) No timber harvest is permitted within an alluvial fan.~~
- ~~(vii) At least fifty percent of a Type Np Waters' length must be protected by buffers on both sides of the stream (2 sided buffers). Buffered segments must be a minimum of one hundred feet in length. If an operating area is located more than five hundred feet upstream from the confluence of a Type S or F Water and the Type Np Water is more than one thousand feet in length, then buffer the Type Np Water according to the following table. If the percentage is not met by protecting sensitive sites listed in (b)(i) through (vii) of this subsection, then additional buffers are required on the Type Np Water to meet the requirements listed in the table.~~

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

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

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

- (A) Low gradient areas;
- (B) Perennial water reaches of nonsedimentary rock with gradients greater than twenty percent in the tailed frog habitat range;
- (C) Hyporheic and ground water 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.

(e) 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.

4 **Western Washington riparian protections for Type Np and Ns Waters.**

5 These rules apply to all Type Np and Ns waters on forest land in Western Washington, except as
6 provided in WAC 222-30-023. RMZs are measured horizontally from the outer edge of the
7 bankfull width or channel migration zone, whichever is greater, and extend to the limits as
8 described in this section. See board manual section 7 for guidance.

9 (a1) An **equipment limitation zone** is a thirty foot wide zone measured horizontally from
10 the outer edge of the bankfull width of a Type Np or Ns Water where equipment use
11 and other forest practices that are specifically limited by these rules. It applies to all
12 non-fish perennial and seasonal streams.

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

- 15 (Ai) Ground based equipment;
- 16 (Bii) Skid trails;
- 17 (Ciii) Stream crossings (other than existing roads); or
- 18 (Div) Cabled logs that are partially suspended.

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

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

26 (b2) **Sensitive site and RMZs protection along Type Np Waters.** Forest practices
27 must be conducted to protect Type Np ~~RMZs and~~ sensitive sites as detailed
28 below:

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

32 ~~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

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

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

38 (iivc) No timber harvest is permitted within a fifty-six foot radius buffer patch centered
39

on the point of intersection of two or more Type Np Waters.

(v~~d~~) No timber harvest is permitted within a fifty-six foot radius buffer patch centered on a headwater spring or, in the absence of a headwater spring, on a point at the upper most extent of a Type Np Water as defined in WAC 222-16-030(3) and 222-16-031.

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

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

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

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

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

~~(A) Low gradient areas;~~

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

~~(C) Hyporheic and ground water influence zones; and~~

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

~~(3) Riparian Management Zones (RMZ) protection along Type Np Waters. Forest practices must be conducted to protect Type Np RMZs as detailed below.~~

~~(a) When the topographic basin in which harvest will occur is larger than 30 acres and 85%~~

1 or more of the basin is planned, or reasonably expected, to be harvested within a five-
2 year period the landowner must designate a two-sided 75-foot no-harvest buffer along the
3 entire stream reach of each Type Np Water.

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

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

12 (A) For partial management strategy, the landowner must designate a two-
13 sided seventy-five-foot RMZ along the stream reach in the harvest
14 unit, and establish:

15 (I) A no-harvest buffer fifty feet wide measured from outer
16 edge of bankfull width, and;

17 (II) A managed zone, twenty-five feet wide measured from outer
18 edge of the no harvest buffer, where:

19 · Up to 50 percent of the trees may be harvested
20 with an evenly-spaced distribution of leave
21 trees; and

22 · Leave trees shall be representative of diameters
23 found within the managed zone, and shall be
24 representative of the tree species distribution
25 within the outer zone.

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

28 (ii) For each Type Np stream less than three feet bankfull width, the landowner
29 must designate a two-sided no-harvest fifty-foot buffer along the entire stream
30 reach in the harvest unit.

31
32 (4) Except for the construction and maintenance of road crossings and the creation and use of
33 yarding corridors, no timber harvest will be allowed in the designated ~~priority areas~~ buffers.
34 Landowners must leave additional acres equal to the number of acres (including partial
35 acres) occupied by an existing stream-adjacent parallel road within a designated ~~priority~~
36 area buffer.

37 (e5) None of the limitations on harvest in or around Type Np Water RMZs or sensitive sites
38 listed in ~~(b)~~ of this ~~subsection~~ section will preclude or limit:

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

41 (ib) The creation and use of yarding corridors in WAC 222-30-060(1-):

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

47 Where yarding corridors or road crossings through Type Np Water RMZs or
48 sensitive sites and their buffers cannot reasonably be avoided, the buffer area must
49 be expanded to protect the sensitive site by an area equivalent to the disturbed area

1 or by providing comparable functions through other management initiated efforts.
2 Landowners must leave additional acres equal to the number of acres (including
3 partial acres) occupied by an existing stream-adjacent parallel road within a Type Np
4 Water RMZs or sensitive site buffer.
5
6

1 **NEW SECTION** (without strike/change and formatted)

2 **WAC 222-30-0211 OR 222-30-024**

3
4 **Western Washington riparian protections for Type Np and Ns Waters.**

5 These rules apply to all Type Np and Ns waters on forest land in Western Washington, except as
6 provided in WAC 222-30-023. RMZs are measured horizontally from the outer edge of the
7 bankfull width or channel migration zone, whichever is greater, and extend to the limits as
8 described in this section. See board manual section 7 for guidance.

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

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

15 (i) Ground based equipment;

16 (ii) Skid trails;

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

18 (iv) Cabled logs that are partially suspended.

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

22 (c) Nothing in this section reduces or eliminates the department's authority to prevent
23 actual or potential material damage to public resources under WAC 222-46-030 or 222-
24 46-040 or any related authority to condition forest practices notifications or
25 applications.

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

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

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

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

34 (d) No timber harvest is permitted within a fifty-six foot radius buffer patch centered on a
35 headwater spring or, in the absence of a headwater spring, on a point at the upper most
36 extent of a Type Np Water as defined in WAC 222-16-030(3) and 222-16-031.

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

38 (3) **Riparian Management Zones (RMZ) protection along Type Np Waters.** Forest practices
39 must be conducted to protect Type Np RMZs as detailed below.

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

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

- 1 (i) For each Type Np stream three feet bankfull width or greater, the landowner must
2 identify either a partial management strategy or no cut strategy:
- 3 (A) For partial management strategy, the landowner must designate a two-
4 sided seventy-five-foot RMZ along the stream reach in the harvest unit,
5 and establish:
- 6 (I) A no-harvest buffer fifty feet wide measured from outer edge of
7 bankfull width, and;
- 8 (II) A managed zone, twenty-five feet wide measured from outer edge of
9 the no harvest buffer, where:
- 10 · Up to 50 percent of the trees may be harvested with an evenly-
11 spaced distribution of leave trees; and
- 12 · Leave trees shall be representative of diameters found within
13 the managed zone, and shall be representative of the tree
14 species distribution within the outer zone.
- 15 (B) For no cut strategy, the landowner must designate a two-sided sixty-five-
16 foot no-harvest buffer along the entire stream reach in the harvest unit.
- 17 (ii) For each Type Np stream less than three feet bankfull width, the landowner must
18 designate a two-sided no-harvest fifty-foot buffer along the entire stream reach in
19 the harvest unit.
- 20 (4) Except for the construction and maintenance of road crossings and the creation and use of
21 yarding corridors, no timber harvest will be allowed in the designated buffers. Landowners
22 must leave additional acres equal to the number of acres (including partial acres) occupied
23 by an existing stream-adjacent parallel road within a designated buffer.
- 24 (5) None of the limitations on harvest in or around Type Np Water RMZs or sensitive sites
25 listed in this section will preclude or limit:
- 26 (a) The construction and maintenance of roads for the purpose of crossing streams in WAC
27 222-24-030 and 222-24-050.
- 28 (b) The creation and use of yarding corridors in WAC 222-30-060(1): To the extent
29 reasonably practical, the operation will both avoid creating yarding corridors or road
30 crossings through Type Np Water RMZ or sensitive sites and associated buffers, and
31 avoid management activities which would result in soil compaction, the loss of
32 protective vegetation or sedimentation in perennially moist areas.
33 Where yarding corridors or road crossings through Type Np Water RMZs or sensitive
34 sites and their buffers cannot reasonably be avoided, the buffer area must be expanded
35 to protect the sensitive site by an area equivalent to the disturbed area or by providing
36 comparable functions through other management initiated efforts.
37 Landowners must leave additional acres equal to the number of acres (including partial
38 acres) occupied by an existing stream-adjacent parallel road within a Type Np Water
39 RMZs or sensitive site buffer.
- 40

- 1 • Each continuous conversion area is not more than five hundred feet in length; two conversion
- 2 areas will be considered "continuous" unless the no-harvest area separating the two conversion
- 3 areas is at least half the length of the larger of the two conversion areas.
- 4 • Type S and F (~~Type 1, 2, or 3~~) Water: Up to fifty percent of the inner zone area of the harvest unit
- 5 on one side of the stream may be converted provided that:
- 6 " The landowner owns the opposite side of the stream and the landowner's riparian area on the
- 7 opposite bank meets the shade requirements of WAC 222-30-040 or has a seventy-five foot
- 8 buffer of trees at least forty feet tall or:
- 9 ...
- 10 (2)(b)(v) No timber harvest is permitted within a fifty-six foot radius buffer patch centered on a
- 11 headwater spring or, in the absence of a headwater spring, on a point at the upper most extent of a
- 12 Type Np Water as defined in WAC 222-16-030(3) ~~and 222-16-031~~.

13

14

15 **WAC 222-16-030 Water typing system.**

16 ~~Until the fish habitat water type maps described below are adopted by the board, the Interim Water~~

17 ~~Typing System established in WAC 222-16-031 will continue to be used. The objective of the water~~

18 ~~typing system is to correctly classify waters to inform the appropriate riparian protection to be applied~~

19 ~~to each water type. The primary component of this objective is the accurate determination of the extent~~

20 ~~of fish habitat streams at the landscape scale. This section identifies the criteria to classify waters. The~~

21 ~~requirements for determining fish use are described in WAC 222-16-0301(1).~~

22

23 The department ~~classifies streams, lakes and ponds on state and private forest lands of Washington~~

24 ~~State~~ in cooperation with the departments of fish and wildlife, and ecology, and in consultation with

25 affected Indian tribes ~~will classify streams, lakes and ponds.~~

26

27 ~~The department will~~ To assist applicants in determining water type classifications, the department shall

28 prepare and update water type maps showing the location of Type S, F, and N (Np and Ns) Waters

29 within the forested areas of the state. ~~The maps will be based on a multiparameter, field-verified~~

30 ~~geographic information system (GIS) logistic regression model. The multiparameter model will be~~

31 ~~designed to identify fish habitat by using geomorphic parameters such as basin size, gradient, elevation~~

32 ~~and other indicators. The modeling process shall be designed to achieve a level of statistical accuracy~~

33 ~~of 95% in separating fish habitat streams and nonfish habitat streams. Furthermore, the demarcation of~~

34 ~~fish and nonfish habitat waters shall be equally likely to over and under estimate the presence of fish~~

35 ~~habitat. These maps shall be referred to as "fish habitat water typing maps" and shall, when~~

36 ~~completed, be available for public inspection at region offices of the department. All Type S Waters,~~

37 ~~and department concurred Type F and N Water and Type Np and Ns Water breaks shown on the water~~

38 ~~type map are official and may be relied upon by landowners.~~

39

40 ~~Fish habitat water type maps will be updated every five years where necessary to better reflect~~

41 ~~observed, in field conditions. Except for these periodic revisions of the maps, on the ground~~

42 ~~observations of fish or habitat characteristics will generally not be used to adjust mapped water types.~~

43 ~~However, if an on-site interdisciplinary team using nonlethal methods identifies fish, or finds that~~

44 ~~habitat is not accessible due to naturally occurring conditions and no fish reside above the blockage,~~

45 ~~then the water type will be immediately changed to reflect the findings of the interdisciplinary team.~~

46 ~~The finding will be documented on a water type update form provided by the department and the fish~~

47 ~~habitat water type map will be updated as soon as practicable. If a dispute arises concerning a water~~

48 ~~type the department shall make available informal conferences, as established in WAC 222-46-020~~

1 ~~which shall include the departments of fish and wildlife, and ecology, and affected Indian tribes and~~
2 ~~those contesting the adopted water types.~~

3
4 The water type maps and instructions for use are available for public review from the department. All
5 water breaks concurred by the department are regulatory water type classifications; all other mapped,
6 and unknown Type F and N Water or Type Np and Ns Water type breaks must be determined, in the
7 field, by forest landowners or their representative. The water type break can be determined per this sec-
8 tion or, for fish use, WAC 222-16-0301. Small forest landowners can contact the department for tech-
9 nical assistance and/or ID teams to determine water typing breaks.

10
11 The department may convene an interdisciplinary team, as defined in WAC 222-16-010, to consider
12 proposed modifications to the departments water type map; to address observed in-field conditions,
13 including if observations of fish; to address naturally occurring stream conditions or blockages making
14 habitat inaccessible to fish; or, if a dispute arises concerning a water type classification in accordance
15 with WAC 222-46-020.

16
17 The waters will bere classified using the following criteria:

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

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

27 (a) Waters within lakes, ponds or impoundments having a surface of 0.5 acre or great at
28 seasonal low water.

29 (b) Stream segments having a defined channel 20 feet or greater within the bankfull width
30 and having a gradient of less than 4 percent.

31 (c) Waters which are off channel habitat. These are areas important for rearing and survival
32 of fish and include riverine ponds, wall-based channels, and stream associated wetlands.
33 The area must be connected to a Type F or Type S water and accessible to fish during
34 some portion of the year. The extent of off channel habitat is determined based on the
35 bankfull flow of channelized Type F streams, which is the outer edge of the point of
36 inundation at the bankfull elevation flow. Off channel habitat for lakes, ponds, and
37 impoundments is the line of mean high water located at the bankfull elevation flow; and,
38 for periodically inundated areas of associated wetlands is the line of periodic inundation
39 located at the bankfull elevation flow.

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

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

45 (A) Stream segments having a defined channel of two feet or greater within the
46 bankfull width in Western Washington; or three feet or greater in width in
47 Eastern Washington; and having a gradient of sixteen percent or less;

- 1 (B) Stream segments having a defined channel of two feet or greater within the
2 bankfull width in Western Washington; or three feet or greater within the
3 bankfull width in Eastern Washington, and having a gradient greater than
4 sixteen percent and less than or equal to twenty percent, and having greater
5 than fifty acres in contributing basin size in Western Washington or greater
6 than one hundred seventy five acres contributing basin size in Eastern
7 Washington, based on hydrographic boundaries;
- 8 (C) Ponds or impoundments having a surface area of less than one acre at
9 seasonal low water and having an outlet to a fish stream;
- 10 (D) Ponds of impoundments having a surface area of 0.5 acre or greater at
11 seasonal low water.
- 12 (ii) The department shall waive or modify the characteristics in (i) of this subsection
13 where:
- 14 (A) Waters have confirmed, long term, naturally occurring water quality
15 parameters incapable of supporting fish;
- 16 (B) Snowmelt streams with short flow cycles that do not support successful
17 life history phases of fish. These streams typically have no flow in the
18 winter months and discontinue flow by June 1; or
- 19 (C) Sufficient information about a geomorphic region is available to support
20 a departure from the characteristics in (i) of this subsection, as
21 determined in consultation with the department of fish and wildlife,
22 department of ecology, affected tribes and interested parties.
- 23 (e) Waters, ~~which are~~ diverted for domestic use by more than ~~10-ten~~ residential or camping
24 units or by a public accommodation facility licensed to serve more than ~~10-ten~~ persons,
25 where ~~such the department determines the~~ diversion is ~~determined by the department to~~
26 ~~be~~ a valid appropriation of water ~~and the only practical water source for such users.~~
27 ~~Such-These~~ waters shall be considered ~~to be~~ Type F Water upstream from the point of
28 ~~such~~ diversion for ~~1,500~~fifteen hundred feet or until the drainage area is reduced by ~~50~~
29 ~~fifty~~ percent, whichever is less;
- 30 (bf) Waters, ~~which are~~ diverted for use by a federal, state, tribal or private fish
31 ~~hatcheries~~hatchery. ~~Such-These~~ waters shall be considered Type F Water for fifteen
32 hundred feet upstream from the point of diversion ~~for 1,500 feet~~, including tributaries if
33 highly significant for protection of downstream water quality. The department may
34 allow additional harvest beyond the requirements of Type F Water ~~designation~~
35 ~~provided~~classification if the department determines after a landowner-requested ~~on-~~
36 ~~site~~interdisciplinary team assessment ~~by the department of fish and wildlife, department~~
37 ~~of ecology, the affected tribes and interested parties~~ that:
- 38 (i) The management practices proposed by the landowner will adequately protect
39 water quality for the fish hatchery; and
- 40 (ii) ~~Such-The~~ additional harvest within the riparian management zone meets the
41 requirements of the water type ~~designation~~classification that would apply in the
42 absence of the hatchery;
- 43 (eg) Waters, ~~which are~~ within a federal, state, local governemental entity, or private
44 campground having more than ~~10-ten~~ camping units: ~~-. Provided, That the water shall~~
45 ~~not be considered to~~These are waters that enter a campground ~~until it reaches~~at the
46 boundary of the park lands available for public use and ~~comes~~come within ~~100-one~~
47 hundred feet of a camping unit, trail or other park improvement;

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

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

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

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

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

16 *(5) For purposes of this section:

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

19 (b) “Camping unit” means an area intended and used for:

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

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

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

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

28 (e) “Seasonal low ~~flow~~” and ~~“seasonal low water”~~ mean the conditions of the 7-seven day,
29 2-two year low water situation, as measured or estimated by accepted hydrologic
30 techniques recognized by the department.

31 (f) ~~“Channel-Bankfull width and gradient”~~ for defined channels means a measurement over
32 a representative section of at least 500-five hundred linear feet with at least 10-ten
33 evenly spaced measurement points along the normal stream channel but excluding
34 unusually wide areas of negligible gradient such as marshy or swampy areas, beaver
35 ponds and impoundments. ~~Channel gradient may be determined utilizing stream~~
36 ~~profiles plotted from United States geological survey topographic maps (see~~ Sec
37 board manual section 23).

38 (g) “Intermittent ~~streams~~” means those segments of streams that normally go dry.

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

42
43 NEW SECTION

44 **WAC 222-16-0301 Verification of fish habitat and the break between Type F and Type N Water.**

45 To assist applicants in determining the water type classification, the department prepares water type
46 maps showing the location of Type S, F, and N (Np and Ns) Waters within the forested areas of the
47 state. The mapping tool and instructions for viewing water type maps is available on the department’s
48 website.

1
2 For the purposes of forest practices, landowners are required to verify the water type break between
3 Type F and N Waters where fish use has not previously been determined. Department concurred
4 breaks between Type F and N Waters shown on the water type map are official and can be used by the
5 landowner. All other mapped stream breaks, and the establishment of the Type F and N Water break
6 on streams not shown on the map, need to have the Type F and N Water break established through the
7 application of the default physical characteristics, per WAC 222-16-030(2)(d)(i); or, through the
8 application of the fish habitat assessment method (FHAM) described in (1) of this section.
9

10 The application of FHAM is intended to establish the line of demarcation between fish and non-fish
11 habitat waters. No application of default physical characteristics or FHAM to determine the Type F
12 and N Water break is allowed within the anadromous fish floor (AFF), unless a landowner requests an
13 interdisciplinary team, as defined in WAC 222-16-010. The AFF demarks the point downstream of
14 which anadromous fish use is always presumed and upstream of which the default physical
15 characteristics or FHAM may be applied to establish the Type F and N Water break.
16

17 *Option A*

18 Waters within the anadromous fish floor. These are all waters connected to saltwater which are below
19 the combined upstream most documented or presumed anadromous fish use point included in the most
20 current available anadromous fish data, and the upstream associated waters occurring below either a
21 sustained stream gradient of seven percent or a permanent natural barrier, whichever comes first.
22 Publicly available anadromous fish data is available through SWIFD, StreamNet, or a WDFW
23 approved alternative resource; and where:
24

25 A permanent natural barrier to anadromy is defined as:

26 (a) Non-vertical barrier:

- 27 · Channels < 5 feet bankfull width: sustained gradient $\geq 20\%$ for ≥ 100 feet (30 meters) without
28 resting areas.
- 29 · Channels 5–10 feet in bankfull width: sustained gradient $\geq 20\%$ for ≥ 250 feet (76 meters)
30 without resting areas.
- 31 · Channels > 10 feet in bankfull width: sustained gradient $\geq 20\%$ for \geq
32 525 feet (160 meters) without resting pool.

33 (b) Vertical Barrier (permanent natural features):

- 34 · Channels < 5 feet in bankfull width: near vertical drop ≥ 5 feet in height (1.5 meters)
- 35 · Channels 5 – 10 feet bankfull width: near vertical drop ≥ 8 feet in height (2.5 meters)
- 36 · Channels > 10 feet bankfull width: near vertical drop ≥ 12.1 feet in height (3.7 meters)

37
38 OR
39

40 *Option B*

41 Waters within the anadromous fish floor. These are all waters connected to saltwater that are included
42 in publicly available GIS datasets of known and presumed anadromous fish use, and include associated
43 tributaries lacking a five-percent gradient increase or permanent natural obstacle at the junction with
44 saltwater or the main stem stream to the next upstream PHB as described in (3) of this section. Publicly
45 available GIS anadromous fish datasets are available through SWIFD or StreamNet; and where:
46

47 A permanent natural obstacle is:

- 48 · A vertical obstacle with a height equal to or greater than three feet; or

1 · A non-vertical step which is equal to or greater than twenty percent gradient and the elevation
2 increase is equal to or greater than the upstream bankfull width.

3
4 *(1) **Fish Habitat Assessment Methodology (FHAM)**. The FHAM is a series of steps used to
5 delineate the upper extent of fish habitat coincident with the regulatory water type break between
6 Type F and Type N Waters. Proposals to change the department water type map must include
7 documentation of the use of the FHAM on a form designated by the department. FHAM shall be
8 applied in waters situated upstream from the anadromous fish floor or known fish use. Board
9 manual section 23 provides additional technical guidance for conducting the FHAM.

10
11 The FHAM requires the identification of geomorphic features meeting the definition of a
12 potential habitat break (PHB) as described in (3) of this section. The steps to conduct FHAM are:
13

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 point in Step 1. See the PHB criteria in (2) of this section.
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 ¼ 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.

14
15 *Option A*

16 *(2) **Potential Habitat Breaks (PHB)**. For purposes of the FHAM, the criteria for a PHB include any
17 of the following:

18 (a) Western Washington

- 19 (i) Stream segments having a gradient increase equal to or greater than five percent. The
20 minimum distance for determining the gradient increase is measured over twenty-times
21 the bankfull width both downstream and upstream from the change in gradient; or
22 (ii) Stream segments having a bankfull width equal to or less than two feet. The minimum
23 distance for determining a decrease in bankfull width is measured over twenty-times the
24 average bankfull width both downstream and upstream from the change in width; or
25 (iii) A permanent natural obstacle having a vertical obstacle height equal to or greater than the
26 bankfull width, but not less than three feet.

27
28 *OR*

1 *Option B*

2 ***(2) Potential Habitat Breaks (PHB).** For purposes of the FHAM, the criteria for a PHB include any
3 of the following:

- 4 (a) Stream segments having a gradient increase equal to or greater than ten percent. The minimum
5 distance for determining the change in gradient is measured over twenty-times the average
6 bankfull width.
- 7 (b) Stream segments having a bankfull width equal to or less than two feet. The minimum
8 distance for determining a decrease in bankfull width is measured over twenty-times the
9 bankfull width.
- 10 (c) A permanent natural obstacle having:
 - 11 (i) a vertical obstacle height equal to or greater than the bankfull width, but not less than
12 three feet; or
 - 13 (ii) a non-vertical step equal to or greater than twenty percent gradient if the elevation
14 increase is equal to or greater than the upstream bankfull width.

15 *OR*

16 *Option C*

17 ***(2) Potential Habitat Breaks (PHB).** For purposes of the FHAM, the criteria for a PHB include any
18 of the following:

- 19 (a) Stream segments having a gradient increase equal to or greater than five percent.
- 20 (b) Downstream to upstream bankfull width decrease at the tributary junction equal to or greater
21 than twenty percent. The minimum distance for determining a decrease in bankfull width is
22 measured over twenty-times the bankfull width.
- 23 (c) Permanent natural obstacle having:
 - 24 (i) A vertical obstacle height equal to or greater than three feet; or
 - 25 (ii) A non-vertical step equal to or greater than twenty percent gradient and the elevation
26 increase is equal to or greater than the upstream bankfull width.

27
28 ***(3)** For purposes of this section:

- 29 (a) **“Permanent Natural Obstacle”** means a natural, non-deformable obstacle that completely
30 blocks upstream fish movement. “Permanent natural obstacles” include vertical drops, steep
31 cascades, bedrock sheets and bedrock chutes.
- 32 (b) **“Potential Habitat Break”** means a permanent, distinct, and measurable change to in-
33 stream physical characteristics. PHBs are typically associated with underlying geomorphic
34 conditions and may consist of natural obstacles that physically limits fish access to upstream
35 reaches or a distinct measurable change in channel, bankfull width or a combination of the
36 two.

Attachment C: Spatial Analysis Overview

DNR has contracted Four Peaks Environmental Science and Data Solutions (Four Peaks) to analyze the potential environmental results from implementing proposed changes to the field methodology to locate the Type F/N water typing break point in the water typing system rules. To conduct the analyses, Four Peaks is working closely with DNR to build a synthetic stream layer comprising representative stream networks across the state of Washington. This stream layer is being analyzed to identify the three Board approved potential habitat break options to be applied as part of the fish habitat assessment methodology (FHAM), and the anadromous fish floor (AFF) to field locate the Type F/N Water break. This overview summarizes the approach and methods for analysis to compare the Board approved FHAM and AFF to the field process currently being used to locate the extent of fish habitat and establish the Type F/N Water break point in streams.

Summary of Approach and Methods

Task 1

Building a synthetic hydrographic stream using the following source data:

1. DNR provided Water Type Modification Forms (WTMF) containing the last fish detection data points, the DNR concurred Type F/N water break points and associated protocol stream survey data providing a description of the upper most point of fish detected and stream characteristics; and
2. High-resolution, LiDAR-generated Digital Elevation Models (DEM)

These source data are being used to build a set of synthetic streams extending from 2000' below the last fish detection point to the end of all discernable stream channels (Type F and N) upstream of the last fish detection point. The stream networks include all tributary streams flowing into the stream segment containing the DNR-confirmed Type F/N break point and the mainstem downstream of the F/N break point. Additional attributes including catchment area, fish presence based on SWIFD, stream seasonality, and bankfull width will also be added to the synthetic streams.

To ensure the quality of the data resulting from this analysis, synthetic streams are being visually compared to ensure alignment with the DNR hydrographic stream associated with the WTMF for each fish data point. This step will be completed by early January 2024.

Task 2

For each synthetic stream, the last fish detection point and the DNR concurred Type F/N break point are being identified and placed on the synthetic streams.

For each synthetic stream layer, Potential Habitat Breaks (PHBs) are being calculated for each PHB Option currently being considered by the Board. This is being done by applying FHAM from last fish detection to the first PHB downstream and all PHBs upstream from the last fish point, emphasizing the first PHB upstream of the last fish point as the Type F/N Water break point.

The Board-approved methodology is being used to determine the location of the Option C PHB based on the relative proportion of flow coming into stream segments from upstream.

Point layers of each PHB option and the locations of the F/N break point and last fish

observations will be created for each synthetic stream, showing the first PHB downstream of the last fish point, the last fish point, the first PHB upstream of last fish point for each PHB option, the DNR concurred Type F/N Water point determined under the current rule and the default physical characteristic point. This step will be completed by mid- January 2024.

Task 3

Each Anadromous Fish Floor (AFF) alternative will be applied to the synthetic streams described above. For each synthetic stream network, the uppermost point of the AFF will be generated for each alternative and added to maps displaying the last fish point, DNR Type F/N point and FHAM derived Type F/N points for each PHB option within DNR hydrographic stream.

For each AFF alternative in each synthetic stream network, distances will be calculated extending from the upper most point of the AFF for each alternative to the last fish point, DNR Type F/N point, and FHAM derived Type F/N points for each PHB option. If AFF alternative D does not apply to the stream, this will be indicated. This step will be completed by mid- January 2024.

Task 4

For each of the streams in the synthetic hydrographic stream network, Default Physical Characteristics (DPC) will be applied to calculate points along the networks that meet each criteria option. DPC are met when either:

1. Stream segments have a defined channel of 2 feet or greater within the bankfull width in Western Washington; or 3 feet or greater in width in Eastern Washington; and having a gradient of 16 percent or less.
2. Stream segments have a defined channel of 2 feet or greater within the bankfull width in Western Washington; or 3 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.

This step will be completed by mid- January 2024.

Task 5

A written summary will be provided of the average distances by both eco-region and statewide, based on the weighted average of streams by eco-region to calculate average distances for western and eastern Washington (ecoregion boundaries and DNR hydrography layer provided by DNR). A table will be created summarizing the following distance analyses:

1. From last fish detection point to the DNR concurred Type F/N Water break point under the current rule, the calculated Type F/N Water break points for each PHB option; and the average distance from the DNR concurred Type F/N Water break point to the calculated Type F/N Water break points for each PHB option.
2. From the last fish detection point to the default physical Type F/N water break

point; and from the DNR concurred Type F/N Water break point to the default physical Type F/N water break point.

3. From the floor point for each AFF alternative to the last fish detection point, the DNR concurred Type F/N Water break point, the calculated Type F/N Water break points for each PHB option, and the default physical Type F/N water break point.

Task 6

The following attributes of the Type F water buffer as determined by FHAM for each PHB option will be compared to buffers under the current rule:

1. Change in acres of Type F water riparian management zone, using maximum RMZ widths per WAC 222-30-021 western Washington and WAC 222-30-022) eastern Washington;
2. Change in tree volume by tree species;
3. Change in value of riparian timber;
4. Perform the analysis using the average change in distance from current rule for each eco-region, then provide overall analysis results based on the weighted average results based on the number of waters in each eco-region.

Task 7

In western Washington only, conduct analysis to determine change in Type Np Water riparian buffers from the current rule to buffers established under the Board approved majority caucus options.

1. Using the synthetic hydrographic streams in western Washington (Task 1), overlay the DNR concurred Type F/N water break points (Task 2);
2. Compare of Type Np Water buffer using current rule to the majority caucus Type Np Water buffer options, ([Water Buffer Type Np Maps](#)) and show:
 - a. Change in acres of additional Type Np water riparian management zone, using [WAC 222-30-021](#) western Washington;
 - b. Change in tree volume by tree species;
 - c. Change in value of riparian timber;
 - d. Perform the analysis using the average change in distance from current rule for each eco-region, and then provide overall analysis results using weighted average of number of waters in each eco-region.