

**Compliance Monitoring  
Protocols  
Western and Eastern Washington  
REVISION 2013**

**OVERVIEW AND CONTACT INFORMATION**

This document serves as instructions and a reference for the compliance monitoring sample preparation and field data collection. If you have any questions, contact the Compliance Monitoring Program. This revision succeeds previous versions of “Compliance Monitoring Protocols- Western and Eastern Washington” beginning 2007. This document complements the Forest Practices Compliance Monitoring Program Design providing the detailed protocols to be conducted on the Forest Practice Application (FPA) reviews.

The compliance monitoring SharePoint site can provide information for participants on FPA scheduling, contacts, stream segment selection, and issues regarding compliance monitoring field reviews. For a complete list of prescription types assessed for the 2013 field season, please see page 11 of this document.

Walt Obermeyer  
Compliance Monitoring Program Manager (CMPPM)  
Forest Practices Division  
Office: (360) 902-1366

Matthew Provencher  
Compliance Monitoring Field Coordinator (CMFC)  
Forest Practices Division  
Office: (360) 902-2137  
Cell: 360-481-9838

**Sample Selection and Screening**

This is the responsibility of Division CM staff with the participation of WDFW and ECY.

1. Select FPAs expiring between April 1 of the sampled year and March 31 of the year following (this assures that expiring multiyear FPAs are included in the population).
2. Query to calculate the percentage proportion of FPAs for each region in the population
3. Assign random numbers between 0 and 1 to all FPAs in the population.
4. Order the randomized list from lowest to highest.
5. Assign a rank to each FPA per the ordered list.
6. Calculate the number of each prescription type per Region. The size of the sample is estimated to achieve the desired confidence interval. The individual prescription proportions are based on proportions which occurred in previous sample years.
7. Sort the ranked list by region.
8. Screen the region FPAs in rank order to include only those with typed water, wetlands, or road activities other than maintenance.
9. Screen FPA to exclude:
  - a. Class IV general conversions
  - b. Spray only FPAs

- c. FPAs administered with HCPs covering the activities we review
  - d. Exclude deleted water if that's the only feature
  - e. FPAs that include only salvage or biomass activities
  - f. FPAs that include only Type F Crossing work, and no other activity.
10. Select enough FPAs per region to assure the count of region proportion for each prescription type is met. It is likely some of them will need to be dropped for various reasons and replacements need to be selected in rank order to fulfill the sample count.
  11. Determine which waters and wetlands affected by the FPA are rule protected by reviewing the mapped FPA units
    - a. Identify water and wetlands using office methods
    - b. Review the FPA and its map to determine if the applicant added or deleted typed water.
    - c. Label waters and wetlands not addressed by the applicant per manner prescribed (a division task).
  12. Within each FPA, group the typed waters having the same protection strategy.
  13. Randomly rank the waters using the same prescription type using the spreadsheet Segment\_Selector\_2013.xls as per instructions on the ReadMe worksheet (Division task).
  14. Communicate the selected FPAs to the region compliance monitoring leads.
  15. Confirm with the region compliance monitoring leads that the FPAs are completed thus eligible to sample.

## **RESPONSIBILITIES OF DNR LEADS FOR FIELD REVIEWS**

1. Region Lead: Coordinate dates for compliance monitoring field reviews with the Compliance Monitoring Field Coordinator:
  - a. Assigned weeks or days. The region will work with the Compliance Monitoring Field Coordinator at the beginning of the sampling season to reserve weeks/days for the region reviews.
  - b. Coordinate dates with the CMFC so that information can be posted to the shared SharePoint calendar(s).
  - c. CMFC: Review the field schedule and confirm the participation of Washington Department of Ecology (DOE) and the Washington Department of Fish and Wildlife (WDFW) participants by email or phone calls to confirm field dates at least 2 weeks in advance. More notice will be given when possible. Less notice may also occur on occasion when an application gets dropped and another one is picked up on short notice. Every effort will be made to give as much notice of possible.
  - d. When overnight travel is essential try to coordinate field days consecutively so that ECY, WDFW and DNR HQ staff can optimize their field days and hotel accommodations.
  - e. Region Lead: Contact appropriate tribal and landowner contacts for your particular region and/or district. At least two week's notice to the tribes is preferable.
  - f. Give the landowner a notification call with the dates that you will be reviewing their application.
    - i. The landowner may attend the assessment; and they can clarify elements of the FPA. However, they cannot be part of the decision making process for determining the compliance of their activities.
2. Assure that the Forest Practice Forester (FPF) that approved the FPA provides site directions and logistical information.
3. Assure that the FPF who approved the original application will not participate in making decisions for that site.

4. (Region task) Check the FPA jacket in your region that may contain any other information on the FPA such as Informal Conference Notes, Water Type Modification Forms, emails related to ID team visits, etc. Create PDF copies of the complete file and provide to the Compliance Monitoring Field Coordinator and Compliance Monitoring Program Manager for electronic distribution to other participants. Bring copies of these to the field review. This must include other FPAs linked or related in some manner such as through an Alternate Plan or other set asides. If supporting documentation is not submitted on or prior to field review, it can still be considered for review if the participants are made aware of it at the time of the review and the proper notes are written on the field forms. Proper notes would be 'pre-loading' comments with outcomes based on documentation submittal. For instance, comments would mention what the compliance determination and rating would be without the submittal of the documentation, and what the compliance determination and rating would be if the documentation is submitted and accepted by the team. An email will go out to all the participants from that review with the end result. However, submitting documentation to the CMFC at least one week prior to field review is preferred and recommended.
5. The DNR review lead ensures that the prescribed field methods are being used consistently.
6. Make sure that consistency is maintained throughout the field season, and at each site.
7. Use the field forms and notes templates provided to document findings for all of the riparian assessments.
8. If unable to attend, provide another DNR region Forest practice staff to participate in the review.
9. Assure that the necessary items are brought to the field.
10. Bring appropriate field gear: SEE NECESSARY FIELD ITEMS.

## **RESPONSIBILITIES OF DOE AND WDFW PERSONNEL**

1. Maintain availability for scheduled field days.
  - a. If you are unable to attend a scheduled field day, attempt to find a replacement from your respective agency. This includes absences for annual leave, trainings or meetings, even if these are put on the shared calendar before a field review is scheduled.
  - b. Field reviews will take place as long as one DNR Representative and one representative from either ECY or WDFW are present.
2. SEE NECESSARY FIELD ITEMS. Come prepared with at least the following field gear and supplies:
  - a. Field vest: paper, pencils, permanent pen/paint pen, and loggers tape with diameter measurement.
  - b. Bring laser range finder, two way radios, etc., if you have them available to you.
  - c. Any items requested by the lead DNR person, if you have them available to you.
3. Participate in field measurements following the protocols and instructions from DNR lead.
  - a. If you have concerns over how the field work is being conducted, discuss with DNR lead and consult protocols.
4. Provide constructive discussion of the questions in the field forms.
5. If there is disagreement about the rules and/or protocols:
  - a. Consult the rules and protocols, facilitating constructive discussion of the rule in question.
  - b. The DNR lead has the final call on field procedures and answers on the field forms.
  - c. It is up to the DNR lead to be accountable for accuracy and consistency of the field work.
  - d. If you have any concerns that aren't being fulfilled by the DNR lead, please contact the CMFC or CMPM.
6. Provide copies of all field notes recorded during the review to the Compliance Monitoring Field Coordinator
7. Share when possible, transportation with Olympia staff when attending field reviews

## GENERAL EXPECTATIONS-ALL PARTICIPANTS

1. Read and be familiar with these protocols.
- 2. For office review procedure of FPAs prior to fieldwork:**

Open each application on FPARS, double check FPA # against list for region

Confirm approval date is within our sample window

Make sure FPA includes activities we are sampling (riparian, roads) Use FPRAT and/or FPARS to double check the rule protected waters and wetlands to assure inclusion and for WTMFs that are applicable.

Print FPAs to bring to field reviews

Examine the FPA's office checklist for flagged items that might affect our work, e.g. 20 Ac XMT, Alternate Plans, HCP, BTO etc.

Note Section, Range, Township for checking and printing maps on FPARS

Print current activity, water typing and site class maps for each FPA for reference in field, and attach to your copy of FPA

Note types of harvest, equipment and acreage listed in table at harvest question

Note road activities to be reviewed in table at road construction question

Check wetland types, associated activities and WMZs, if any, in wetlands table

Check activities proposed over typed waters from table: if skidding, watch for ground disturbance; if cable yarding, note that trees cut in RMZ might be for corridors, tailholds etc.

Type F RMZ table: note segment IDs, stream widths, site classes, CMZs and harvest codes

Type Np RMZ table: note whether full or partial buffer; check lengths proposed against rule requirements, distances from nearest Type F, etc.

Check additional information provided by applicant for anything pertinent or useful

Maps: include current activity map and current hydro layer (especially important for FPAs with multiple renewals, and those where corporate maps are substituted for FPARS maps)

Check WTCW and/or WTMF, if any; note descriptions of physicals used to verify water types

Notice of Decision page: any conditions added by approving forester?

Any amendments and/or revisions that affect what we're looking at?

For renewals, be sure original FPA is included; if not, obtain from region

List all water and wetlands types and their prescriptions, as well as road activities, and any issues noted during review, on front page of FPA to be sure they are not missed during fieldwork

## **FIELD PROCEDURES**

1. DNR division CM staff will lead all reviews which they attend
2. CM participants do not leave the property of the landowner. They may leave the FPA boundary if the land outside of the FPA is owned by the same entity.
3. Review lead assembles all participants at the site for a pre-review briefing
  - a. Brief participants on which attributes will be observed and agree on the order of work
  - b. Assign work roles to state agency participants on a rotating basis providing at least one person from ECY or WDFW and one person from DNR perform stream measurements. Check with the assigned participants to assure all have the correct tools
4. Perform the review field work
5. Post field work record keeping
  - a. Inform participants to think carefully about the forms because what is on paper will be considered as the final outcome and changes after signing are unlikely unless relevant additional information which has the potential to affect the results comes to light after the fact.
  - b. Complete the individual activity forms first. Read the questions aloud and get verbal consensus with the answer then have the following read and sign each form.
    - i. DNR division lead
    - ii. DFW
    - iii. Ecology
    - iv. Tribe
    - v. DNR region lead
  - c. Complete Form 1

## **FIELD DISCUSSIONS AND DECISIONS**

1. Field Discussions
  - a. When facilitating discussions regarding specific Forest Practices rules, bankfull width determinations, wetlands or other topics associated with the FPA review:
    - i. Invite all field participants to the discussion
    - ii. The lead forester should facilitate these discussions in a manner in which all people voice their opinions.
    - iii. This discussion should usually last a maximum of 15 minutes in order to keep the process moving.
    - iv. Comments will be noted in the field forms and also on the Post Survey Evaluation Form regarding any disagreement about decisions.
    - v. This procedure is similar to Interdisciplinary Teams for Class IV Special applications, and the decisions are ultimately the responsibility of the DNR.
    - vi. DNR documents the basis for the decision when there is non-consensus
2. Water Type Modification Forms, ICNs, protocol surveys in accordance with board manual section 13, emails, etc. in relation to stream type considerations

- a. If these forms of documentation are submitted with the application, or are provided by the lead forester during the review, CM will not challenge these forms approved after 2000, rather note the differences on the supplemental water evaluation form. Protocol surveys must be submitted with the FPA for proper review.
- b. Comments and concurrence has occurred before compliance monitoring review.
- c. Any person can challenge these forms, and this is an issue beyond compliance monitoring.
- d. The evidence of the water type form, ICN, or protocol survey should be provided before or during the review, otherwise the CM team may make the decisions based on stream characteristics as provided in rule. If a WTMF is not provided at the time of the review, but the team is told of it at the time of review, and the appropriate notes are put on the field form, it can be considered. See Section 4 under Responsibilities of DNR Leads for Field Reviews for an explanation of this. The WTMF must have been submitted and approved with or before the FPA was submitted. The same is true of other documentation regarding stream sizing or typing, such as Informal Conference Notes and/or ID teams notes and protocol surveys following the guidelines in Board Manual Section 13. If only one other Agency/Tribal participant besides DNR attends an ID team, the notes and/or ICN should be shown as being routed to the other agencies for concurrence, or attached to the FPA when submitted for approval, in order to be accepted by the compliance monitoring team. If a protocol survey is used to determine stream type, appropriate documentation should be submitted with or before the FPA.
- e. Fish found in a non-fish stream need to be confirmed by at least two CM participants at the review
- f. Stream found typed as non-fish on the FPA with fish observed or with F Physicals observed during CM review
  - i. If there is no WTMF it will be reviewed as Type F
  - ii. If there is an approved WTMF as non-fish will be reviewed as non-fish
  - iii. If there is an ID team report as non-fish will be reviewed as non-fish

### 3. Decisions

- a. All compliance monitoring decisions are intended to be made in the field.
  - i. Issues regarding rules or specific interpretations will be presented to the DNR Compliance Monitoring Program Manager for clarification within the Forest practices division.
  - ii. Consultation with the Forest Practices Operations Manager will occur, and a prompt reply to the field review team will be made.
  - iii. If the issue has broad application, the clarifications and explanations will be provided to all the compliance monitoring participants.
  - iv. Inform all field review participants of outcome once a decision is reached, including basis for the decision

### 4. TFW processes

- a. Communication protocols and guidance on rule interpretation
  - i. When field teams encounter a situation where rules are not clear for a particular FPA due to conflicting information, disagreement about field protocols, the lead forester will contact the DNR CPM or CMFC and there will be a consultation with the Forest Practices Assistant Division Manager of Operations for rule guidance.
  - ii. The CPM will distribute this information to all the compliance monitoring participants. There is a good chance that there are similar questions in other regions.
- b. Issues and suggestions to the Program
  - i. If there are concerns regarding field protocols or conduct of the field participants contact the Program Manager. A meeting will be scheduled so concerns can be addressed.
  - ii. CMP Agency Caucus Meetings will include:

1. Compliance Monitoring Program Manager
  2. The pertinent supervisors for both WDFW and ECY CM field representatives. It is understood that ECY organizational structure might limit supervisor involvement at times.
  3. DNR Compliance Monitoring Field Coordinator
  4. ECY and WDFW Compliance Monitoring field representatives
- c. Agenda topics will be received at least one week before informal meetings with DNR, DOE, and WDFW. This assures that necessary information is gathered.

## **FIELD NOTES TEMPLATES AND FORMS TO RECORD NECESSARY FIELD REVIEW DATA**

1. Documentation for field assessments will consists of:
  - a. Field notes templates.
    - i. These templates are designed for each different activity for compliance monitoring field visits.
    - ii. Templates are used when measuring all stream segment and WMZ requirements (including but not limited to: Outer zone trees, inner zone trees, stumps found in a no cut area, bank full width, stream length) that could be used in determining a compliance status or rating.
    - iii. Templates are the documentation to support answers on the field forms.
  - b. Field forms
    - i. The forms are composed of a series of questions derived from WAC language related to a specific rule activity measured in the field.
    - ii. The field forms use the information from the notes templates to assess the particular activity.
    - iii. These forms lead to a compliance result.
    - iv. Fill out field forms only for those activities that actually took place on the ground
  - c. The Post Survey Evaluation Form
    - i. This form is used to document which activity prescription types were reviewed, who participated and what the site conditions were.
    - ii. Compliance and ratings determinations are to be made in the field before leaving the site so any questions that arise can be answered before the team departs, so as to avoid the need for a return visit.
  - d. Extenuating circumstances
    - i. A determination may hinge on a piece of information that was not available at the time of the field assessment.
    - ii. The Program Manager will consult with the Operations Assistant Division Manager and will notify the field assessment team of the result.
    - iii. CMPM will document the basis for the decision when non-consensus occurs.
2. The field notes and field forms are available on the compliance monitoring SharePoint site.

## **FIELD POSITIONS AND DUTIES**

1. Field review participants are expected to be able to perform all field duties. To reduce the perception of bias by having a single agency or person doing the same field work, the following steps are recommended in assigning the various field positions.
  - a. Each riparian activity usually has at least 4 field positions to be filled to accomplish the review. These positions can be split amongst multiple person depending on number of participants:
    - i. Two People Determining bankfull widths and incremental stream stations.
    - ii. One person using laser range finder, and setting ribbons for the different zones.

- iii. One person for taking notes and helping to measure and count trees, or ribbon zones. This person should also wait at the previous station along the inner/outer zone boundary in order to get RMZ length. The clipboard should have a reflector to use with the laser.
- b. Team members need to rotate positions so that no one person dominates in any one position except for stream measurements which shall include one DNR and at least one person from ECY or WDFW Others will called to confer when issues arise on BFWs, CMZs and associated wetlands.

## NECESSARY FIELD ITEMS

1. Field notes templates
2. All applicable field forms
3. Pen, Pencil, Marking Pens
4. Calculator
5. Scale ruler
6. Flagging
7. Forest Practice Application to be reviewed
8. Pertinent information included in file, but not in FPARS
9. Any approved Watershed Analysis prescriptions, Alternate Plans, land exchanges, or other agreements that may apply to the FPA
10. Site class map for applications with bordering Type S or F Waters
11. Logger's tape, String box, and/or Laser range finder and reflectors
12. Diameter tape
13. Clinometer
14. Camera, walkie talkies, and extra batteries.
15. Forest Practices Rule book

## FIELD PROTOCOLS, RULE CLARIFICATIONS, AND OTHER ISSUES

1. Choosing Riparian Management Zones (RMZs), Wetland Management Zones (WMZs), and Equipment Limitation Zones (ELZs) to be sampled.
  - a. CM participants do not enter adjacent landowner property, even when the adjacent land is public. A stream or wetland segment that leaves the property will be dropped from the sample if the CM team would have to enter adjacent property to properly survey the RMZ or WMZ. Leaving the footprint of the FPA is only permissible if the adjacent land is owned by the same entity.
  - b. Prescriptions will be selected based on how they are labeled in the FPA. For instance, if a stream is labeled as Np by the landowner, it will be selectable as an Np, even if the hydro layer shows Type F.
  - c. In the cases of Type F streams on the FPA that have no identifier or prescription identified, they will be selectable as a No Outer Zone Harvest (NOZH).
  - d. *Only one of each different prescription type on the FPA will be reviewed if the target number of activities has not been reached. Only one stream segment associated with each activity type will be assessed. For example, if an FPA has two DFC Option I harvests and one DFC Option*

II harvest, only **one** Option I harvest will be chosen along with the **one** Option II harvest. This is also the case for Type Np and Type Ns harvests.

e. *Sub sampling of stream segments*

- i. *For FPA's with Type S or F segment.*, for instances where there are more than one F or S stream segment using the same harvest option, the program uses a spreadsheet macro which generates random numbers to select the stream segment for review. This spreadsheet contains a randomizing function and is available from CM division staff and on the SharePoint site. However, this task should be done by division staff.
- ii. Though not ideal, other unbiased selection methods are allowed if the Excel macro results are not available. Record the selection method in the notes.
- iii. *For stream segments or water bodies without designators such as non-numbered Type Np and Ns streams.* The DNR Division staff will select the Type Np and/or Type Ns stream segments based on a random selection/ these stream segments. Numbering will begin in the upper left hand side of the FPA, and proceed as if reading lines of text. When all stream segments have been numbered, we will select the stream using the random number spreadsheet and send those assignments with the stream segments clearly identified to review participants. Where present, also examine one each of streams labeled "U", "N" or crossed out by the applicant
- iv. *For non-existing streams that are shown on the FPA.* We will use the random order selection spreadsheet to choose the next segment in random order. We will then be able to review another stream segment on the FPA. This will allow us to use our field review time efficiently.
- v. If there is no harvest option assigned to the stream segment and there is no information on the FPA, we will assume there will not be harvest in the RMZ. If the segment does not have a letter or number, the DNR Division staff will assign one in a manner similar to section ii above.
- f. *For segments with double sided RMZs.* Survey both sides or as designated by FPA in (b) above. If both sides on the stream are the same harvest option, group the options together before selecting stream segments.
- g. DFC options require separate segments for each sides of the stream. If approved as 2 sided (an error) they will be dropped from the sample.
- h. *For surveys along Type S or F water with no inner zone management:* Survey entire length or perimeter of the segment selected.
- i. *For surveys along Type S or F water with no outer zone management:* Survey entire length or perimeter of the segment selected.
- j. *For surveys along Type Np or Ns water:* Survey entire length, including branches of the same stream system (if branches have same indicator provided by landowner).

**2. RMZ measurement**

- a. *Confirm the RMZ as selectable*, assess rule protected water and wetlands with buffers wider than the rule minimums to determine if there is no viable harvest unit remaining between the rule prescribed buffer width and the edge of the FPA harvest. If, in the judgment of the review team, a viable harvest unit remains between the rule prescribed buffer and the harvest edge the RMZ assessment is to be dropped. Viable harvest unit means that an option to harvest before the next rotation exists, and that a landowner would likely exercise that option before the next rotation. Areas including but not limited to fields, prairies, agricultural land, or other non-forest land between the water being protected and the start of the harvest, shall be excluded from the sample.
- b. *For RMZs larger than those required in the rules:*

- i. When a landowner chooses to begin RMZ measurements farther inland than bankfull width to protect the resource due to circumstances including but not limited to difficult BFW locations due to blowdown, associated wetlands, multiple channels, or indeterminate channel migration zone (CMZ) calls the field review team should attempt to mimic the BFW marked on the ground. This circumstance can only be considered if sufficient flagging or marking on the ground exists to determine that the landowner used a BFW location greater than needed. If the compliance monitoring field team has reason to believe that the resource was overprotected, RMZ measurements should begin at BFW of the water being protected, regardless of marking on the ground. This relates to the case of areas where a landowner has made a decision to provide greater protection to a resource than required by rule, because they made a conservative decision to stay away from an area with stream or floodplain characteristics that make appropriate determination of protection of the resource difficult. In these instances where the compliance monitoring team cannot identify any rule protected feature requiring this level of protection, measurements should start at BFW of the stream in question. Note this section is not intended to dispute a landowner delineated CMZ on the ground, but rather those instances when it appears a conservative approach was taken.
- c. Stream width for all water types is BFW as defined in WAC 222-16-010 and described in Board Manual section 2. Standard Methods for Identifying Bankfull Channel Features and Channel Migration Zones.
- d. RMZ lengths will be measured, using horizontal distance, along the outer edge of the inner zone. This will correspond better with RMZ lengths reported for all DFC options.
- e. Recording stream lengths in slope distance is acceptable within the stream for setting stations, as it is inefficient to get horizontal length in the stream.

### **3. Stream measurements**

- a. Measure and flag appropriate buffer widths at perpendicular/equal angles from BFW or CMZ of stream.
  - i. First measurement is 0+00 at one end of stream segment as mapped in FPA (you choose and write in notes).
- b. For stream segments under 950 feet.
  - i. first station is 0+00
  - ii. second station is 0+25
  - iii. every 50ft. thereafter
  - iv. For segments shorter than 500 ft. take BFW every 25 ft. This may be less than 10 measurements for extremely short segments.
- c. For stream segments  $\geq 950$  feet, segments will be 100' stream length.
  - i. 0+50 is second measurement.
- d. If terrain, brush, blow down, etc., doesn't accommodate above stationing, use what works for visibility and note in field notes what these offset distances and directions are. If measuring BFW you must still follow stationing in (a, b, and c above.)
- e. A 5% measurement tolerance will be applied to BFW of streams.
- f. Overlapping RMZs: (See diagrams on page 32)
  - i. Continue flagging across overlapping RMZ's. Note on flags which segment they are for to avoid confusion during tree counts
  - ii. Trees in these overlapping areas count towards the leave trees for each stream in its respective RMZ.
- g. Flagging
  - i. Choose your own color(s).
  - ii. Use different colors for different zones/width measurements.

- iii. Write color choices in field notes templates cover page.
  - iv. Write station and date on flagging at the stream location and inner zone/outer zone location
  - v. Flag all zone boundaries, including floor/CC-IZ and outer edge of outer zone.
- h. Determining starting points for stream lengths.
- i. Segment starting point can be identified on the FPA or in field.
  - ii. Confluence of two streams.
  - iii. Edge of harvest unit.
  - iv. Point indicated on map.
  - v. Marked in field.
  - vi. If landowner is present, he can direct the team to the start of the segment.
  - vii. If the segment location is difficult to determine on the FPA or in field, come to a consensus, mark it in the field, and document the location in the notes.
  - viii. If segment begins at a confluence, begin measuring there to ensure that leave trees in the overlapping zones are counted.
- i. Tools to measure stream length
- i. String box.
  - ii. Loggers tape.
  - iii. Laser range finder
- j. Determining stream and CMZ widths:
- i. Any discrepancies will be noted in the field on the appropriate form.
  - ii. Core zones on Type F and S streams begin at the outer edge of BFW or CMZ, whichever is greater. Np buffers begin at BFW. No CMZs are included in the rules for type N waters with the exception of alluvial fans. See WAC 222-16-010 “Riparian Management Zone (RMZ) means” and “sensitive sites”.
  - iii. For type F channels that are obviously greater or less than 10 feet in Western Washington, or 15 feet in Eastern Washington, bankfull width measurements are **not necessary**. For channels that are not obviously discernible, bankfull width should be measured with at least 10 evenly spaced measurements over a representative section of at least 500 feet.
  - iv. CMZ locations are identified by determining if they meet the definition of a CMZ as provided by WAC 222-16-010. The field form from Board Manual Section 2 can aid in this determination. This field form is a hierarchical flow chart and starts at the top and progresses to the bottom. You need to satisfy the first criteria before you can proceed to the next criteria etc.
    - (i) If the landowner stated that there was no CMZ, measure from BFW.
    - (ii) If it is determined that a CMZ existed, then CMZ determinations are made on the overall stream characteristics.
    - (iii) If CMZ presence is indeterminate a DNR expert will determine CMZ presence and document the basis for that determination. No review of the activity shall take place until the presence and boundary of a CMZ is determined.
    - (iv) If there are field discrepancies on bankfull width (BFW) or channel migration zones (CMZ) determinations, the field team should discuss for 10 to 15 minutes. If consensus cannot be reached, describe the disagreement in the comments section and complete the field form accordingly. Move on to the next station. Note issues on appropriate forms.
  - v. Document in field forms if BFW or a CMZ is present or is in conflict with the approved FPAs. Per the WAC 222-16-010 definition for “Riparian management zones” for Type N waters the RMZs are measured horizontally from the outer edge of the bankfull width. (No CMZ is associated with Type N waters, except for alluvial fans as noted in j. ii above.

#### **4. Prescription Types Reviewed**

- a. Prescriptions for Western Washington
  - i. S and F streams segments
    - A. DFC Option 1
    - B. DFC Option 2
    - C. No inner zone harvest
    - D. No outer zone harvest
  - ii. Np stream segments
  - iii. Ns stream segments
    - A. Equipment Limitation Zone
  - iv. Wetlands
    - A. A Wetlands
    - B. B Wetlands
    - C. Forested Wetlands
  - v. Roads
    - A. Road Construction or Reconstruction
    - B. Haul Routes
- b. Prescriptions for Eastern Washington:
  - i. S and F streams segments
    - A. Eastern Washington inner zone harvest (separate attribute for forest habitat type)
    - B. No inner zone harvest
    - C. No outer zone harvest (RMZ must have an outer zone)
  - ii. Np stream segments (ELZ also applies to all options)
  - iii. Ns stream segments
    - A. Equipment Limitation Zones
  - iv. Wetlands
    - A. A Wetlands
    - B. B Wetlands
    - C. Forested Wetlands
  - v. Roads
    - A. Road Construction or Reconstruction
    - B. Haul Routes

#### **5. Stream Typing**

- a. Compliance monitoring does not perform stream typing beyond simply measuring physicals and noting any fish observed.
- b. Stream activities will be selected based on the information provided in the FPA. That is, a stream that appears to be labeled an Np on the FPA, will be selectable as an Np, even if the DNR hydro layer labels the stream differently. Streams will be assessed based on physicals seen on the ground, absent any supporting documentation for the stream type labeled on the FPA
- c. If streams meet F physicals on the ground, then an appropriate Type F buffer would be required, absent proper documentation supporting the stream type made. ICN's or ID team documentation must specifically address the stream in question in order to be acceptable.
- d. For possible discrepancies on water typing, fill out the "Supplemental Water Information Form" (SWIF) to document the magnitude of the stream typing and other water-related issues.

#### **6. Shade**

Stakeholder Committee decision of 3/22/2013 confirmed a decision to 1) record where trees are harvested within 75ft of Type F or S water; 2) Record whether the applicant provided shade

documentation. Shade will not be used to determine compliance but the report will discuss FPAs where harvest occurred within 75 ft and the uncertainty of meeting shade requirements.

## **7. No Harvest Buffers for all Water Types for Eastern and Western Washington**

- a. Includes Core, Option 2 Floor Zone, no inner zone harvest, no harvest Np buffers, or other designated no harvest buffers.
- b. Between every two stations, determine if there were trees harvested within the no-harvest buffer.
  - i. Between appropriate stations in field notes record:
    - A. Number of trees cut. If too many trees are cut to be able to reasonably count, record approximate percentage of trees cut in the zone.
    - B. Approximate size of those trees, when appropriate.
    - C. Distances from BFW.
    - D. If there are any questions that the BFW may be a factor, re-measure from the stump to the BFW and record distance in field notes. This extra measuring will help to compensate for sinuosity, bank erosion, etc. along the continuous RMZ width.
    - E. For line trees, count every other tree as in, just as in standard property line compensation for line trees.
    - F. A 5% measurement-uncertainty allowance will be applied to RMZ measurements. Trees cut within this allowance will be noted, but will not affect compliance, except as noted below in G. (iii).
    - G. These parameters apply to all trees cut within any no-harvest buffer, including those within the 5% measurement uncertainty
      - (i) When answering the questions on the field forms
      - (ii) Trees cut inconsistently within the 5% measurement uncertainty puts the activity in compliance, so be sure to differentiate these from trees outside of the 5% measurement activity.
      - (iii) Trees cut consistently within the 5% measurement uncertainty puts the activity out of compliance. Consistently will be determined by the compliance monitoring team using professional judgment.
    - H. If harvest occurs within the RMZ of an F Stream where the strategy was designed as 'No Outer Zone Harvest' (coded K in W WA, L in E WA), or was left undesignated on the FPA then the RMZ will be assessed:
      - (i) Non-compliant with the FPA.
      - (ii) Compliant with the rule if :
        1. No harvest in Inner and Core Zones
        2. Sufficient Outer Zone leave trees remain
    - I. For exceeds determinations:
      - (i) Record buffer widths when the buffer is consistently  $\geq 20\%$  wider than the rule requirement.
      - (ii) Np stream buffers: record up to 20% more than the length of no-cut buffer than is required by rule. For example, a landowner would exceed the rule requirements if the required length of Np no cut buffer is 500 feet and the landowner leaves additional 100 feet of buffer (20% X 500').
      - (iii)(i) and (ii) do not apply when other rules require a greater buffer than the ROZ or WMZ rule (i.e. bounding out of unstable slopes).

## **8. Inner zone Management**

- a. Any harvest proposed within 75 ft of BFW requires documentation of adequate shade per WAC22-30-040. Without shade documentation, harvests within 75ft shall be non-compliant with the rules, though the harvest could still be compliant with the FPA.

**b. Western Washington:**

i. DFC Option 1, Thinning From Below

- A. Tally 100% of the inner zone trees listed in the DFC print out as leave tree requirements by 2 inch dbh class.
  - I. Tree diameters are measured with a diameter tape. Check for stumps that appear to have been trees of dbh larger than the thinning strategy allowed.
    - (i) We cannot determine exactly what the dbh would have been for a stump on the ground, however using professional judgment we can determine if the tree stump was greater than the thinning strategy allowed.
    - (ii) If absolutely needed, we could, measure the remaining trees at two points such as the DBH and at a point below DBH that would approximate the height of the stumps to determine a ratio of tree diameter to stump diameter to validate the call.

ii. DFC Option 2, Leaving Trees Closest To Water:

- A. Tally trees cut in “no harvesting allowed” designation from the DFC print out (aka “floor zone”).
- B. Tally required trees in the outer portion of inner zone, per DFC print out.
  - I. Trees must be conifer 12 inches or greater in diameter. These are not by size class, and must be >20 TPA (no basal area credits in this zone). See notes templates for Option 2.
  - II. Tree diameters are measured with a diameter tape.
  - III. Count all trees for the inner zone requirement up to twice the number needed. If more than twice the number are present in both the inner and outer zones, record compliance as “exceeds”.
- C. If avg. BFW exceeds 10 ft. on Site Class III ground, Option 2 is disallowed, and the activity is out of compliance with rules unless all requirements for NIZH are met for the actual stream size.
- D. Stream adjacent parallel roads Western Washington and Option 2 harvests
  - i. The only time a stream adjacent parallel road is an issue is if the harvest is an Option 2 harvest and the basal area components of the stand requirement cannot be met within the sum of the areas in the inner or core zones:
    - a. 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 and inner zone.
    - b. Trees containing basal area equal to the amount determined above 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 of other Type F or S streams in the same unit. See WAC 222-30-021 (1) (b) (ii) (B) (II) (iii) (A).

**c. Eastern Washington:**

i. Inner zone Ponderosa pine, mixed conifer, and high elevation.

- A. Calculate the acreage of the inner zone based on the horizontal width and length.
- B. Verify basal area and required leave trees per acre as outlined in the questions on riparian field form 6 for inner zone management in the three different habitat types.
  - I. All stream segments: 100% cruise shall be done.

- C. Tally dbh by 2” diameter classes and hardwood vs. conifer.
- D. Calculate basal area per acre.
  - I. Basal area calculations are built in to the Excel worksheets and can be used electronically or manually. Also see ‘Board Manual Section 7, Appendix D, Determining Basal Area’.
- E. Calculate trees per acre.
- F. High elevation, only: calculate percent conifer along with D and E, above.
  - I. Refer to Board Manual Section 7, Appendix G, Western Washington Preliminary Riparian management Zone Screening Stand Tables to verify the leave tree requirements. Note: this is because WAC 222-30-022 (1)(b)(iii)(B) refers to WAC 222-30-021 (1)(b). Because it is difficult to run DFC with Eastern Washington parameters, we will use Appendix G.
- G. Stream adjacent parallel roads Eastern Washington and Inner Zone Harvests
  - i. For streams greater than 15 feet:
    - a. If the edge of the road is 75 feet or more from the BFW or CMZ no harvest is permitted in the inner zone.
    - b. No harvest is permitted within the inner zone on the stream side of the road, however, if the road is less than 75 feet from the BFW or CMZ, additional leave trees equal to basal area lost to the road will be left near the streams in or adjacent to the unit.
    - c. If leave trees are not available, landowners and operators will employ site specific management activities to replace lost riparian function which may include placement of large woody debris. Information in question 25, and ICNs can be used to document this.
  - ii. For streams less than 15 feet in width:
    - d. If the edge of the road is 50 feet or more from the BFW or CMZ, no harvest is permitted in the inner zone.
    - e. No harvest is permitted within the inner zone on the stream side of the road, however, if the road is less than 50 feet from the BFW or CMZ additional leave trees equal to basal area lost to the road will be left near the streams in or adjacent to the unit.
    - f. If leave trees are not available, landowners and operators will employ site specific management activities to replace lost riparian function which may include placement of large woody debris.

**9. Outer zone:**

With regard to “exceeds” category: after counting required number of leave trees, count extra trees until you have reached twice the requirement.

Outer zone leave trees may be reduced by up to 50% with LWD placement strategy including HPA approved by WDFW, which must be included in the FPA.

**a. Western Washington:**

- i. Determine from the FPA if leave trees are dispersed or clumped and if the locations of the clumps are shown on the FPA. Hardwood trees are only included in the leave tree counts if the “clumping on sensitive features” strategy is used; trees must be clumped on actual qualifying sensitive features, see 222-30-021(1)(c)(i)
- ii. Determine from the FPA if any basal area exchanges apply (DFC Option 2 only).

- iii. Tally the outer zone leave trees of conifer 12" or greater up to twice the appropriate number. See table on page 28
  - iv. For all harvest options, calculate 20 tpa for dispersed strategy.
  - v. For Option 2, follow DFC specifications in FPA.
  - vi. For basal area exchanges for all harvest options, see approved plan in FPA.
    - A. CMZ exchanges
      - I. Tally 100% of the CMZ trees: conifer tally must be greater than or equal to 6" dbh and hardwood tally must be greater than or equal to 10" dbh.
    - B. Conifer in the CMZ equal to or greater than 6" dbh will offset conifer in the outer zone at a one to one ratio
    - C. Hardwood in the CMZ equal to or greater than 10" dbh will offset hardwood in the outer zone at a one to one ratio.
    - D. Hardwood in a CMZ equal to or greater than 10" dbh will offset conifer in the outer zone at a three to one ratio.
    - E. A through D above are by basal area not stem count
- b. **Eastern Washington:**
- i. Tally 100% the outer zone trees until the appropriate numbers and sizes of required leave trees have been counted.
  - ii. Ponderosa pine habitat type - leave 10 dominant or co-dominant trees
  - iii. Mixed conifer habitat type – leave 15 dominant or co-dominant trees
  - iv. High elevation habitat type – See 222-30-021 (1) (c)
  - v. Note: some site class stream size combinations have no outer zone

## **10. Type Np waters**

- a. Upper most point of perennial flow (UMPPF, (old name PIP). The UMPPF can vary from year to year.
  - i. Landowners are encouraged to mark the location of the UMPPF, and we will measure from their locations.
  - ii. We will measure the maps and try to come up with the location from the map (ie at the junction of two or more Ns streams, the base of an outcrop, etc.
    - A. If there is an obvious 56 foot radius area (50ft. in E WA) with leave trees, and the flow may be in a different location, there is not a standard method to determine if the location changed or not. Use applicants field marking or leave trees, where present.
    - B. If the UMPPF is located on the map, use the best measurement you can attain from the map.
- b. Np RMZ No Harvest Buffer
  - i. Measure a 50 foot no cut buffer unless otherwise stated in the FPA.
- c. Harvesting Np RMZs
  - i. Look for equipment entry into the 30 foot equipment limitation zone (ELZ).
  - ii. If there was entry, look for  $\geq 10\%$  soil exposure and/or mitigation for soil exposure.
  - iii. Look for harvest within BFW of any Np water
  - iv. No salvage is permitted in the buffered portion of an Np RMZ

## **11. Non buffered portions of Type Ns streams:**

- a. Look for equipment entry into the 30 foot equipment limitation zone (ELZ).
- b. If there was entry, look for  $\geq 10\%$  soil exposure and/or mitigation for soil exposure.

## **12. Wetland Management Zones:**

- a. Verify wetland type and size: see wetland definitions and WMZ table under “RULES AND RULE CLARIFICATIONS” section on page 23. This can be done concurrently with WMZ measurement.
- b. Measure the WMZ per the wetland as typed in the approved FPA. Use a GPS to get area, or measure with a laser rangefinder to get widths along the wetland. You can then average the widths for the length of the wetland to get an approximate area for the wetland.
- c. If the FPA specifies a set (not average) WMZ width with no harvesting, follow the protocol for measuring RMZs under streams
- d. For harvest in the WMZ with a variable width buffer:
  - i. Follow the boundary as marked on the ground by the applicant, if available.
  - ii. Calculate WMZ acreage using the average width specified in the WMZ table.
    - A. Measure variable widths and distances of the WMZ and put in notes template.
      - I. These will be used for checking width and spacing of any openings in WMZ.
      - B. OR use a GPS to traverse the WMZ and
    - iii. Tally 100% of the trees for each required size class in the WMZ.
      - A. See field notes templates for WMZ (by diameter category).
      - B. Calculate trees per acre of each rule requirement:
        - I. Western Washington
          - (i) 6 to 12 inches dbh trees
          - (ii) Greater than 12 inches dbh trees
          - (iii) Greater than 20 inches dbh trees
        - II. Eastern Washington – tally conifer and hardwood separately for each size class
          - (i) 4 to 12 inches dbh trees
          - (ii) Greater than 12 inches dbh trees
          - (iii) Greater than 20 inches dbh trees
    - iv. If the WMZ laid out by the applicant does not have either 25 TPA greater than 12 inches dbh or 5 TPA greater than 20 inches dbh, you must check out to the maximum WMZ width per the Wetland Management Zones table for trees and/or stumps that would fall into these categories.

## **13. 20 acre exempt and Alternate Plan FPA's**

- a. Review only those activities that fall under standard rules.

## **14. Roads**

- a. Review all new construction, and N stream crossings listed on the FPA.
  - i. Read and use the forms to be sure to address the issues on the road segments for review.
  - ii. Note whether the road was constructed.
  - iii. New construction activity will be driven or walked for the entirety of the activity.
  - iv. For road abandonment longer than 1 mile:
    - a. Separate road into segments, using intersections to start and end segments. When road segments are available, this method will be used.
    - b. Randomly select road segments until at least 1 mile of road is selected for review.
    - c. When segments with and without streams are both present, at least one segment containing a stream crossing will be selected.
    - d. Segments will be labeled starting from the point where the abandonment meets active road. In cases where abandonment meets more than one active road, the start will be randomly selected.
    - e. Road segments will be separated by road intersections

f. Haul Routes

- i. Haul routes will be selected by starting from the highest ranked application selected for review that includes harvest activity and working down until the required number of haul routes for each Region has been reached. If applications include only road work, they will not be included in the haul route analysis.
- ii. Haul routes that are less than 5 miles in length to a public road will be surveyed in their entirety. Portions on non-forest land or other non-forest practice regulated land will be excluded from the sample.
- iii. Haul routes that are greater than 5 miles in length will be reviewed in .5 miles segments until between 4.5-5.0 miles of road have been selected for review. The haul route will be divided into .5 miles segments and entered into the segment selector spreadsheet to be randomly chosen for review. Segment 1 will be the segment farthest away from the public road, and will be labeled in order until the public road is reached. Portions of segments that include non-forest land or other non-forest practice related lands will be excluded from the review.

Where roads are utilized for multiple FPAs such as main haul routes, review the road as is and note multiple FPA usage in the comment section.

**15. When will an individual activity or FPA be removed from the compliance monitoring sample?**

- a. Activities for field review will be determined before each field season. The following circumstances would require us to drop an activity or FPA from the sample:
  - If no activity relating to the sample criteria was planned, that FPA will be removed from the sample.
  - If harvest or road work never occurred on the FPA, the whole FPA will be dropped from the sample.
- b. If a stream did not exist on the ground, but was on the FPA, activity will be removed from the sample and noted in the SWIF.
- c. If field review shows no harvest between the rule-prescribed buffer width and the edge of the FPA harvest, and the remaining timber between them constitutes a viable harvest unit that RMZ is dropped from the review.
- d. See the Compliance Monitoring Program Design (link or citation) for other particulars of sampling.

## COMPLIANCE DETERMINATIONS ON POST SURVEY EVALUATION FORM

### *The “compliant” determination*

“Compliant” in the context of the Compliance Monitoring Program means that a forest practice was conducted in conformance with the Forest Practices Act and forest practices rules according to site-specific characteristics. By signing and submitting an FPA, a landowner is conveying an intention to conduct certain forest practices on lands with specified site characteristics. The landowner’s signature on that FPA is an acknowledgement that the landowner understands activities must conform to the rules.

It is important to note that there can be situations where landowners are compliant with the rules for site characteristics identified on the FPA, but because of a misidentification of a site characteristic, the field team must make a “non-compliance” determination. For example, a landowner may specify in an FPA that a Type F stream less than or equal to 10 feet wide runs through the forest practices activity area and the landowner provides the appropriate RMZ width on the ground. The FPA is selected for compliance monitoring, and the team measures the stream using the required protocols and determines the stream width is greater than 10 feet. Although the landowner was compliant with the rule for streams less than or equal to 10 feet, the compliance monitoring determination is “non-compliant with rules” for that particular RMZ, although it might still be compliant with the FPA.

There also can be situations where landowners’ activities have *exceeded* the rule requirements. The landowner community has requested that these instances also be reported.

DNR, with input from other resource agencies and representatives of Forests and Fish Policy, has developed the following definition for the “compliant” category, and a definition and criteria for “exceeds.”

*Compliant: Meets prescription identified in the approved FPA and rules.( compliance with rules and FPA as approved are reported separately).*

***Exceeds Rule Requirements*** : Landowners exceeded the rule requirements for the prescription type identified in their forest practices application. Currently these are limited to:

- For Type S or F Waters: Twice as many trees in the inner and outer zones of RMZs were retained as were required by rule or DFC worksheet. ( for NIZH twice as many OZ trees only)
- “extra” leave trees in option 1 inner zones do not count towards exceeds rating, as they undermine rationale for allowing harvest there to begin with
- For Type S, F, or Np Waters: RMZ width is consistently 20% wider than required by rule.
- For Type Np Waters: No cut RMZ length is at least 20% greater than required by rule.
- “Extra” trees that were required to be left for other reasons, e.g. tributary buffers or unstable slopes, do not count towards an “exceeds” rating.
- Road improvements were more protective than required by rule (e.g., 24” cross drains, paving portions of road etc.).

- Road abandonment activities (e.g., mulching, distribution of trees and woody debris along road prism to deter off-road vehicle travel) were more protective than required by rule.

*The “non-compliant” determination*

*Non-compliant: Does not meet rule requirements identified in the approved FPA and/or rules.*

Common examples are:

- RMZs were harvested beyond the pre-determined 5% measurement uncertainty protocol.
- Leave tree requirements were not met.
- Water-crossing structures installed with new construction were inadequate for stream protection rule guidance.
- RMZ length reported on the Desired Future Condition (DFC) worksheet deviated more than 10% of the RMZ length measured during compliance monitoring in the field, resulting in inadequate leave trees in one or more zones based on actual acreage.

As indicated in the introductory portion of this section, a “non-compliant” determination is reported in absolute terms, but qualitative information derived from professional judgment in the field is also reported to the Board. After considering several ways to structure a system of reporting “non-compliant” determinations, DNR with the help of input from WDFW, developed the following categories to help field personnel use professional judgment in reporting their findings:

***Non-compliant - Minor*** - Minor impacts of short duration over a small area. Common examples are:

- A few trees harvested in the inner or outer zone of the RMZ of the same species and equal or lesser diameter as the remaining trees in the RMZ.
- Evidence of slight sediment delivery that does not appear to be persistent.

***Non-compliant - Moderate*** - Potential impacts to resources, but generally of moderate effects. Common examples are:

- The required outer zone trees are not retained.
- More than a few required leave trees have been harvested from a no harvest inner zone.
- Culvert sizing is questionable, but potential impact to resources is not readily apparent.
- Soil stabilization has not occurred on road cuts, fills or water crossings and there is significant potential for sediment delivery above background levels to typed water.

***Non-compliant - Major*** - Damage to public resources is evident or the potential for damage is high. Common examples are:

- Harvest in the core zone affecting stocking of larger diameter trees
- Significant harvest of the required leave trees in the inner zone.
- Harvest in areas not delineated on the FPA.
- Evidence of direct sediment delivery to typed water.

It is important to note that these professional judgment non-compliance ratings should not be used to excuse activities that violate the rules or approved FPAs. This process helps to put some perspective to the magnitude of damage or potential damage under rules that are intensely prescriptive.

Implementing this system requires the following assumptions:

- All participants realize that this process relies on professional judgment and agree to the broad categories, and acknowledge that this process is not meant to represent any effectiveness determination.
- There will be no statistical analysis beyond the narrow scope intended. These decisions are used as a snapshot of the conditions on the ground at the time of field review.

Where prescriptions are noncompliant describe the contributing factors in the text boxes for the following categories:

Administrative - Reasons connected to the FPA approval and procedural processes such as errors on the approved FPA. These procedural errors should be documented even when they do not lead to non-compliance

Layout - Pre-harvest boundary location and feature classification

Operational – Incursions into rule-protected areas and road construction that does not meet rule standards

## RULES, DEFINITIONS, AND RULE CLARIFICATIONS

THE FOLLOWING IS EXCERPTED FROM WAC 222-16

**"Bankfull depth"** means the average vertical distance between the channel bed and the estimated water surface elevation required to completely fill the channel to a point above which water would enter the floodplain or intersect a terrace or hillslope. In cases where multiple channels exist, the bankfull depth is the average depth of all channels along the cross-section. (See board manual section 2.)

**"Bankfull width"** means:

- (a) For streams - the measurement of the lateral extent of the water surface elevation perpendicular to the channel at bankfull depth. In cases where multiple channels exist, bankfull width is the sum of the individual channel widths along the cross-section (see board manual section 2).
- (b) For lakes, ponds, and impoundments - line of mean high water.
- (c) For tidal water - line of mean high tide.
- (d) For periodically inundated areas of associated wetlands - line of periodic inundation, which will be found by examining the edge of inundation to ascertain where the presence and action of waters are so common and usual, and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland.

From WAC 222-16-010

(f) "Channel width and gradient" 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.)

From WAC 222-16-031 (6) (f)

**"Riparian management zone (RMZ)"** means:

(1) **For Western Washington**

- (a) The area protected on each side of a Type S or F Water measured horizontally from the outer edge of the bankfull width or the outer edge of the CMZ, whichever is greater (see table below); and

<u>Site Class</u>	<u>Western Washington Total RMZ Width</u>
I	200'
II	170'
III	140'
IV	110'
V	90'

- (b) The area protected on each side of Type Np Waters, measured horizontally from the outer edge of the bankfull width. (See WAC 222-30-021(2).)

(2) **For Eastern Washington**

- (a) The area protected on each side of a Type S or F Water measured horizontally from the outer edge of the bankfull width or the outer edge of the CMZ, whichever is greater (see table below); and

<u>Site Class</u>	<u>Eastern Washington Total RMZ Width</u>
I	130'
II	110'
III	90' or 100'*
IV	75' or 100'*
V	75' or 100'*

\* Dependent upon stream size. (See WAC 222-30-022.)

- (b) The area protected on each side of Type Np Waters, measured horizontally from the outer edge of the bankfull width. (See WAC 222-30-022(2).)

**WAC 222-30-021(1)(c)**

((iii) **Large woody debris in-channel placement strategy.** A landowner may design a LWD placement plan in cooperation with the department of fish and wildlife. The plan must be consistent with guidelines in board manual section 26. The landowner may reduce the number of trees required to be left in the outer zone to the extent provided in the approved LWD placement plan. Reduction of trees in the outer zone must not go below a minimum of ten trees per acre. If this strategy is chosen, a complete forest practices application must include a copy of the WDFW approved hydraulics project approval (HPA) permit.)

**(iv): Outer zones, 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. (*See above*)

(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 6" dbh will offset conifer in the outer zone at a one-to-one ratio.

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

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

(C) For Option 2 harvest units only, up to 50% of the outer zone leave trees may be harvested if there is sufficient surplus basal area credit from the inner zone, as documented on the DFC printout.

**WAC 222-16-035 Wetland typing system.** \*The department in cooperation with the departments of fish and wildlife, and ecology, and affected Indian tribes shall classify wetlands. The wetlands will be classified in order to distinguish those which require wetland management zones and those which do not. Wetlands which require wetland management zones shall be identified using the following criteria: \*(1) **“Nonforested wetlands”** means any wetland or portion thereof that has, or if the trees were mature would have, a crown closure of less than 30 percent.

(a) **“Type A Wetland”** classification shall be applied to all nonforested wetlands which:

(i) Are greater than 0.5 acre in size, including any acreage of open water where the water is completely surrounded by the wetland; and

(ii) Are associated with at least 0.5 acre of ponded or standing open water. The open water must be present on the site for at least 7 consecutive days between April 1 and October 1 to be considered for the purposes of these rules; or

(b) **“Type B Wetland”** classification shall be applied to all other nonforested wetlands greater than 0.25 acre.

\*(2) **“Forested wetland”** means any wetland or portion thereof that has, or if the trees were mature would have, a crown closure of 30 percent or more.

\*(3) “All forested and nonforested bogs” greater than 0.25 acres shall be considered Type A Wetlands.

\*(4) For the purposes of determining acreage to classify or type wetlands under this section, approximate determination using aerial photographs and maps, including the national wetlands inventory, shall be sufficient. In addition, the innermost boundary of the wetland management zone on Type A or B Wetlands may be determined by either of two methods: Delineation of the wetland edge, or identifying the point where the crown cover changes from less than 30 percent to 30 percent or more.

THE FOLLOWING IS FROM BOARD MANUAL SECTION 2 STANDARD METHODS FOR IDENTIFYING BANKFULL CHANNEL FEATURES AND CHANNEL MIGRATION ZONES.

1.2 Identifying Bankfull Width and Bankfull Depth

The edge of the bankfull channel typically corresponds to the start of the floodplain. A floodplain receives floodwaters in most years, but is generally vegetated by perennial plants and trees. This vegetation often reflects repeated flow-related disturbance and may not support mature trees. The following primary indicators are used to characterize the start of the floodplain:

- **Topography** - A berm or other break in slope from the channel bank to a flat valley bottom, terrace or bench;
- **Vegetation** - A change in vegetation from bare surfaces or annual water-tolerant species to perennial water-tolerant or upland species; and
- **Sediment Texture** - A change in the size distribution of surface sediments (e.g., gravel to fine sand) (Figure 1).

Field determination of the bankfull channel edge generally relies on two or more of the following:

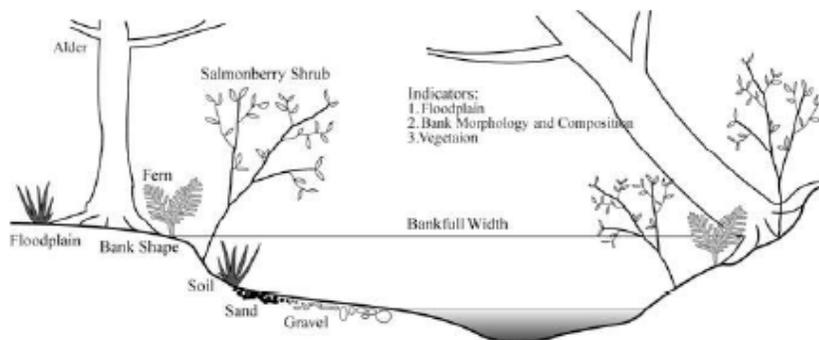


Figure 1. Indicators for determining bankfull width (adapted from Pleus and Schuett-Hames, 1998).

If physical obstructions, such as log jams, or a lack of indicators prevent accurate identification of the bankfull width at a particular point, move to the nearest place where identification is feasible. In cases where the outer edge of the bankfull width is easier to determine on one side of the channel than the other, simply identify the bankfull width on one side and project across at that same elevation to the other bank.

In streams where the substrate is dominated by boulders or bedrock or where the channel is tightly confined, a distinct floodplain may not exist. In these situations, you will have to rely on secondary indicators, such as vegetation or other evidence of flood flows to determine the bankfull width. These indicators may include:

- A change in vegetation from bare surfaces or annual water-tolerant species to perennial upland or water-tolerant shrubs and trees;
- Bare areas associated with scour around woody debris or other obstructions;
- The top of point bars; or
- The lowest elevation at which fine organic debris is caught on brush or trees.

One approach to help identify the bankfull edge is to evaluate the indicators discussed previously from within the bankfull channel looking towards the suspected bankfull edge. Identify the point

where the certainty of being within the bankfull channel is less than 100%. Then, repeat this process, but begin on the floodplain and work towards the channel. This exercise should help narrow the focus to the area between the two markings where more subtle indicators of the bankfull edge may be found (Pleus and Schuett-Hames, 1998).

### 1.3 Measuring Bankfull Width and Depth

Once the edges of the bankfull channel are determined, one can easily measure bankfull width and the average bankfull depth. A tape measure and measuring rod (such as a surveyor's rod) are useful to make these measurements. String wrapped around wooden stakes may also be helpful to more easily mark reference points. The most common situations where these measurements will be helpful are when one needs to:

- Determine a width category for the RMZ rules (see Board Manual Section 7); or
- Determine functional large woody debris size for CMZs in meandering rivers or as part of the LWD placement protocol. See Board Manual Section 26.

To measure bankfull width, attach or have an assistant hold one end of the tape at the bankfull edge and extend the tape to the other edge of the bankfull channel. The outlets of overflow swales, small islands, log jams, backwater eddies or regularly flooded adjacent wetlands may all occur within the bankfull width. In cases where multiple channels exist, such as around a small island, bankfull width is the sum of the individual channel widths along the cross section.

END PORTION OF BOARD MANUAL SECTION 2

## TABLES AND DIAGRAMS

Western Washington **Harvest code tables:**

### Harvest code table to be used with FPA dated 05-14-05

RMZ HARVEST CODES
<p><b>Inner and outer zones</b></p> <p>A – Alternate Plan. <i>(Include Alternate Plan)</i></p> <p><b>Inner zone</b> <i>(Include DFC printouts for each stream segment where standing or down wood will be removed).</i></p> <p>B – No inner zone Harvest</p> <p>C – Hardwood Conversion. <i>(Include Hardwood Conversion Form)</i></p> <p>D – Thinning from below - Option 1.</p> <p>E – Leave trees closest to water - Option 2.</p> <p>F – Salvage</p> <p>G – Stream-adjacent Parallel Road.</p> <p>H – Constructing a New Stream Crossing.</p> <p>I – Road Construction or Day-lighting.</p> <p>J – Yarding Corridors.</p> <p><b>Outer zone</b></p> <p>K – No Harvest</p> <p>L – Leaving 20 trees per acre</p> <p>M – Leave trees clumped on sensitive features.</p> <p>N – Leave trees exchanged for LWD placement strategy. <i>(Include a copy of the placement plan)</i></p> <p>O – Leave trees exchanged for CMZ basal area.</p> <p>P – Leave trees exchanged for excess inner zone basal area in conjunction with an Option 2 inner zone harvest.</p> <p>Q – Salvage</p>

### Harvest code table to be used with FPA dated 02-28-05

RMZ HARVEST CODE REFERENCE CHART
<p><b>Inner and outer zones</b></p> <p>A – Alternate Plan. <i>(Include Alternate Plan)</i></p> <p>B – Salvage. <i>(Include leave tree count in the inner zone. In the outer zone a down wood count may be required).</i></p> <p><b>Inner zone</b> <i>(Include DFC printouts for each stream segment where standing or down wood will be removed).</i></p> <p>C – No inner zone Harvest</p> <p>D – Hardwood Conversion. <i>(Include Hardwood Conversion Form)</i></p> <p>E – Thinning from below - Option 1.</p> <p>F – Leave trees closest to water - Option 2.</p> <p>G – Stream-adjacent Parallel Road.</p> <p>H – Constructing a New Stream Crossing.</p> <p>I – Road Construction or Day-lighting.</p> <p>J – Yarding Corridors.</p> <p><b>Outer zone</b></p> <p>K – No outer zone harvest</p> <p>L – Leaving 20 trees per acre</p> <p>M – Leave trees clumped on sensitive features.</p> <p>N – Leave trees exchanged for LWD placement strategy. <i>(Include a copy of the placement plan)</i></p> <p>O – Leave trees exchanged for CMZ basal area.</p> <p>P – Leave trees exchanged for excess inner zone basal area in conjunction with an Option 2 inner zone harvest.</p>

**Eastern Washington RMZ harvest Codes**

**Inner and Outer Zones**

**A** Alternate Plan. *(Include Alternate Plan)*

**Inner Zone**

**B** No Inner Zone Harvest

**C** Ponderosa Pine Habitat Type *(Provide basal area information or leave tree count by diameter class)*

**D** Mixed Conifer Habitat Type *(Provide basal area information or leave tree count by diameter class)*

**E** High Elevation Habitat Type *(Provide DFC information)*

**F** High Elevation Habitat Type – Hardwood Conversion *(Include Hardwood Conversion Form)*

**G** Salvage. *(Provide basal area information or leave tree count by diameter class)*

**H** Existing Stream-adjacent Parallel Road

**I** Constructing a New Stream Crossing

**J** Road Construction or Day-lighting

**K** Yarding Corridors

**Outer Zone**

**L** No Outer Zone Harvest

**M** Ponderosa Pine Habitat Type

**N** Mixed Conifer Habitat Type

**O** High Elevation Habitat Type

**P** High Elevation Habitat Type - Leave trees clumped around sensitive features

**Q** High Elevation Habitat Type - Leave trees exchanged for CMZ basal area

**R** Within all habitat types - Leave trees exchanged for LWD placement strategy *(Include a copy of the placement plan)*

**S** Salvage *(A down wood count may be required)*

Inner and Outer Zones RMZ Harvest Codes

**A Alternate Plan:** Include a copy.

Inner Zone RMZ Harvest Codes - Choose all that apply. Include basal area information or leave tree count by diameter class for all inner zone harvest. See Board Manual Section 7 (Appendix H) for more information.

**B No Inner Zone Harvest**

**C Ponderosa Pine Habitat Type:** If the proposal is between 0’ and 2500’ elevation, use the Ponderosa Pine Habitat Type inner zone width and stand requirements in WAC 222-30-022(1)(b)(i).

**Riparian and Wetland Management Tables**

**Western Washington**

**Outer zone riparian leave tree requirements**

<b>Application</b>	<b>Leave tree spacing</b>	<b>Tree species</b>	<b>Minimum dbh required</b>
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

**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'

**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'

**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'	**

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

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

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

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

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

**Down wood requirements for salvage logging in the inner zone**

Logs w/ a solid core	< 1-ft diameter	1-2 ft diameter	>2 ft diameter	Total
# of logs/acre	85	83	26	194

### Wetland Management Zones

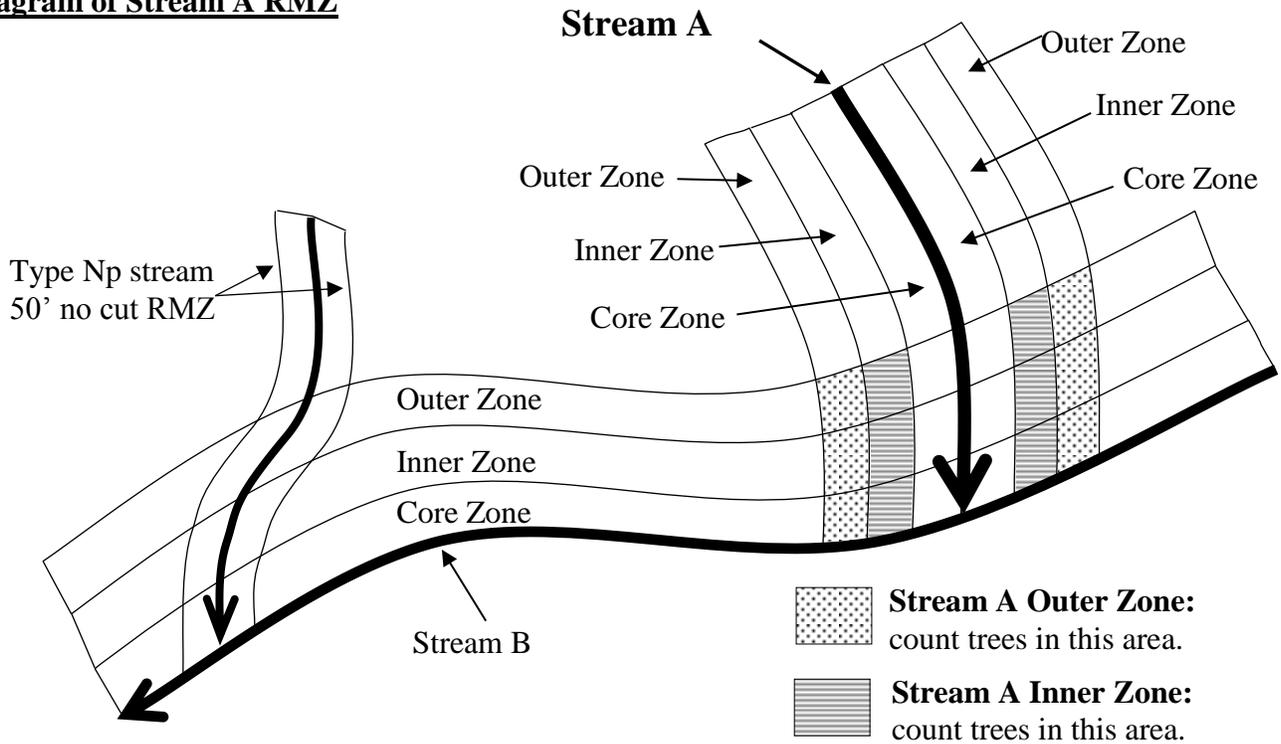
<b>Wetland Type</b>	<b>Acres of Nonforested Wetland*</b>	<b>Maximum WMZ Width</b>	<b>Average WMZ Width</b>	<b>Minimum WMZ Width</b>
A (including bogs)	Greater than 5	200 feet	100 feet	50 feet
A (including bogs)	0.5 to 5	100 feet	50 feet	25 feet
A (bogs only)	0.25 to 0.5	100 feet	50 feet	25 feet
B	Greater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

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

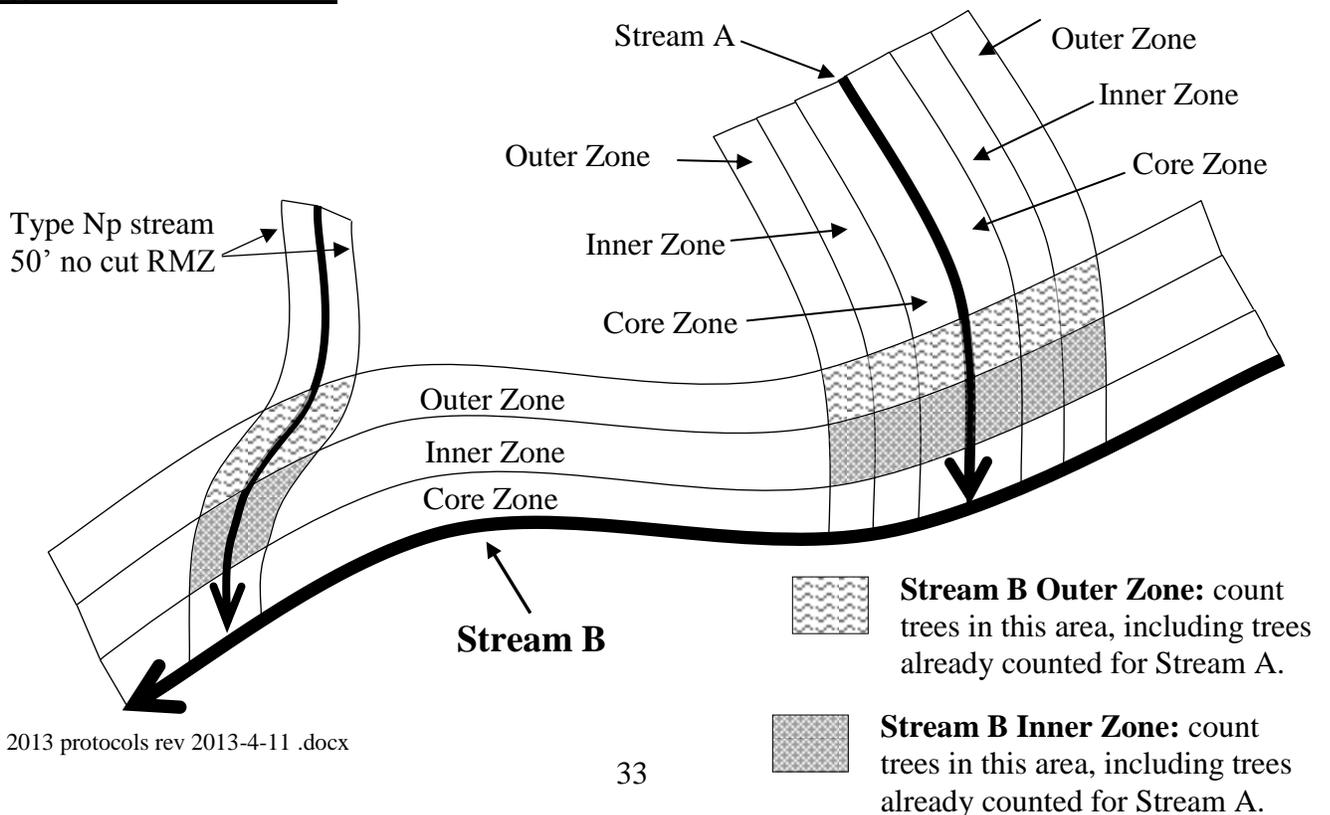
**OVERLAPPING RMZS:**

Trees in overlapping RMZs count towards the leave trees for each stream in its respective RMZ. However, where the Outer Zone of stream 'A' overlaps a Core Zone or a No Harvest Inner Zone of stream 'B', you cannot count trees in these two zones for the 20 TPA in the outer zone of 'A'. Also, if the landowner is clumping outer zone trees, they need to clearly acknowledge the locations of these areas on the FPA.

**Diagram of Stream A RMZ**



**Diagram of Stream B RMZ**



**FORMULAS**

Conversion from slope distance to horizontal distance  $HD = (SA) (\cos) (SD)$

Enter slope angle in degrees, multiply by cosine, multiply by slope distance:

**WORKSHEETS**

**Western Washington Type Np RMZ Worksheet**

- A. Without regard to ownership, determine the total length of each separate Type Np stream system where at least a portion of the system is within the harvest unit. This includes the branching network of a Type Np system above the confluence with Type S or F water. See WAC 222-30-021.

*Note: There can be more than one Type Np system within a harvest unit and each system requires a separate length determination. Use a separate worksheet for each Type Np system.*

- B. Determine which of the options below best fits the total length determined for a specific Type Np system. Circle the letter next to the best fit (i.e. letter a., b. or c.).

a. If the total Type Np system length (not just the length within the harvest unit) is less than 300': Leave a two-sided, 50' buffer on the entire length of the Type Np water. Show the RMZ on the Activity Map.  
STOP, WORKSHEET COMPLETED.

b. If the total length is greater than 300' but less than 1000': Starting at the confluence with Type S or F water, leave a buffer that is the greater of 300' or 50% of the entire length of the Type Np water. In addition, buffer all sensitive sites on the Type Np stream that were not already buffered by the 300' or 50% requirement. Show the RMZ on the Activity Map.  
STOP, WORKSHEET COMPLETED.

c. If the total length is greater than 1000': Leave a two-sided, 50' buffer on the first 500' of the Type N stream above the confluence with Type S or F water. Complete i. through vi. below.

- i. Determine the total length of the Type Np system. \_\_\_\_\_ Feet
- ii. Refer to the table below to determine the minimum % of buffer required on that portion of the Type Np water upstream of the first 500' from the confluence of Type S or F water. \_\_\_\_\_ %
- iii. Determine the length of Type Np water within the harvest unit that is upstream of the first 500' from the confluence of Type S or F water. \_\_\_\_\_ Feet
- iv. Determine the total length of buffering needed upstream of the first 500' from the confluence of Type S or F water. (% in ii. times length in iii. = required buffer) \_\_\_\_\_ Feet
- v. Determine the total length of all required buffering established to protect sensitive sites along the Type Np water within the harvest unit above the first 500' from the confluence of Type S or F water. \_\_\_\_\_ Feet
- vi. If the required buffer length in v. is less than the length in iv., determine the length of additional buffering required. (Length in iv. minus length in v. = additional buffer) \_\_\_\_\_ Feet

*The buffering must be placed in priority areas. Show the buffers on the Activity Map.*

**Minimum percent of length of Type Np waters to be buffered when more than 500 feet upstream from the confluence of 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.
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%

## **Suggested procedures for office review of FPAs prior to fieldwork**

### Division Pre- season Screening

- Open each application on FPARS, double check FPA # against list for region
- Confirm approval date is within our sample window
- Assure FPA includes activities we are sampling (riparian, roads)
- Examine office checklist for flagged items that might affect our work, e.g. 20 Ac XMT, Alt Plans, HCP, BTO etc.

### Region Review Preparation and Facilitation

Make electronic copies (pdf) and distribute to review participants two to three weeks in advance of field review :

- Maps: include current activity map, current hydro layer (especially important for FPAs with multiple renewals, and those where corporate maps are substituted for FPARS maps)
- Check WTCW and/or WTMF, if any; note descriptions of physicals used to verify water types
- Notice of Decision page: any conditions added by approving forester?
- Any amendments that affect what we're looking at?
- For renewals, be sure original FPA is included; if not, obtain from region
- check additional information provided by applicant for anything pertinent or useful

### Review lead Responsibilities

- Completes the pre-review form- including:
  - note types of harvest, equipment and acreage listed in table at harvest question
  - Note road activities to be reviewed in table at road construction question
  - check wetland types, associated activities and WMZs, if any, in wetlands table
  - check activities proposed over typed waters from table: if skidding, watch for ground disturbance; if cable yarding, note that trees cut in RMZ might be for corridors, tailholds etc.
- Type F RMZ table: note segment IDs, stream widths, site classes, CMZs and harvest codes
- Type Np RMZ table: note whether full or partial buffer; check lengths proposed against rule requirements, distances from nearest Type F, etc.

### Region Review Day items

- Bring paper copy of FPA
- Bring paper copies of Field review forms

- Current activity, water typing and site class maps for each FPA for reference in field, and attach to your copy of FPA