



United States Department of the Interior



FISH AND WILDLIFE SERVICE

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Subject: Informal Consultation for Columbia River Bull Trout on the Fiscal Year 2007-2009 Thinning Timber Sales Aquatic Programmatic Actions on the Mt. Hood and Willamette National Forests and portions of the Eugene District, Bureau of Land Management (TAILS # 13420-2007-I-0091).

Dear Mr. Emch, Mr. Larsen, and Ms. Grilley:

This is in response to your letter dated December 18, 2006, transmitting your evaluation of the impacts on the threatened Columbia River population of bull trout (*Salvelinus confluentus*) from the fiscal year (FY) 2007-2009 Thinning Timber Sales Aquatic Programmatic on the Mt. Hood and Willamette National Forests (NF) and portions of the Eugene District Bureau of Land Management (BLM). Your correspondence was received in this office on January 18, 2007. The following discussion provides the U.S. Fish and Wildlife Service's (Service) concurrence on your effects determination of the proposed action for bull trout and satisfies the consultation provisions of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.).

Consultation History

On January 31, 2005 the Willamette Province Level 2 Team requested that the Willamette Province Aquatic Level 1 Team develop a programmatic consultation for commercial and density management thinning timber sales that may be implemented on Bureau of Land Management and the Forest Service lands within the Willamette Province and that portion of the Mt. Hood National Forest that falls within the Deschutes Province. A request, dated December 18, 2006 for informal consultation was received by the Service on January 18, 2007. The request

was accompanied by a biological assessment (BA) that supported the effects determination. The BA analyzed the proposed programmatic action using the Analytical Process for Developing Biological Assessments for Federal Actions Affecting Fish within the Northwest Forest Plan Area (AP¹). On January 30, 2007, the Service received a revised BA. On February 15, 2007 and April 10, 2007, the Service received clarifying language via e-mail amending the BA. The final BA documents impacts to the threatened Columbia River population of bull trout as well as anadromous fish species in the action area. Critical habitat for bull trout does not include Federal lands on the Willamette National Forest, the Mt. Hood National Forest, or the Eugene District of the BLM (69 FR 59996). Consultation with the Service addressing effects to listed terrestrial species will be accomplished through applicable informal or formal consultation actions.

Description of the Thinning Programmatic Action

The proposed action was described in detail in the submitted BA and is incorporated in this document as an Appendix. In general, the proposed action is the sale and harvest of timber on lands managed by the action agencies in 20 Willamette Province 5th field watersheds (Table 1). The subject programmatic consultation is limited to thinning projects that are similar in scope to recent timber sales previously determined by the action agencies, and concurred with by the Service, to not likely adversely affect (NLAA) ESA-listed aquatic species and their designated critical habitat. The proposed timber sales are routine in that (1) the administrative units either implement them, or approve their implementation, every year; (2) the standards under which these actions may proceed can be well established, and (3) the potential impacts of these actions can be identified. The programmatic consultation addresses only those thinning timber sales for which an administrative unit anticipates signing a record of decision or decision notice between March 2007 and September 30, 2009. Timber sale contract implementation will occur over approximately a 2- to 5-year period.

The timber sales addressed within the context of this consultation are defined by specific project design criteria (PDCs). The PDCs are more restrictive for timber sales conducted in close proximity to ESA-listed fish or designated critical habitat. A process is included where the action agency may deviate from the PDCs where the resulting effect is within the effects analyzed in this consultation. Prior to the signing of a record of decision or decision notice, the Willamette Level 1 Team² will review and certify that the effects to ESA-listed fish and designated critical habitat of each specific timber sale, inclusive of any variation from the PDCs, is equal to or less than that analyzed in the subject programmatic consultation. Actions determined not to be consistent with the subject programmatic consultation will need to be revised or consulted upon individually. This does not necessarily mean the actions in question are likely to adversely affect ESA-listed species or their designated critical habitat. Rather that the proposed actions are beyond the scope and scale analyzed in the programmatic consultation.

¹ US Department of Agriculture, Forest Service; US Department of Commerce, NMFS; US Department of Interior, BLM, US Department of Interior, FWS. 2004. Analytical Process (AP) for Developing Biological Assessments for Federal Action Affecting Fish Within the Northwest Forest Plan Area. November 2004. 53 p.

² The Willamette Level 1 Team includes representatives of the Willamette National Forest, Mt. Hood National Forest, Salem District Bureau of Land Management, Eugene District Bureau of Land Management, US Fish & Wildlife Service, and National Marine Fisheries Service.

Table 1. List of 5th field watersheds with proposed thinning sales for fiscal years 2007-2009.

HUC ³ #	5 th Field Watershed	Admin Unit ⁴	Est. Treated Acres	Watershed Size (Acres)	% Area of Watershed Treated Under the Programmatic
1707010507	WF Hood River	MHNF	1,500	65,438	2.3%
1708000108	Lower Sandy River	Salem BLM ⁵	1,650	47,135	3.5%
1709000106	NFMF Willamette	WNF	5,000	158,977	3.1%
1709000109	Fall Creek	WNF	4,800	123,485	3.9%
1709000306	Luckiamute River	Salem BLM	200	201,507	0.1%
1709000401	Upper McKenzie R.	WNF	2,600	230,527	1.1%
1709000402	Horse Creek	WNF	600	101,767	0.6%
1709000403	SF McKenzie R.	WNF	1,000	137,910	0.7%
1709000404	Blue River	WNF	800	58,986	1.4%
1709000405	Quartz Creek	WNF	2,500	47,707	5.2%
1709000406	Mohawk River	Eugene BLM	3,232	115,006	2.8%
1709000407	Lower McKenzie R.	Eugene BLM	3,526	164,490	2.1%
1709000501	Up North Santiam R.	WNF	2,500	146,559	1.7%
1709000903	Rock Cr/Pudding R.	Salem BLM	300	54,741	0.5%
1709001003	Scoggins Creek	Salem BLM	700	86,961	0.8%
1709001101	Collawash River	MHNF	1,000	97,380	1.0%
1709001102	Up Clackamas R.	MHNF	1,500	100,454	1.5%
1709001103	Oak Grove Fork Clackamas River	MHNF	1,500	90,504	1.7%
1709001104	Mid Clackamas R.	MHNF	2,000	138,447	1.4%
1709001106	Low Clackamas R.	MHNF	1,000	117,611	0.9%

The extent of harvest allowed under the subject consultation is limited by watershed to the acreage identified in Table 1. The values do not represent the overall harvest levels that may be proposed by the BLM and FS outside of this consultation, either in these watersheds or in other watersheds. Some timber sales associated with these treatment acres may not be implemented under this programmatic assessment and will have individual consultations if they “may affect” ESA-listed fish species or designated critical habitat.

³ Hydrologic Unit Code.

⁴ Willamette National Forest (WNF), Mt. Hood National Forest (MHNF), Salem District Bureau of Land Management (Salem BLM), Eugene District Bureau of Land Management (Eugene BLM).

⁵ The Salem BLM proposed acreage is listed for informational purposes only. The Salem BLM does not administer lands that contain bull trout.

Following the end of fiscal year 2009, the action agencies will provide the Service with an updated report of the actual number of acres anticipated for harvest under the subject programmatic consultation (see Appendix, section “Implementation Process under the Proposed Programmatic Consultation”).

Effects of the Action

In the request for concurrence, the action agencies determined the programmatic action, as proposed, may affect Columbia River bull trout and determined the proposed action was not likely to adversely affect (NLAA) the species.

For purposes of the ESA, “effects of the action” means the direct and indirect effects of an action on the listed species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action (see, 50 CFR 402.02). The applicable standard to find that a proposed action is NLAA listed species or critical habitat is that all of the effects of the action are expected to be discountable, insignificant, or completely beneficial. Discountable effects cannot be reasonably expected to occur. Insignificant effects are so mild that the effect cannot be meaningfully measured, detected, or evaluated. Completely beneficial effects are contemporaneous positive effects without any adverse effect to the listed species or critical habitat.

In response to concerns raised in previous litigation, the Service worked with the NMFS, the Bureau of Land Management, and the Forest Service to revise the methods for making determinations of effect for land management activities affecting ESA-listed salmonid species in the Northwest Forest Plan (NWFP) geographical area. This approach was used to assess the effects of the proposed action.⁶ In this regard, the constituent activities or elements of the proposed action (*e.g.*, timber felling and yarding, road construction) were analyzed for potential effects on the species’ habitat pathways of water quality, habitat access, habitat elements, channel conditions and dynamics, flow/hydrology, and watershed conditions. Each pathway has several relevant habitat indicators, such as temperature, suspended sediment/turbidity, and chemical contaminants/nutrients.

In applying the revised analysis approach, the agencies consider eight factors, derived largely from the joint NMFS and USFWS ESA Section 7 Consultation Handbook,⁷ when evaluating the effects of an action on habitat indicators and subsequently the effects on ESA-listed salmonid species or critical habitat. These factors are: proximity, probability, magnitude (severity and intensity), distribution, frequency, duration, timing, and nature. It is possible for agencies to complete their action analysis and reach an effect determination using only the first three factors. For example, if the action agency determines the species or critical habitat is not in proximity to the effects of a project element (PE) (*i.e.*, outside of the action area), then the element has a neutral effect on this indicator and no further analysis is needed. Likewise, if the outcome of the

⁶ Analytical Process for Developing Biological Assessments for Federal Actions Affecting Fish Within the Northwest Forest Plan Area (November 2004).

⁷ US Department of Interior and US Department of Commerce. 1998. Endangered Species Consultation Handbook; Procedures for Conducting Section 7 Consultations and Conferences. US Fish and Wildlife Service and National Marine Fisheries Service. Washington, D.C.

assessment for the probability factor is entirely discountable (extremely unlikely to occur), no further factor analysis is required for that element. If the outcome of the probability analysis is not discountable, the element should be assessed for the magnitude factor. Again, should the outcome of the assessment for magnitude result in insignificant effects, no further factor analysis is required for that PE.

The BA for the subject programmatic thinning action details and summarizes the effect of each PE on each habitat indicator using the relevant analysis factors. Element summaries are combined in indicator summaries to determine if the combined project effects result in an adverse effect to an indicator. In the subject BA, the action agencies' analysis of the potential effects of each PE on the relevant habitat indicators led to a conclusion that the expected effects on the ESA-listed species and their designated critical habitat would be neutral, discountable, or insignificant. This conclusion was based on the distance of the project from the species and designated critical habitat (proximity), the likelihood that implementation of any of the PEs will affect the species or their designated critical habitat (probability), or the severity and intensity of any effects that might occur (magnitude).

While consultations are in progress for other actions in several of the subject watersheds, there are no other concurrent formal consultations that will have a significant effect on the watershed baseline conditions. Also, there are no interrelated or interdependent actions related to the proposed project that require consideration. All of this information was used to make an overall project effect determination in the BA.

A detailed analysis was presented in the BA and the Service agrees with those analyses. A brief summary of those analyses are presented below

1. One habitat indicator, Physical Barriers, will not be affected whatsoever where bull trout habitat may occur (neutral effect) by the proposed action. Additionally, the four population characteristic indicators, Population Size and Distribution, Growth and Survival, Life History Diversity and Isolation, and Persistence and Genetic Integrity will not be affected (neutral effect).
2. Negative effects to two habitat indicators may occur, although the probability of the effect occurring is discountable where bull trout habitat occurs within the action area.
 - a. Chemical Contamination/Nutrients. Past experience with forestry actions indicates that chemical spills may unintentionally occur (negative), but are unlikely to result in stream contamination. Collectively, the potential for an effect to the chemical contamination indicator from falling and yarding, road work, timber transportation and fuels treatments where listed fish habitat (LFH) occurs is discountable.
 - b. Refugia. Timber sales planned for implementation under this programmatic consultation are unlikely to result in a negative effect to this indicator. Stream protection buffers are established on all stream channels and wetlands. No tree harvest will occur within 100 feet of stream reaches containing LFH. Impacts to

water quality and stream habitat within any existing refugia areas are not likely to occur. No new barriers to fish movement will be created. Therefore, a discountable probability exists that the implementation of projects covered by this programmatic action will result in a negative effect to LFH.

3. Negative effects to 16 habitat indicators may occur at the site scale. However, the magnitude of these negative effects will be insignificant where LFH occurs.
 - a. Temperature. The PDCs were developed to minimize changes in stream shade and to avoid measurable increases in water temperature. No-harvest buffers on perennial streams are expected to maintain shade during the period of the day when the greatest solar loading is expected on perennial streams (10 am to 2 pm). Yarding effects, due to potential yarding corridors within the buffers, on the temperature indicator are not expected to raise stream temperature a measurable amount. Tree felling for yarding corridors with LFH stream buffers (100 feet) is not proposed. Road construction, renovation and decommissioning and quarry use will have neutral or insignificant effects on stream temperatures. Timber transport has no casual mechanism to affect stream shade and therefore is neutral to the temperature indicator. Because fire is not expected to move beyond the immediate perimeter of the pile, and burn piles will be no closer than 100 feet from any stream, fuels treatments will have a discountable effect on the stream temperatures indicator. Overall, activities associated with thinning in young conifer stands should have no greater than insignificant effects on the temperature indicator where LFH occurs.
 - b. Suspended Sediment/Turbidity and Substrate Character/Embeddedness. Following completion of falling and yarding, the majority of the vegetation (consisting of ground cover and residual conifers and hardwoods) and root systems will remain, along with surface soil litter and slash from thinned trees. Expected additional amounts of surface soil displacement and surface erosion resulting from commercial thinning operations should be minimal. With the exception of the designated skid trails, ground-based yarding can be accomplished with relatively little damage to the existing shrub and herbaceous ground cover, thus limiting the amount of exposed bare soil and maintaining important root structure that holds soil in place. Skyline or multi-span yarding systems reduce soil impacts because the logs are suspended above the ground throughout much or all of the yarding process. Only minor disturbance of soil and ground vegetation is likely with skyline yarding of younger trees (35 to 80 years old) because the logs are relatively small and light, and there will be adequate slash on the ground in the corridors to yard over. Helicopter yarding results in the least amount of surface disturbance because the logs are lifted entirely above the ground and can be transported to the landing site without any contact with the ground.

The sediment contribution to streams from the construction and maintenance of access roads is often much greater than all other forest harvest activities combined. The PDCs were designed to minimize the amount of sediment

generated by construction, renovation and maintenance of roads. New construction will only occur on or near stable ridgetop locations, or on stable, relatively flat topography to minimize the risk of landslides. Road work is limited to the dry season (May 15 to October 15) and all in-channel work will occur during the ODFW work window.⁸ Road maintenance is necessary to keep roads in good condition, minimize erosion, and identify and correct problems promptly. Roads and landings used in the wet season (Oct 16 to May 14) must be paved or surfaced with durable aggregate. Natural surfaced roads will be closed and have drainage and erosion controlled installed prior to the wet season. Culvert and bridge replacements will be designed to minimize the amount of sediment that enters streams.

The PDCs require that quarry operations do not cause any sediment delivery to streams and that any quarry located within 1 mile of LFH will not have any disturbance occurring within 200 feet of a stream channel. All quarries located within the Riparian Reserves will only be operated during the dry season (May 15 to Oct 15). Quarries operated under these criteria are not expected to cause measurable amounts of sediment to be delivered to streams with LFH.

The PDCs restrict where road decommissioning may occur in relation to LFH; roads will be no closer than 500 feet from LFH and culvert removals will not occur within 1 mile of LFH on perennial streams and 0.5 miles on intermittent streams. The spatial restrictions, combined with the requirement to complete any inwater work during low-flow periods, reduce the likelihood that any sediment or suspended sediment that enters the stream channel will directly affect LFH. The PDCs require that erosion control measures be implemented to minimize sediment delivery after a road is closed. Sediment and turbidity increases will be limited to areas in close proximity to closed or decommissioned stream crossings, be of short duration, and not be measurable in stream reaches containing LFH due to the spatial separation between where such road work can occur and the stream reaches of concern. The removal of roads that have been chronic sources of sediment will have a positive effect on the indicators. Depending on the condition of the road, the benefit of decommissioning may be significant to downstream reaches, but due to the spatial separation of proposed decommissioning from LFH, effects on LFH are likely insignificant.

There is a high probability that the use of haul roads will introduce some sediment into ditch lines and in some cases to streams. The amount of sediment eroded from the road surface depends on the amount of traffic, the durability of the aggregate, the level of maintenance, the condition of the ditch lines and the amount of precipitation. Timber haul will be allowed in both the wet and dry season; however, all hauling will be restricted at any time of the year if necessary to avoid sedimentation. Furthermore, wet season hauling on aggregate surfaced roads will be spatially separated (minimum 500 feet) from LFH.

⁸ Oregon Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources (June 2000). Available at URL: www.dfw.state.or.us/lands/0600_inwtrguide.pdf.

Thinning in young stands typically does not result in large quantities of slash. Due to the small area of exposed soil at any given pile and the distance between the piles and streams (≥ 100 ft), it is not likely that sediment will be transported from the burn pile areas to streams. The requirement that mechanical piling not occur within 500 feet of a stream with LFH or closer than 200 feet from any other stream channel will prevent sediment delivery to streams.

There may be negative effects to the suspended sediment and substrate indicators, but the effects are expected to be minor and insignificant in streams where LFH is found. Road decommissioning may, depending on the roads removed, result in a long-term positive effect in some streams at the site or reach scale, but such benefits are likely insignificant where LFH occurs.

- c. Large Woody Debris. Timber felling and yarding project elements have the highest risk of negatively affecting wood recruitment. Thinning within the riparian reserve may have a minor effect on the recruitment of functionally-sized wood to adjacent small stream channels by delaying density-dependent mortality in the treated stands. Riparian thinning is intended to improve the condition of riparian stands and is likely to increase the tree diameter of retained trees over the course of the next several decades as compared to not thinning the stand. It is expected that untreated buffers and adjacent stands will likely continue to provide adequate wood loading to affected streams in the near term and not result in any measurable effects (*e.g.*, sediment routing, increases in stream velocity) where LFH occurs.

New roads and landings, road renovation/ reconstruction/ maintenance, and rock quarry operation, all have the potential to have a very slight negative effect on the outer edge of the potential supply of large woody debris (LWD), but the effect will not be measurable in occupied stream channels. Road decommissioning will possibly result in a slight positive effect to the long-term supply of LWD at the site scale due to increased growing area for trees, but a discountable probability of changes in wood loading where LFH is found. Fuels treatment will have a discountable probability of negatively affecting the LWD source area. Overall, the net predicted impact to this indicator is negative, at an insignificant level where LFH is found.

- d. Pool Quality & Frequency, Large Pools, Off-Channel Habitat, Width/Depth Ratio, Streambank Condition, Floodplain Connectivity. Changes in these channel-associated habitat indicators are dependent on changes to the physical processes that shape and develop these features. Since negative effects to these processes (*i.e.*, temperature, suspended sediment, substrate character, large wood) were determined to not be measurable, it is anticipated that effects on these six indicators will also be discountable or insignificant.

- e. Peak/Base Flows. While it is probable that the implementation of projects covered by this programmatic consultation will affect flows to some degree, projects designed to follow the PDCs will not result in measurable changes to the existing flow regime. Vegetation changes will result in a short-term reduction in evapotranspiration, increasing soil water, and increasing total annual yield. Other work will reduce soil water infiltration affecting storage, delivery, and timing of flow to stream channels. However, the PDCs will limit reductions in evapotranspiration and increases in open area and soil compaction (e.g., limits on patch cut location and size, limits on changes in canopy closure and stand density adjacent to stream channels, limits on soil compaction). The limited spatial extent and intensity of the planned work will likely result in changes in peak and base flows that are of insignificant magnitude.
- f. Drainage Network. The PDCs were developed to minimize negative effects to the drainage network throughout the affected watersheds. New road and landing construction has the highest risk of negatively affecting soil compaction and thus the drainage network; however, the PDCs and the spatially-limited scope of this work will result in only an insignificant negative effect. Timber felling has the potential for negatively affecting this indicator through changes in snow accumulation, ground water storage, and evapotranspiration, but the probability of this negative effect being realized is discountable due to the harvest prescription limitations. Other project elements have some potential for negative effects, but are limited in magnitude. Road decommissioning and renovation/reconstruction/maintenance have the potential for realizing a positive effect to this indicator, as they may reduce the volume of road drainage discharge to area streams or relieve soil compaction, but this activity is also limited in spatial extent and the effect will likely result in an insignificant change in active channel length. Overall, it is probable that this group of thinning projects will result in some negative and some positive effect to the indicator, but the overall effect (positive and negative) is likely to be partially offsetting and of insignificant magnitude.
- g. Road Density & Location. While the proposed action allows for the construction of temporary, semi-permanent, and permanent roads,⁹ no net increase in permanent road mileage in the watershed will occur. New road construction may temporarily increase the road density (*i.e.*, ≤ 5 years), but construction must not even temporarily increase the stream drainage network. Road decommissioning will maintain or reduce road density by the sale completion date. Furthermore, all new roads will be built on stable ground at least 500 feet from LFH or 200 feet of any other stream. The implementation of projects subject to this consultation will commonly result in a negative effect to this watershed condition indicator, but it is probable that the effect will be of insignificant magnitude, and likely will not result in measurable negative effects to LFH.

⁹ Temporary roads are built and decommissioned within the same dry season. Semi-permanent roads are those that are used for longer than one dry season, but are decommissioned at the end of the timber sale contract. Permanent roads are those that will remain as a system road after the project has been completed.

- h. Disturbance History and Disturbance Regime. The implementation of this programmatic action will cause an additional alteration of the landscape, and result in a negative effect to these watershed condition indicators. The overall percentage of any given watershed within the action area that will be affected by these projects ranges from 0.1 to 5.2%, over a 5-year period. Projects implemented under this programmatic are intended to treat previously managed areas and are designed to enhance the existing watershed disturbance condition, moving it closer to the expected natural condition. The PDCs were developed to limit the magnitude of negative effect to these indicators.

The extent of the negative disturbance effect can be assessed by referring to the expected effects on related individual habitat indicators (*e.g.*, suspended sediment, LWD). Evaluation of the individual habitat indicators established that negative effects may occur, but these effects are expected to be either discountable or insignificant, and will not result in adverse effects to LFH. It is therefore likely that the implementation of projects subject to this consultation will result in a short-term negative effect to the disturbance history and disturbance regime indicators, but it is probable that the effect will be of insignificant magnitude, and will not likely result in measurable negative effects to LFH. In the long term, neutral to positive effects are expected.

- i. Riparian Reserves. The implementation of this programmatic action will cause a short-term negative effect to this watershed condition indicator. The magnitude of effect can be assessed by referring to the expected effects on related individual habitat indicators (*e.g.*, temperature, LWD). Evaluation of the individual habitat indicators found negative effects to some of the habitat indicators may occur, but these effects are expected to be either discountable or insignificant, and will not result in adverse effects to LFH. In the long term, neutral to positive effects are expected as treated riparian reserves mature and more closely replicate natural community compositions.

Conclusion

Based on the information provided by the action agencies and developed during informal consultation, the Service concludes that the negative effects of the action, as proposed, are discountable or insignificant. Therefore, there is a less than negligible likelihood of adverse effects to the listed species as a result of the project. This project is not expected to have any short- or long-term adverse effects on any listed fish species. This conclusion is based on the project design features and the analysis detailed in the BA (which is incorporated here by reference) and for the following reasons:

1. No activity is proposed within or that will directly affect any stream channel inhabited by bull trout.
2. The proposed programmatic action includes a process to ensure individual projects completed under the subject consultation are consistent with the programmatic action

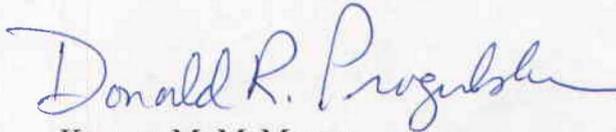
described and the effects analyzed. The process includes prior notification, consistency review, project monitoring and reporting, and the allowance for variance from the PDCs. While variances to the PDCs may be implemented, any variance request must analyze the site specific effect of the altered PDC using the AP factor analysis for each affected indicator, determine the effects are consistent with those analyzed in the programmatic BA (*i.e.*, discountable probability or insignificant magnitude), and be certified by the Level I team prior to project implementation.

3. Positive effects are also likely to occur as a result of the proposed programmatic action as noted in the indicator discussions above. In all instances the magnitude of beneficial effects on LFH are likely insignificant.

Reinitiation of consultation is required and may be requested by the action agencies, or by the Service, where discretionary Federal involvement or control over the action has been retained or is authorized by law and: (1) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (2) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this concurrence letter; or if (3) a new species is listed or critical habitat designated that may be affected by the identified action [see, 50 CFR 402.16].

The Service concurs with your determination that the FY 2007-2009 Thinning Timber Sales Programmatic project may affect, but is not likely to adversely affect bull trout. This concludes the consultation process. If you have any questions, please contact Brad Goehring or Bob Progulske, at (503) 231-6179.

Sincerely,


for Kemper M. McMaster
State Supervisor

cc: RO Division of Consultation and Conservation Planning
Rob Markle- NMFS, Portland

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Appendix.

Proposed action description for the Thinning Timber Sales Programmatic on the Mt. Hood and Willamette National Forests and portions of the Eugene and Salem Bureau of Land Management Districts (FY2007-FY2009).

Source: Biological Assessment, pages 8 through 28 and applicable appendices from BA.

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Description of the Proposed Action

The commercial thinning and density management thinning timber sale program typically involves silvicultural treatment in dense, young conifer stands (defined as stands ≤ 80 years in this assessment) to reduce competition and increase tree growth. Tree vigor and stand stability are improved through density reduction of both trees and other competing vegetation. Timber harvest occurs for a variety of reasons including: (1) mimicking ecosystem functions and processes (stand types, amounts, and spatial arrangement of stands), (2) reducing fuels, (3) achieving stand density objectives such as long-term, late-successional enhancement, and, (4) producing wood products. Timber sale objectives vary depending on land management allocation and site-specific conditions. Commercial thinning projects are designed to provide more uniform spatial arrangement between residual trees in order to maximize wood volume production. Density management attempts to replicate a more natural stand condition. Thinning densities are more variable, trees are unevenly spaced and there may be small clumps of trees and small openings within the residual stands. Density management thinning is a form of commercial thinning and not all thinning projects will make the differentiation, i.e., a thinning project or commercial thinning project may include density management elements.

Commercial thinning, typically on Matrix lands, is timber harvest which reduces stand density so as to maintain or increase individual tree vigor and/or increase total merchantable timber yield over the timber rotation by harvesting volume which would otherwise be lost before the next future planned harvest. The principal focus of commercial thinning is on maintaining tree vigor and high volume production of the dominant stand cohort. Large remnant overstory trees or small understory trees may be present but their development or maintenance is not the principal objective of the treatment.

Density management thinning in Late-Successional Reserves and Riparian Reserves encourages understory growth and development of intermediate forest layers, creates spatial diversity, encourages the development of trees with late-successional characteristics and maintains fast growth of dominant trees. Density management focuses on the management of all stand cohorts including large remnant overstory trees and small understory trees.

The proposed action consists of three primary components: 1) a set of PDCs for the covered thinning timber sales, 2) a process for allowing some variance from the project design criteria, and 3) a process in which sales will be reviewed by the Willamette Aquatic Level 1 Team for consistency with the criteria with variances if applicable. The Level 1 Sub-Team (consisting of one representative each from the BLM, FS, NMFS and FWS) reviewed numerous biological assessments for thinning timber sales that had been brought forward by the administrative units between 1999 and 2005 and for which a conclusion of NLAA ESA listed salmonids had been reached. The sub-team looked for consistent design features of those sales that could be brought forward as design criteria for the programmatic consultation. Many of the PDCs in the proposed action are common design features or are best management practices (BMP) in many of the thinning timber sales. Additional design criteria were developed to ensure that the proposed actions would not result in adverse effects.

The PDCs are somewhat conservative in that they were designed to protect ESA-listed fish habitat in all stream reaches across the range of landscape conditions in the entire Willamette

Province. Due to the great variation in environmental conditions, project locations, and fish distributions within the action area and the variation in project objectives associated with different timber sales, there is likely going to be situations when a project may not result in any potential adverse effects while not being fully consistent with all of the PDCs. The Level 1 Sub-Team felt that the programmatic consultation needed to allow for flexibility in the PDCs in order to accommodate as many NLAA sales as possible. The process for reviewing particular timber sales and determining if they are consistent with the programmatic consultation is discussed below.

There is a substantial amount of monitoring that occurs during the harvest operation associated with the timber sale administration activity. Sale administrators monitor harvest operations to ensure that all contract provisions are met. Timber sale contracts include provisions to prevent unacceptable resource damage from occurring. These provisions include, but are not limited to, concerns relating to soil disturbance, stream impacts, residual stand damage, appropriate theft/accountability practices, and restricted operating seasons. Most of these monitoring activities are completed in cooperation with other resource specialists during the course of harvest operations.

Thinning Timber Sales

Many thousands of acres of Federal lands have been logged within the action area during the past 50-80 years. Practices during the 1950's – 1980's typically involved clearcut logging of mature and old-growth forest stands to meet demands for wood products. After harvest, the clearcut areas may or may not have been reseeded or replanted, but typically the timber stands that became reestablished consisted of dense, uniform stands of Douglas-fir or hemlock that lacked the structural diversity of the previous stands. The Northwest Forest Plan identified the need to silviculturally treat these stands to speed the development of multi-story, structurally diverse forest habitats important for both terrestrial and aquatic species, several of which are listed as Threatened or Endangered under the ESA. Stands that would benefit from thinning treatments exist in all land use allocations where timber harvest is allowed.

Table 2. List of 5th field watersheds with proposed thinning sales for fiscal years 2007-2009. This table does not represent the overall harvest levels that may be proposed by the BLM and FS outside of this consultation.

HUC #	5 th Field Watershed	Admin Unit*	Est. Treated Acres	Watershed Size (Acres)	% Area of Watershed Treated Under the Programmatic
1707010507	WF Hood River	MHNF	1,500	65,438	2.3%
1708000108	Lower Sandy River	Salem	1,650	47,135	3.5%
1709000106	NFMF Willamette	WNF	5,000	158,977	3.1%
1709000109	Fall Creek	WNF	4,800	123,485	3.9%
1709000306	Luckiamute River	Salem	200	201,507	0.1%
1709000401	Upper McKenzie R.	WNF	2,600	230,527	1.1%
1709000402	Horse Creek	WNF	600	101,767	0.6%
1709000403	SF McKenzie R.	WNF	1,000	137,910	0.7%

1709000404	Blue River	WNF	800	58,986	1.4%
1709000405	Quartz Creek	WNF	2,500	47,707	5.2%
1709000406	Mohawk River	Eugene	3,232	115,006	2.8%
1709000407	Lower McKenzie R.	Eugene	3,526	164,490	2.1%
1709000501	Up North Santiam R.	WNF	2,500	146,559	1.7%
1709000903	Rock Cr/Pudding R.	Salem	300	54,741	0.5%
1709001003	Scoggins Creek	Salem	700	86,961	0.8%
1709001101	Collawash River	MHNF	1,000	97,380	1.0%
1709001102	Up Clackamas R.	MHNF	1,500	100,454	1.5%
1709001103	Oak Grove Fork Clackamas River	MHNF	1,500	90,504	1.7%
1709001104	Mid Clackamas R.	MHNF	2,000	138,447	1.4%
1709001106	Low Clackamas R.	MHNF	1,000	117,611	0.9%

Note: * - MHNF = Mt. Hood NF, WNF = Willamette NF, Eugene = Eugene BLM, Salem = Salem BLM

This biological assessment considers timber sales proposed for thinning young conifer stands proposed for fiscal years (FY) 2007 -2009. From an ESA perspective, and for the purposes of this consultation, the estimated amount of harvest shown in Table 2 represents the upper bounds of treatments analyzed in this BA (it does not represent the overall harvest levels that may be proposed by the BLM and FS outside of this consultation, either in these watersheds or in other watersheds). The estimated amount of thinning in Table 2 is likely to be higher than the amount that will actually be harvested. The estimated acres of harvest are often reduced as sale planning is finalized. Acres may be dropped for a variety of reasons. For example, further surveys may determine that thinning is not the preferred silvicultural treatment, areas may be determined to be unsuitable for harvest, or acres are dropped to protect other resources. It is also possible that some of the sales associated with these treatment acres may not be implemented under this programmatic assessment and will have individual consultations if they “may affect” ESA-listed fish species.

Project Elements and Project Design Criteria

The sub-team followed direction from the Willamette Province Level 2 Team to set the scope of actions that would be covered by the programmatic consultation. During the past 5 years, the majority of timber sales that the BLM and FS in the Willamette Province have consulted on have involved thinning in young, primarily Douglas-fir stands. These consultations have been informal. The direction from the Level 2 Team was to develop a NLAA programmatic consultation that would, to the extent possible, cover thinning sales that would be designed and implemented similar to the NLAA thinning sales of the past 5 years. Projects must be consistent with the Standards and Guidelines found in the NW Forest Plan and the appropriate action agency Best Management Practices for the protection of water quality.

This programmatic consultation will be limited to only commercial or density management thinning sales. These sales would occur in any land use allocation where timber harvest is allowed, including, but not limited to, Matrix, Late-Successional Reserves, Riparian Reserves, and Adaptive Management Areas. Silvicultural treatments will occur in young conifer stands, typically 35-80 years of age, in previously managed stands. Previously managed stands includes those stands where there has been previous timber harvest, stands planted or seeded after a fire,

stands that have been commercially or pre-commercially thinned, and stands that have previously been entered for tree removal, such as salvage. Young stands are often dominated by relatively uniform dense conifers with little structural and spatial diversity. This programmatic does not include regeneration harvest (with the exception of small patch cuts of one acre or less in thinning units) or fire salvage harvest.

In general, the project design criteria (PDC) are associated with the various project elements of a timber sale. The project elements include: tree falling, yarding, new road and landing construction, road renovation, reconstruction, and maintenance, rock quarry operation, road decommissioning and closure, timber transport, and fuels treatment.

Commercial timber sale activities are often affected by seasonal operating restrictions to account for resource concerns related to wildlife, soils, botany, sedimentation, clean water, or hydrologic function. However, timber sale activities can occur year round.

Treatment is allowed in Riparian Reserves, if the treatment can be demonstrated to benefit the riparian resource and project design criteria are met (including variances).

Project Design Criteria:

A. General Criteria

The following general criteria must be met in order for a project to be eligible for coverage under this programmatic consultation:

- A1. Projects must be consistent with the Standards and Guidelines found in the NW Forest Plan and the appropriate action agency Best Management Practices for the protection of water quality.
- A2. Timber harvest must only be planned in previously managed stands (e.g. previously harvested timber, stands planted after a fire, stands pre-commercially thinned). Stands that were planted after a fire or pre-commercially thinned are considered managed. This programmatic consultation does not cover regeneration harvest or fire salvage harvest.
- A3. Stands to be harvested must be less than 80 years old.
- A4. Timber harvest within riparian reserves must retain all legacy trees (trees left from previous harvest that are typically larger than the remaining trees in the stand), and be designed as “thin from below” to retain the dominant and/or co-dominant trees. Patch cuts (typically associated with a density management prescription), are allowed in riparian reserves, only if each resulting opening is one acre or less in size.
- A5. Portions of these projects that occur within the NW Forest Plan Riparian Reserves must be implemented only if this work maintains or improves habitat for aquatic and riparian-dependent species.
- A6. Streams within the project area must be protected with buffers as shown in Table 3. Within these buffers, tree felling or yarding is prohibited (with the exception of felling and yarding through skyline corridors, see specific PDC under Yarding). Stream buffers

are measured from the edge of active channel (stream banks) on both sides of the stream. The minimum buffers must be expanded to include the following features, if applicable:

- a. Slope break = the point of topographic change below which management will result in active erosion or introduction of material into the stream channel or floodplain area.
- b. Floodprone area = area accessed by the stream during medium to large peak flow events, typically defined as 2 times the bankfull depth.
- c. High water table area = wetlands, seasonally saturated soils, standing water, seeps, bogs, etc.

Table 3. Minimum Stream Protection Buffer Widths by Stream Type and Proximity to Listed Fish Habitat (LFH¹⁰).

Adjacent to LFH habitat	Within 1 mile of LFH		Greater than 1 mile upstream from LFH	
	Perennial and Intermittent Streams		Perennial Streams	Intermittent Streams
Maintain a minimum 100' wide buffer	Maintain a minimum 50' wide buffer		Maintain a minimum 50' wide buffer	Maintain a minimum 30' wide buffer

- A7. Due to a risk of water contamination, fuel and other petroleum products must be stored, and refueling must occur at least 150 feet from any stream or other sensitive waterbodies.
- A8. Unstable slopes (areas adjacent to streams with indicators of active erosion such as ravel on the surface or jack-strawed trees), or sensitive stream reaches (such as streams where the dominant channel substrate is sand), or channels with high residual impacts (i.e. bank erosion, downcutting, heavy fine sediment load) must be protected with a buffer of at least 100 feet wide from the edge of the unstable or sensitive area.
- A9. Limit ground disturbing activities, such as mechanized falling, ground-based yarding, road construction/reconstruction/renovation, road decommissioning and landing construction, to the dry season (generally between May 15 and October 15) when the soil is more resistant to compaction and soil moisture is low.
- A10. Changes in peak or base stream flows due to the implementation of this action must be insignificant or discountable (i.e. not measurable), based on hydrologic analysis.

B. Tree Falling

Logging operations are carried out with a variety of different systems. Hand felling with chainsaws and ground-based mechanized feller bunchers or processors are common. Mechanized falling equipment is becoming more common on thinning projects due to the harvest of smaller diameter trees. Mechanized fellers are typically used for logging in gentle terrain, flats and shallow slopes, and are restricted to slope gradients of less than 35% to minimize soil

¹⁰ LFH = Listed Fish Habitat, defined as any stream reach potentially occupied by a ESA protected fish species, any stream reach designated as Critical Habitat, or any stream reach designated as Essential Fish Habitat.

disturbance. An additional restriction to minimize detrimental soil impacts is to limit the use of mechanized equipment to periods of when low soil moisture conditions occur.

A feller buncher is a mobile machine, either rubber tired or tracked, with an articulating extensible arm onto which a felling head is attached. The felling head consists of grappling devices and either a disc saw or chain saw. The operator moves the machine into position in front of a tree and maneuvers the felling head to the tree trunk. The grappling devices wrap around the tree and the saw severs the tree from the stump. The machine then takes the severed vertical tree and lowers it into a horizontal position onto a pile or bunch of trees on the ground, hence the term feller buncher.

A processor is a mobile machine with a maneuverable articulating arm onto which a processing head is attached. This machine often follows a feller buncher and picks up one tree at a time from the tree pile or bunch. The tree is pulled by rollers through a clamp which removes all branches; then a saw in the processing head cuts off the top of the tree. The machine then pulls the delimbed tree through the processing head, stops at the desired length and cuts off the log, and then repeats the process until the tree and other trees in the pile or bunch are processed into a pile of delimbed, cut-to-length logs. The processor then moves to another pile of felled trees and repeats the process, leaving behind small groups of processed logs.

A harvester is a machine that combines the features and abilities of the feller buncher and processor and that may or may not have a bunk to store and then forward the trees or cut logs to the landing.

The following Project Design Criteria apply to Tree Falling:

- B1. Trees must not be felled within the primary shade zone¹¹ associated with any perennial stream (with the exception of trees within skyline yarding corridors; see below).
- B2. Thinning within the secondary shade zone on perennial streams may occur; however, at least 50% canopy closure must remain in this treated zone.
- B3. Overlaying the above thinning criteria are these additional criteria as shown in Table 4.

Table 4. Thinning restrictions for streams near and upstream from LFH.

Stands of trees adjacent to LFH habitat, or adjacent to tributary streams within one stream mile of LFH habitat	Stands of trees adjacent to stream reaches that are greater than one mile upstream from LFH
Maintain a conifer RD ¹² value of at least 30 in the stand area located between the protection buffer (Table 3) and one site potential tree height from the stream.	Maintain a conifer RD value of at least 30 within 100' from the stream.

¹¹ The primary shade zone is defined in the Northwest Forest Plan Temperature TMDL Implementation Strategies, USDA Forest Service and Bureau of Land Management, 2005.

¹² Relative density (RD) is defined as the basal area divided by the square root of the quadratic mean diameter.

- B4. Harvested trees that will be yarded must be felled away or parallel to the stream buffer. Trees that are inadvertently felled into the stream buffer, or trees felled to create yarding corridors within the stream buffer, must be left on site.
- B5. Felling must not create openings greater than one acre in size.
- B6. The distance separating a patch cut unit from LFH must be greater than the height of a site potential tree. The distance separating a patch cut unit from all other streams must be at least 100 feet.

C. Yarding

Yarding systems include cable systems with either one end or full suspension requirements, ground-based systems including rubber tire or track mounted skidders and forwarders, swing-yarders, and helicopter-based yarding. Ground-base yarding equipment is typically used for logging in gentle terrain, flats and shallow slopes. Cable systems and helicopters may be operated year-round. Ground-based yarding is often the most cost effective method for yarding the smaller logs associated with thinning projects. The cost of operating helicopters is typically too expensive given the lower yarding volumes associated with thinning.

Cable yarding is carried out by means of cable cranes based on a sledge winch yarder or a mobile tower yarder. The yarding machine may or may not have a boom or tower to achieve additional lift (suspension) of the logs as they are yarded to the landing. Cable systems are usually designed to yard logs uphill but downhill yarding may also occur. A typically cable yarding system uses a large cable, called a skyline, that runs from the yarder and is attached to a tailhold, usually a large tree. A carriage that rides on the skyline cable is attached to a mainline that can be released and retrieved by the yarder. The mainline, or a separate cable, is dropped from the carriage and attached to the log. As the carriage is retrieved back to the yarder the log is lifted off the ground. Full suspension occurs when the log is lifted entirely free of the ground, one-end suspension refers to when the trailing end of the log is dragged on the ground. Multi-span type yarding systems utilize a system of intermediate supports, usually existing trees, to suspend the cable off the ground in order to improve suspension. These systems may be used in situations where skyline logging is not able to lift the logs free of the ground, typically on more gentle ground or when topographic features interfere with suspension.

A grapple skidder is a rubber tired four-wheel-drive machine with a forward dozer blade and a maneuverable grappling device at the back of the machine. These machines are generally used where feller buncher machines are working. The grapple skidder backs into position adjacent to previously felled piles (bunches) of trees. The operator opens and lowers the grapple onto the trunks of the trees and then closes the grapple and raises the tree trunks slightly off the ground.

A feller forwarder is a feller buncher with a bunk to the rear of the operator into which the felled trees are lowered and carried to the next tree to be felled. The process is repeated until the bunk is full. The machine then moves or forwards the trees to the landing and unloads them.

A forwarder is a tracked or rubber tired machine consisting of a dozer blade, articulating grapple, and a bunk to the rear. This machine usually follows the processor and picks up the cut-to-length

logs, places them in the bunk and then takes the logs out of the woods and piles them at the landing. It then moves back into the woods to repeat the process.

A swing-yarder is a tracked machine with a rotating platform with an extended boom. A grappling device is attached to a cable that can be lowered and retracted from the boom. The operator opens and lowers the grapple onto the trunks of the trees and then closes the grapple and raises the tree trunks slightly off the ground. The operator then moves the log, in the air, around to a skid trail where the log is placed to be picked up by a skidder or forwarder.

Ground-based yarding systems usually require a system of skid trails that radiate out from the landing. Skidders or forwarders bring the logs from where they are felled back to the landing over this system of trails. Skid trails are will be designated and approved before trees are felled to provide the most efficient falling and yarding operation and to limit the overall amount of ground disturbed by the trails.

Helicopters are used for yarding trees to landings from steeper ground in situations when road and landing construction would result in unacceptable ground disturbance or excessive construction costs or when environment conditions require full suspension that cannot be achieved with conventional equipment. A grapple is lowered on a cable below the helicopter and attached to the log which is then lifted vertically into the air and flown to the landing.

The following Project Design Criteria apply to Yarding:

- C1. Skyline or ground-based yarding must not occur within the buffers associated with LFH. Skyline yarding over streams with LFH is acceptable if the logs can be fully suspended above the existing stream buffer tree canopy.
- C2. Require full suspension when yarding logs over non-LFH stream channels and within their protection buffers (Table 3). Require full or one-end suspension when yarding in the remaining (outer) portion of the riparian reserve. Require full or one-end suspension with lateral skyline yarding, to the extent practicable.
- C3. Limit the establishment of skyline yarding corridors over perennial streams to no more than five corridors per 1,000 lineal feet of stream. Individual corridor widths must not exceed 15 feet. Corridors will be spaced at least 100 feet apart (along the stream).
- C4. The use of ground-based yarding and felling equipment is prohibited:
 - a) on slopes exceeding 35%, and
 - b) within the stream protection buffers (Table 3).
- C5. Prohibit the use of existing landings if they are:
 - a) within 200 feet of LFH,
 - b) within 200 feet of a non-LFH stream, if the potentially affected stream reach is within 0.5 miles of LFH, or
 - c) within 100 feet of any stream channel.

- C6. If an existing landing within 200 feet of a stream is used, erosion control measures must be installed prior to use to prevent soil movement downslope from the landing. The landing must be rehabilitated (compacted soils fractured, seeded) after use.
- C7. Existing landings planned for use between Oct 16 and May 14, must be surfaced with aggregate material.
- C8. Use existing landings and skid trails to maximum extent possible. The maximum extent of soil compaction (defined as management-caused crowding of soil particles which causes a decrease in soil porosity, and an increase in soil density) due to skid trails, corridors, mechanical piling and landings associated with activities in the proposed action must not be more than 10% of the harvest unit area (i.e., regardless of the extent of existing soil compaction, no more than 10% of the harvest area may be compacted as a result of activities associated with the proposed action).
- C9. Skid trails must not be constructed through areas with a high water table, or be located in areas that will channel water onto unstable headwall areas.
- C10. All primary skid roads (defined as more than 5 passes by a machine) used for ground-based operations will be designated on the ground to limit extent of soil compaction.
- C11. Where practicable, ground-based machines will place logging slash on skid trails to create slash mats for machines to walk on. These mats act as a buffer for soils during logging.

D. New Road and Landing Construction

New road and landing construction is often required to gain access to timber sale units or provide improved conditions for yarding. Landings are used as yarding collection points and for log truck loading. New roads may be temporary (built and removed in the same season), semi-permanent (built and used over several season but removed at the end of the sale period), or permanent (left open for resource management access needs following both the initial harvest activity and post-sale operations). These roads may have a natural surface or be rocked depending on the planned use of the road. Road and landing construction is implemented in the dry season during low soil moisture conditions.

Road construction may include vegetation removal, excavation, sub-grade reinforcement, aggregate surfacing, culvert installation at streams, bridge construction, drainage structure construction, and slash disposal. These activities require the use of a variety of heavy equipment such as graders, dozers, backhoes, trucks, and rollers.

The following Project Design Criteria apply to New Road and Landing Construction:

- D1. Prohibit the construction of new roads or landings within 500 feet of LFH or within 200 feet of any other stream.
- D2. Only allow new construction on or near stable ridgetop locations, or on stable, relatively flat topography. Do not allow sidecast road construction when the hill slope exceeds 30%.

- D3. Require an aggregate or paved surface for all new roads or landings that will be used in the wet season (generally Oct 16 to May 14).
- D4. New road construction must not increase the stream drainage network (i.e. new roads will be outsloped, or the outflow of new ditch relief culverts or other drainage structures will not drain to streams).
- D5. New cross drains discharge to stable slopes where the outflow will quickly infiltrate the soil and not develop a channel to a stream.
- D6. There must be no net increase in the length of the permanent road network. Permanent roads are those that will remain as a system road after the project has been completed. The effect of new permanent road construction must be offset by the obliteration or decommissioning of an equivalent or greater length of existing road during the period of project implementation.
- D7. When constructing new roads, the width of the compacted surface and ditch line must not be wider than 24 feet, and must be full bench construction.
- D8. Implement erosion control measures to prevent offsite movement of disturbed or exposed soil associated with new road and landing construction (including cutbanks, fills, ditches, etc.) on road segments that have the potential to directly or indirectly deliver sediment to any stream channel. Erosion control measures include silt fences, straw bales, matting, mulch, slash, water bars, grass seed [or other products], etc. This work will occur prior to the wet season.

E. Road Renovation, Reconstruction, and Maintenance

Timber sales generally use the existing transportation network for harvest access and haul routes. Some reconstruction and maintenance of existing roads typically occurs with thinning projects. Road renovation and reconstruction is implemented in the dry season during low soil moisture conditions. Road maintenance usually occurs during the dry season but may be required throughout the year to prevent deterioration of the road surface and ditches and subsequent erosion or culvert failures.

Road maintenance – Road maintenance is necessary to keep roads in good condition, minimize erosion, and identify and correct problems promptly. Maintenance, including pre-haul, ongoing during haul operations, post-haul, and related erosion control structures/methods are a part of the harvest activity to ensure that roads are prepared, maintained during haul, and put into a suitable condition after operations are concluded. Scheduled road maintenance, unlike emergency maintenance necessary to protect the road and reduce erosion impacts, is maintenance work that has been identified and can be planned for ahead of time. Maintenance includes blading road surfaces, cleaning/reestablishing relief ditches, brushing road sides; installing and maintaining drainage structures, sign maintenance, spot rocking, dust abatement with water, chip sealing, asphalt patching, bridge maintenance, slough removal, crack sealing, culvert replacement, subgrade reinforcement, and snow removal.

Road Renovation – Work done to an existing road which restores it to its original design standard for the planned log haul. Renovation may include blading and shaping of roadway and

ditches, widening of the subgrade, small slide/slump repairs, clearing brush from cut and fill slopes, cleaning, replacing or upgrading culverts, and applying rock surfacing material to depleted surfaces. It may also include addition of cross-drain culverts where needed to improve drainage and reduce the distance that water travels in the ditch. This is also known as road maintenance on some units.

Road Reconstruction – Work done to restore a damaged or badly deteriorated road to a usable condition and possibly a new design standard. It may include road realignment, slide and fill failure repair and/or structure upgrades. Reconstruction generally involves a higher degree of engineering than basic road renovation work.

The following Project Design Criteria apply to Road Renovation, Reconstruction, and Maintenance:

- E1. Limit scheduled soil disturbing timber sale road maintenance activities to the dry season (generally between May 15 and October 15), unless the road segment has no hydrologic connection.
- E2. Do not implement scheduled road renovation or reconstruction within 200 feet of LFH.
- E3. For road renovation and reconstruction, the width of the compacted surface and ditch line must not be wider than 24 feet. Road work on existing roads that are wider than 24 feet must not result in an increase in the road width.
- E4. Intentionally omitted by action agencies.
- E5. Implement erosion control measures to prevent offsite movement of disturbed or exposed soil associated with road renovation and reconstruction (including cutbanks, fills, ditches, etc.) on road segments that have the potential to directly or indirectly deliver sediment to any stream channel. Erosion control measures include silt fences, straw bales, matting, mulch, slash, water bars, grass seed [or other products], etc. This work will occur prior to the wet season.
- E6. Existing vegetation in ditchlines that discharge to streams must not be removed unless an effective sediment trap is installed and maintained until vegetation is reestablished.
- E7. Do not grade material removed from ditchlines onto the road surface where the road surfaces are hydrologically connected to a stream. Remove and store this material and all other waste materials in a stable site which is not hydrologically connected to any stream.
- E8. The installation of cross drain culverts must result in a culvert which drains to a stable hill slope with porous soils, allowing for water infiltration, with a low probability of erosion, and subsequent new channel formation that connects to an existing stream.
- E9. Woody material removed from stream channels during culvert maintenance must be retained in the stream network. Typically this would entail repositioning wood located upstream from a culvert to a location downstream of the culvert. This activity is prohibited in LFH.
- E10. Close and waterbar native surfaced roads prior to the wet season (Oct 16 and May 14) and between operating seasons to prevent use and reduce erosion.

- E11. Dust abatement is limited to the application of water only. Do not draft water from LFH. Use a screen on the drafting hose when drafting from other fishbearing streams.
- E12. Pumping of water for use in road maintenance must allow for the retention of at least 90% of the original stream flow below the pumping site. Do not draft water from LFH. Use a screen on the drafting hose when drafting from other fishbearing streams.
- E13. New aggregate surfacing must use durable rock (AASHTO T210), and have no more than 15% fines (#200 sieve).
- E14. At the termination of the sale, native surfaced roads must have drainage structures (e.g., waterbars) installed, if the road is hydrologically connected to any stream, and the road closed to prevent use.

Culvert or Bridge Replacement PDCs

- E15. Prohibit the replacement of culverts or bridges if the crossing is located:
 - a) on LFH,
 - b) on a perennial stream less than one mile upstream from LFH, or
 - c) on an intermittent stream less than 0.5 miles upstream from LFH.
- E16. All new replacement culverts and bridges at stream crossings must be designed to pass at least a 100-year flood streamflow.
- E17. Instream work must be completed during the ODFW instream work window.
- E18. Continuous stream flow must be maintained downstream from the installation site. Replacements over streams with intermittent flow must only occur when the stream is not flowing.
- E19. Require the complete excavation of overburden (road fill material) at each culvert replacement site prior to extracting the existing culvert.
- E20. Replacement bridges must consist of a single span with the abutments located outside of bankfull width.
- E21. Abutment work areas must be isolated from any flowing water.
- E22. Heavy machinery is prohibited from entering the active channel area of the stream.
- E23. Concrete will not be poured if any of the uncured concrete or contaminated wash water might enter a stream channel.

F. Rock Quarry Operation

Rock quarries are developed as source areas for rock and gravel used for surfacing forest roads. Quarries may be large enough to supply road surface materials for a network of roads or may be small and supply rock only for the roads associated with an individual timber sale. Activities associated with the development of a rock quarry include vegetation and soil removal, excavation, drilling and blasting and construction of access roads and work area. Activities associated with quarry use include drilling and blasting; crushing, sorting and piling of rock materials; and loading trucks. These activities require the use of a variety of heavy equipment such as excavators, dozers, backhoes, rock crushers and trucks. Quarry sites that are no longer

needed to supply rock for roads, or which contain a low quality of rock which does not meet present road surfacing standards are often used as waste areas for material removed from roads and ditches during road maintenance operations.

The following Project Design Criteria apply to Rock Quarry Operation:

- F1. Quarry operations (including interrelated activities) will not cause sediment and contaminant delivery mechanisms to any stream channel.
- F2. Quarries located in riparian reserves will only be operated during the dry season (generally May 15 to Oct 15).
- F3. For quarries located within one mile of LFH, do not allow any disturbance within 200 feet of any stream channel.

G. Road Decommissioning and Closure

As a general rule, temporary roads are closed and/or obliterated as part of the harvest activity depending on post-sale access needs. On occasion, closed roads may be opened to facilitate harvest access and, again, depending on post-sale activity, may be closed as part of the harvest operations. Existing roads that are no longer needed to meet resource objectives may be decommissioned to reduce maintenance costs, access and soil disturbance.

Road Decommissioning – Includes removal of culverts, re-establishment of natural drainage patterns, and blocking vehicle access. Subsoiling or bucket-ripping and seeding of roadbed may accompany this activity.

Road Closures (administrative use only) – Work done to a road to put it in a condition so it will limited motor vehicle access and will receive only a low level of maintenance. This activity may leave culverts in place, adding water bars and limiting vehicle access. This is done to preserve the road for future forest management uses while reducing the need for maintenance activities.

The following Project Design Criteria apply to Road Decommissioning and Closure:

- G1. Do not decommission roads that are within 500 feet of LFH.
- G2. Remove all culverts, stream crossings, and cross-drains from roads that will be decommissioned (i.e. taken of the road network and will not be used again).
- G3. Reduce the fill material over culverts left in place on roads scheduled for closure.
- G4. Decommissioned roads must be effectively closed to all vehicle traffic.
- G5. Closed roads must have waterbars or other water drainage features installed.
- G6. Culverts to be removed on perennial streams must be at least one mile upstream from LFH and removals on intermittent streams must be at least 0.5 miles upstream from LFH.
- G7. Instream work must be completed during the ODFW instream work window.

- G8. On perennial streams, continuous stream flow must be maintained around the culvert removal site.
- G9. Excavations to remove stream culverts will be matched to the approximate bed elevation and bank-full stream width of the existing streambed. Cuts must match natural bank slopes.
- G10. At culvert removal sites, the road must have waterbars or other drainage features constructed to route surface water away from the newly excavated slopes.
- G11. De-compact the decommissioned road bed on natural and aggregate surfaced roads, and use seed or other materials to establish effective ground cover prior to the wet season.

H. Timber Transport

Timber transport, or haul, involves the transportation of logs, with large trucks, from a landing to the sawmill. This typically involves an extensive network of roads with various types of surfacing and may occur year-round or be seasonally restricted depending on yarding requirements, road conditions, resource protection needs, and climate.

The following Project Design Criteria apply to Timber Transport:

There are no restrictions on the transport of timber over paved roads.

- H1. Avoid haul routes that require travel over unstable road segments, if road use or failure would result in sediment delivery to any stream.
- H2. Timber transport operations will be stopped immediately if road use is causing rutting of the road surface, ponding of water on the road, failure of any drainage structure, or any other action occurs which increases the sediment delivery to a stream. Actively implement restorative work to reduce or eliminate the erosion. The road surface must be repaired before haul can resume.
- H3. Timber transport on aggregate surfaced and natural surfaced roads is allowed during the dry season (generally May 15 to Oct. 15) if the following criteria are met:
 - a) The approach and crossing of each LFH stream is paved or has a high quality, well drained, and recently maintained aggregate surface.
 - b) Approaches and crossings for all other streams: the ditch lines draining to these streams are densely vegetated or have other effective sediment retaining structures in place.
 - c) The fill slopes on all haul route stream crossings will be vegetated or otherwise stabilized such that road surface sediments are retained prior to entering the stream channel.
 - d) Adequate cross drainage has been installed so that there is less than 200 feet of road draining to any stream/road crossing.

Additional Wet Season Haul PDCs:

- H4. Bridges on the haul routes do not discharge runoff directly to stream (i.e., no scuppers).
- H5. Timber transport is not allowed on native surfaced roads during the wet season (Oct 16 to May 14).
- H6. Timber transport is allowed during the wet season (Oct 16 to May 14) on aggregate surfaced roads if the following criteria are met:
- a) Aggregate surfaced haul routes must not cross LFH, or cross other streams that are within 1,000 feet from LFH. The haul route must not be closer than 500 feet of LFH at any given point.
 - b) Haul routes must be inspected weekly, or more frequently if weather conditions warrant. Inspections will focus on road surface condition, drainage maintenance, and sources of soil erosion and sediment delivery to streams.
 - c) Do not allow timber haul during periods of daily alternating freezing and thawing periods over a several day period. Haul is allowed on completely frozen or snow covered roads.
 - d) Hauling is not allowed when conditions exist (e.g. during intense or prolonged rainfall), that may cause generation of road related runoff to streams.
 - e) Spot rocking and/or sediment traps will be employed to reduce potential sediment inputs to streams. Sediment traps will be inspected weekly during the wet season and entrained soil would be removed when the traps have filled to $\frac{3}{4}$ capacity. Dispose of these materials in a stable site which is not hydrologically connected to any stream.

I. Fuels Treatment

Fuels treatment may involve pile burning at landings and within units. Thinning in young stands typically does not result in large quantities of slash. Trees in cable yarded units are often yarded to the landing with the limbs attached. The limbs are removed at the landing, piled and burned during the wetter periods of the year. Ground-based yarding equipment often “walks” on slash, effectively crushing it to the ground reducing the need for fuels treatments. Slash is often scattered back onto skid trails to prevent further vehicle use and to minimize erosion. In areas where slash accumulations are large enough to present a fuels concern the slash is piled and burned.

Fuels treatments may be necessary within sale areas to remove residual slash to reduce fire hazard and improve planting and growing conditions after harvest. Various types of fuel treatment methods are used, (i.e. hand-piling, tractor piling, lop and scatter). Hand-piling involves the manual placement of smaller pieces of slash into piles for future burning under conditions, typically during winter or spring, which will prevent the unintended spread of fire. Swamper burning is similar to hand piling except that the slash is manually added as the pile burns. Mechanical or tractor piling is used when the amount or size of slash is too great for manual piling. Mechanical piling is done during periods of low soil moisture to reduce impacts to soils caused by using heavy equipment and the burning takes place during winter or spring.

Lop and scatter is done when fuel loading is very light; a chainsaw is used to cut longer pieces of slash so that it can be spread around and lay closer to the ground.

There is some preparation of harvest units for post-harvest burning, which may include fireline construction (hand/tractor).

The following Project Design Criteria apply to Fuels Treatments:

- I1. Fuels treatment of any kind is prohibited within the stream protection buffers (Table 3).
- I2. Lop and scatter fuels treatment is allowed outside of the protection buffers.
- I3. Hand piling of fuels intended for burning is prohibited closer than 100 feet from any stream channel.
- I4. Mechanical fuels treatment, or the construction of mechanical fire control line is prohibited closer than 500 feet of LFH or closer than 200 feet from any other stream channel.
- I5. Prohibit the construction of hand-built fire lines where water could be channeled into areas of instability, headwalls or streams. Construct waterbars on fire line to reduce soil erosion.

Implementation Process under the Proposed Programmatic Consultation

The proposed tiered consultation strategy includes the development of a biological assessment (BA) that evaluates the effects of thinning timber sales and their associated activities on listed species of salmon, steelhead and bull trout and their designated critical habitat in the region. The assessment considers the effects based on a suite of project design criteria (PDCs) using the “Analytical Process for Developing Biological Assessments for Federal Actions Affecting Fish within the Northwest Forest Plan Area”, November 2004 (AP¹³). This BA does not provide site specific details on any aspect of the individual thinning sales. The BA describes the expected effects to each AP indicator due to the implementation of the proposed commercial thinning and density management thinning on Federal lands within the affected watersheds. Specific project information is not available at this time, therefore, the analysis relies on a set of PDCs to specifically limit the potential scope of effects to those which are minor, repetitive, predictable, and will not lead to “take” of a listed species, adverse effects to ESA-listed fish, or adversely affect designated/proposed critical habitat.

The process includes prior notification, consistency review, project monitoring and reporting, and the allowance for variance from PDCs where the effects are evaluated to be consistent with those described in the BA. Where variances are sought, the tiered consultation will function as the parent document to which the variance analysis will reference.

To define the spatial extent of commercial and density management thinning in the region that is included within this consultation, the BLM and FS will identify the HUC 5 watersheds which will have thinning projects implemented within FY2007-2009 (Table 2). It is expected that for FY2007 - FY2009, there will be thinning projects implemented in 20 watersheds, out of the 93 watersheds in NW Oregon with BLM and/or FS ownership. From an ESA perspective, and for the purposes of this consultation, the estimated amount of harvest shown in Table 2 represents the upper bounds of treatments analyzed in this BA (it does not represent the overall harvest levels that may be proposed by the BLM and FS outside of this consultation, either in these watersheds or in other watersheds). Additional acres of harvest, as a result of budget or planning needs, in these or other watersheds, may be brought forward for consideration by requesting additional analysis on the new acres and reinitiation of this consultation or with an individual BA.

The PDCs define those actions that are allowed within the context of this consultation. Most PDCs are based on project descriptions of NLAA thinning sales previously reviewed by the Level I team, or on action agency BMPs. The PDCs are more restrictive for actions conducted in close proximity to listed fish or critical habitat.

Included in the proposed procedure is the allowance for some deviation from the PDCs. Where projects deviate from a PDC, the Federal land management agencies retain the opportunity to demonstrate that their proposed action, while not consistent with all the PDCs, is consistent with

¹³ US Department of Agriculture, Forest Service; US Department of Commerce, NMFS; US Department of Interior, BLM, US Department of Interior, FWS. 2004. Analytical Process (AP) for Developing Biological Assessments for Federal Action Affecting Fish Within the Northwest Forest Plan Area. November 2004. 53 p.

the effects analyzed in the BA and therefore does not invoke the reinitiation clause of the Services' letter of concurrence. If PDC variance is proposed, the land management agency will be required to complete an AP factor analysis for the project elements with deviating PDCs, including the development of a revised element summary (ES) and comprehensive project-scale indicator summary (IS) for each indicator identified in the BA as having the potential to be affected by the PDC that is varied. It is expected that PDC Variance Factor Analysis will be 1 to 3 pages long for each PDC variance (see Appendix C for an example of a PDC variance). Appendix F provides a crosswalk showing the indicators that are commonly affected by the PDCs. When analyzing a PDC variance, it may be appropriate to discuss additional indicators other than those identified in Appendix E, based on the variance being requested and the site specific considerations. The Level 1 Team will review the proposed action, along with any proposed PDC variances and associated Variance Factor Analyses and make a determination as to whether or not the proposed project is consistent with the effects analyzed in the BA. This determination will be based on factors such as the number of variances, how greatly the proposed PDC varies from the programmatic PDC, and the expected effect the variance will have on the AP indicators and ESA-listed fish or their habitat. At no time will a project be considered consistent with the programmatic consultation if the implementation of the project would result in ESA "take", adverse effects to ESA-listed fish, or result in an adverse effect to critical habitat.

Based on the range of projects brought to the Level I teams over the last few years, it is likely that projects are likely to have at least one variance of the established PDCs. It is these types of actions that typically require a more specific description and site-scale analysis of effects and which typically are the primary items discussed when reviewing projects at Level I meetings, particularly when they occur in close proximity to the species or critical habitat. The PDC variance process (see Appendix C) will provide the additional description and the site-scale analysis for project elements when PDC variance occurs, while relying on the more general effects analysis found in the BA to cover the majority of the effects discussion. While there is no specified limit on the number of variances a project might have and still be considered within the scope of the programmatic consultation, it is expected that projects will be consistent with most of the PDCs. Having numerous variances increases the likelihood that the action agency will need to seek an individual consultation for the project and points to the potential for needed adaptive changes to the PDCs resulting in either (a) changes in the current PDC descriptions and/or reinitiation of the consultation or (b) topics for consideration in subsequent programmatic decisions.

Five-Step Implementation Process under Proposed Programmatic Consultation

Step 1. Project Consistency Worksheet

Individual thinning projects will be developed and analyzed by the Federal land management agency using a Project Consistency Worksheet (PCW). The PCW will include four parts:

- 1) Part A. Project description (a site specific, detailed description of a given thinning project, including proposed implementation timelines, and project maps) (Appendix A),

- 2) Part B. PDC consistency (a checklist stating whether the project met each of the applicable PDCs), and identification of PDC variances, if any (specific details for any deviation from the established PDCs) (Appendix B),
- 3) Part C. If applicable, PDC variance effect analysis (a detailed AP factor/indicator analysis describing why the effects of the varied PDCs to ESA fish or their habitat, based on site specific considerations, are equal to or less with the effects analyzed in the BA, see Appendix C),
- 4) Part D. Project certification (Appendix D)

Step 2. Level 1 Team Review

The completed Project Consistency Worksheet will be submitted to the Level 1 Team for review according to the Team's standard operating procedures. For actions completed under the programmatic consultation, this step will fulfill the requirement that the action agencies provide prior notification of the action to the regulatory agencies. The Level 1 Team will review the PCW and any PDC variance factor analyses and make a determination as to whether or not the proposed project is consistent with the effects analyzed in the BA.

Step 3. Project Certification

The PCW author and Level I team members certify that the effects of this specific thinning project to ESA-listed fish and critical habitat is equal to or less than was analyzed in the BA, and is still NLAA. Certification will occur at the Level 1 Team meeting.

The PCW must be completed, and certified by the Level I team prior to project implementation. Completion of a certified PCW will serve as documentation that the proposed action is consistent with the effects analyzed in the tiered consultation, and will not require any additional regulatory agency review. Individual letters of concurrence will not be issued for certified projects.

Projects that fail the certification process must either be modified to the extent that they can pass the certification process, or they can be processed as an individual action consultation under the existing analytical process and streamlining consultation agreement.

Step 4. Disposition of certified PCWs

Certified PCWs will be retained by the administrative unit in the project file and copies provided to the Services for inclusion in their respective tiered consultation administrative files.

Step 5. Action Agency Monitoring and Reporting

Field monitoring of thinning treatments implemented with this consultation may occur during existing regional and/or District/Forest monitoring programs. The Level 1 Team may also monitor individual actions as they are implemented. Future iterations of this BA, if developed,

will include provisions for implementation and effectiveness monitoring of the PDCs and actions completed during the life of this consultation.

Monitoring and Reporting: The action agencies will provide an updated report of the actual number of acres anticipated for harvest. The report will track changes in the number of acres of harvest that is expected to occur under by the BA (for example, see Table 5). The reporting will occur after the end of FY2009.

The Level 1 Team will track any requests to include additional acres of harvest over the life of this BA.

Table 5. Actual vs. estimated acres of harvest that the action agencies anticipate will be sold under the programmatic consultation (example, not real data)

HUC #	5 th Field Watershed	Action Agency Unit	Estimated Acres of Harvest in BA	Anticipated Acres of Harvest
1709001106	Lower Clackamas	Mt. Hood NF	1000	942
1709001106	Lower Clackamas	Salem BLM	375	359
1709000402	Horse Cr.	Willamette NF	200	279
1709000406	Mohawk River	Eugene BLM	350	345

The Willamette Level 1 Team will track which PDCs have requests for variance, how often the requests for variance of specific PDCs occurred and look at why the variances were requested. This information will be used to determine if the PDCs are implementable and useful in the development of thinning sales and point the direction to adaptive changes that need to be considered for particular PDCs. The monitoring will occur annually, and summary reporting will occur after the end of FY2009.

Appendix A. Project Consistency Worksheet, Part A

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Project Consistency Worksheet

NLAA Thinning Sale Programmatic Consultation

The programmatic timber sale consultation process requires the completion of three parts:

- A) Completion of a project description and including maps,
- B) Completion of project consistency with PDC forms, and
- C) Certification by the preparer and each Level I team member.

Part A - Project Description and Maps

Date:

Project Title:

NEPA Reference #:

Administrative Unit:

HUC 5 Watershed(s) (name and number):

Planned Project Implementation Date:

ESA Species, Critical Habitat and Effect Determination:

ESA Species or Critical Habitat	Effect Determination (NE, NLAA)

EFH Effect Determination:

EFH	Effect Determination (NE, NAA)
Chinook salmon	
Coho salmon	

Maps:

Maps should include at a minimum unit boundaries, new road construction/reconstruction, stream crossing culvert installation/replacement, road decommissioning, contours, perennial and intermittent streams, listed fish distribution by species, critical habitat by species and haul routes

Table 4. Aggregate and Native-Surface Haul Route Information

Haul Route by road #	Season of Use ¹	Miles of Haul	Road Surface (A,N)	# of Loads	Number of Crossings Over:					Nearest Distance (ft) from Crossing To LFH by Type:	Road Length Within 100' of LFH/CH ²
					LFH		Other Peren	Inter.	Peren.		
					Bridges	Culverts					

Notes:

1 Season of use: dry season only, year-round

2 Road length within 100' of LFH is a measure of "draw bottom" roads used by haul route, does not include distance at crossings, which is already accounted for in the previous columns.

Table 5. Stream Culvert Installation or Replacement

Road Number	New Culvert Diameter	Streamflow ¹	Height of Fill to be Removed	Distance to LFH/CH
	Inches			

Notes:

Don't list ditch relief culverts here. List each stream crossing culvert separately

1 = Streamflow: perennial or intermittent

Table 6. New Road Construction/ Reconstruction and Road Decommissioning

Surface-Type	Miles of New Road Construction			Miles of Road Reconstruction	Miles of Pre-existing Roads Decommissioned
	Permanent ¹	Semi-permanent ²	Temporary ³		
Natural					
Aggregate					
Paved					
Total Miles					

¹ Permanent – road will remain available for use after the sale ends² Semi-permanent – road will be decommissioned at the end of the sale³ Temporary – road will be built and decommissioned within the same dry season

Construction – builds new road, reconstruction – improves existing unusable road to new road standards

Table 7. Road Maintenance/Renovation

Road number	Surface Type	Miles	Number of Stream Crossings (perennial and intermittent)	Distance to LFH/CH from Nearest Crossing

Maintenance/Renovation/Reconstruction – includes blading, brushing, spot rocking, ditch cleaning

Appendix B. Project Consistency Worksheet, Part B, PDC checklist

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Part B – Project Consistency with Programmatic Design Criteria

In order for a project to be considered consistent with the effect determination reached under the programmatic consultation for low impact timber sales, it must be designed and implemented with specific project design criteria. Projects designed with exceptions to these criteria must independently describe how the effects associated with the planned exceptions still fall within the expected range of effects as described in the programmatic biological assessment. This form allows for the documentation that design criteria will be implemented, and provides for a process for identifying the exceptions and conducting the additional analysis to rationalize the conclusion that the effects are similar to those described in the programmatic biological assessment. Projects can not be covered by the programmatic consultation if they do not meet the criteria or if the exceptions are not properly analyzed.

Date:

Project Name:

Admin Unit:

Programmatic Consultation For NLAA Thinning Sales, NW Oregon

This programmatic consultation will include low risk timber sales to be implemented on Forest Service and BLM lands in the Willamette River Basin, Sandy River Basin and Deschutes River Basin, on lands managed by the Mt. Hood and Willamette National Forests, and the Salem and Eugene BLM Districts.

A. General Criteria

The following general criteria must be met in order for a project to be eligible for coverage under this programmatic consultation:

A1. Projects must be consistent with the Standards and Guidelines found in the NW Forest Plan, and the appropriate action agency Best Management Practices for the protection of water quality.

Was PDC A1 met?

A2. Timber harvest must only be planned in previously managed stands (e.g. previously harvested timber, stands planted after a fire, stands pre-commercially thinned). Stands that were planted after a fire or pre-commercially thinned are considered managed. This programmatic consultation does not cover regeneration harvest or fire salvage harvest.

Was PDC A2 met?

A3. Stands to be harvested must be less than 80 years old.

Was PDC A3 met? or varied?

A4. Timber harvest within riparian reserves must retain all legacy trees (trees left from previous harvest that are typically larger than the remaining trees in the stand), and be designed as "thin from below" to retain the dominant and/or co-dominant trees. Patch cuts (typically associated with a density management prescription), are allowed in riparian reserves, only if each resulting opening is one acre or less in size.

Was PDC A4 met?

A5. Portions of these projects that occur within the NW Forest Plan Riparian Reserves must be implemented only if this work maintains or improves habitat for aquatic and riparian-dependent species.

Was PDC A5 met?

A6. Streams within the project area must be protected with buffers as shown in Table 1. Within these buffers, tree felling or yarding is prohibited (with the exception of felling and yarding through skyline corridors, see specific PDC under Yarding). Stream buffers are measured from the edge of active channel (stream banks) on both sides of the stream. The minimum buffers must be expanded to include the following features, if applicable:

- a. Slope break = the point of topographic change below which management will result in active erosion or introduction of material into the stream channel or floodplain area.
- b. Floodprone area = area accessed by the stream during medium to large peak flow events, typically defined as 2 times the bankfull depth.
- c. High water table area = wetlands, seasonally saturated soils, standing water, seeps, bogs, etc.

Table 1. Minimum Stream Protection Buffer Widths by Stream Type and Proximity to Listed Fish Habitat (LFH¹⁴).

Adjacent to LFH habitat	Within 1 mile of LFH	Greater than 1 mile upstream from LFH	
	Perennial and Intermittent Streams	Perennial Streams	Intermittent Streams
Maintain a minimum 100' wide buffer	Maintain a minimum 50' wide buffer	Maintain a minimum 50' wide buffer	Maintain a minimum 30' wide buffer

Was PDC A6 met? or varied? (variance only allowed on buffers greater than 1 mile upstream from LFH).

A7. Due to a risk of water contamination, fuel and other petroleum products must be stored, and refueling must occur at least 150 feet from any stream or other sensitive waterbodies.

Was PDC A7 met? or varied?

A8. Unstable slopes (areas adjacent to streams with indicators of active erosion such as ravel on the surface or jack-strawed trees), or sensitive stream reaches (such as streams where the dominant channel substrate is sand), or channels with high residual impacts (i.e. bank erosion, downcutting, heavy fine sediment load) must be protected with a buffer of at least 100 feet wide from the edge of the edge of the unstable or sensitive area.

Was PDC A8 met? or varied?

A9. Limit ground disturbing activities, such as mechanized falling, ground-based yarding, road construction/reconstruction/renovation, road decommissioning and landing construction, to the dry season (generally between May 15 and October 15) when the soil is more resistant to compaction and soil moisture is low.

Was PDC A9 met? or varied?

A10. Changes in peak or base stream flows due to the implementation of this action must be insignificant or discountable (i.e. not measurable), based on hydrologic analysis.

Was PDC A10 met?

B. Tree Felling:

B1. Trees must not be felled within the primary shade zone¹⁵ associated with any perennial stream (with the exception of trees within skyline yarding corridors; see below).

Was PDC B1 met?

B2. Thinning within the secondary shade zone on perennial streams may occur, however, at least 50% canopy closure must remain in this treated zone.

Was PDC B2 met? or varied?

¹⁴ LFH = Listed Fish Habitat, defined as any stream reach potentially occupied by a ESA protected fish species, any stream reach designated as Critical Habitat, or any stream reach designated as Essential Fish Habitat.

¹⁵ The primary shade zone is defined in the Northwest Forest Plan Temperature TMDL Implementation Strategies, USDA Forest Service and Bureau of Land Management, 2005.

B3. Overlaying the above thinning criteria are these additional criteria as shown in Table 2.

Table 2. Thinning restrictions for streams near and upstream from LFH.

Stands of trees adjacent to LFH habitat, or adjacent to tributary streams within one stream mile of LFH habitat	Stands of trees adjacent to stream reaches that are greater than one mile upstream from LFH
Maintain a conifer RD ¹⁶ value of at least 30 in the stand area located between the protection buffer (Table 1) and one site potential tree height from the stream.	Maintain a conifer RD value of at least 30 within 100' from the stream.

Was PDC B3 met?

B4. Harvested trees that will be yarded must be felled away or parallel to the stream buffer. Trees that are inadvertently felled into the stream buffer, or trees felled to create yarding corridors within the stream buffer, must be left on site.

Was PDC B4 met?

B5. Felling must not create openings greater than one acre in size.

Was PDC B5 met? or varied?

B6. The distance separating a patch cut unit from LFH must be greater than the height of a site potential tree. The distance separating a patch cut unit from all other streams must be at least 100 feet.

Was PDC B6 met?

C. Yarding

C1. Skyline or ground based yarding must not occur within the buffers associated with LFH. Skyline yarding over streams with LFH is acceptable if the logs can be fully suspended above the existing stream buffer tree canopy.

Was PDC C1 met?

C2. Require full suspension when yarding logs over non-LFH stream channels and within their protection buffers (Table 1). Require full or one-end suspension when yarding in the remaining (outer) portion of the riparian reserve. Require full or one-end suspension with lateral skyline yarding, to the extent practicable.

Was PDC C2 met?

C3. Limit the establishment of skyline yarding corridors over perennial streams to no more than five corridors per 1,000 lineal feet of stream. Individual corridor widths must not exceed 15 feet. Corridors will be spaced at least 100 feet apart (along the stream).

Was PDC C3 met?

C4. The use of ground based yarding and felling equipment is prohibited:

- a) on slopes exceeding 35%, and
- b) within the stream protection buffers (Table 1).

Was PDC C4 met? or varied? **No ground based yarding or felling equipment allowed**

C5. Prohibit the use of existing landings if they are:

- a) within 200 feet of LFH,
- b) within 200 feet of a non-LFH stream, if the potentially affected stream reach is within 0.5 miles of LFH, or
- c) within 100 feet of any stream channel.

Was PDC C5 met? or varied?

¹⁶ Relative density (RD) is defined as the basal area divided by the square root of the quadratic mean diameter

C6. If an existing landing within 200 feet of a stream is used, erosion control measures must be installed prior to use to prevent soil movement downslope from the landing. The landing must be rehabilitated (compacted soils fractured, seeded) after use.

Was PDC C6 met? or varied?

C7. Existing landings planned for use between Oct 16 and May 14, must be surfaced with aggregate material.

Was PDC C7 met? or varied?

C8. Use existing landings and skid trails to the maximum extent possible. The maximum extent of soil compaction (defined as management-caused crowding of soil particles which causes a decrease in soil porosity, and an increase in soil density) due to skid trails, corridors, and landings associated with activities in the proposed action must not be more than 10% of the harvest unit area (i.e., regardless of the extent of existing soil compaction, not more than 10% of the harvest area may be compacted as a result of activities associated with the proposed action).

Was PDC C8 met? or varied?

C9. Skid trails must not be constructed through areas with a high water table, or be located in areas that will channel water onto unstable headwall areas.

Was PDC C9 met?

C10. All primary skid roads (defined as more than 5 passes by a machine) used for ground-based operations will be designated on the ground to limit extent of soil compaction.

Was PDC C10 met? or varied?

C11. Where practicable, ground-based machines will place logging slash on skid trails to create slash mats for machines to walk on. These mats act as a buffer for soils during logging.

Was PDC C11 met? or varied?

D. New Road and Landing Construction No new road or landing construction, skip to E.

D1. Prohibit the construction of new roads or landings within 500 feet of LFH or within 200 feet of any other stream.

Was PDC D1 met? or varied?

D2. Only allow new construction on or near stable ridgetop locations, or on stable, relatively flat topography. Do not allow sidecast road construction when the hill slope exceeds 30%.

Was PDC D2 met? or varied?

D3. Require an aggregate or paved surface for all new roads or landings that will be used in the wet season (generally Oct 16 to May 14).

Was PDC D3 met?

D4. New road construction must not increase the stream drainage network (i.e. new roads will be outsloped, or the outflow of new ditch relief culverts or other drainage structures will not drain to streams).

Was PDC D4 met?

D5. New cross drains discharge to stable slopes where the outflow will quickly infiltrate the soil and not develop a channel to a stream.

Was PDC D5 met?

D6. There must be no net increase in the length of the permanent road network. Permanent roads are those that will remain as a system road after the project has been completed. The effect of new permanent road construction must be offset by the obliteration or decommissioning of an equivalent or greater length of existing road during the period of project implementation.

Was PDC D6 met? or varied?

D7. When constructing new roads, the width of the compacted surface and ditch line must not be wider than 24 feet, and must be full bench construction.

Was PDC D7 met? or varied?

D8. Implement erosion control measures to prevent offsite movement of disturbed or exposed soil associated with new road and landing construction (including cutbanks, fills, ditches, etc.) on road segments that have the potential to directly or indirectly deliver sediment to any stream channel. Erosion control measures include silt fences, straw bales, matting, mulch, slash, water bars, grass seed [or other products], etc. This work will occur prior to the wet season.

Was PDC D8 met?

E. Road Renovation, Reconstruction, and Maintenance

E1. Limit scheduled soil disturbing timber sale road maintenance activities to the dry season (generally between May 15 and October 15), unless the road segment has no hydrologic connection.

Was PDC E1 met?

E2. Do not implement scheduled road renovation or reconstruction within 200 feet of LFH, unless the road segment has no hydrologic connection.

Was PDC E2 met? or varied?

E3. For road renovation and reconstruction, the width of the compacted surface and ditch line must not be wider than 24 feet. Road work on existing roads that are wider than 24 feet must not result in an increase in the road width.

Was PDC E3 met? or varied?

E4. (Omitted in final review)

Was PDC E4 met? or varied?

E5. Implement erosion control measures to prevent offsite movement of disturbed or exposed soil associated with road renovation and reconstruction (including cutbanks, fills, ditches, etc.) on road segments that have the potential to directly or indirectly deliver sediment to any stream channel. Erosion control measures include silt fences, straw bales, matting, mulch, slash, water bars, grass seed [or other products], etc. This work will occur prior to the wet season.

Was PDC E5 met?

E6. Existing vegetation in **ditchlines that discharge to streams** must not be removed unless an effective sediment trap is installed and maintained until vegetation is reestablished.

Was PDC E6 met?

E7. Do not grade material removed from ditchlines onto the road surface where the road surfaces are hydrologically connected to a stream. Remove and store this material and all other waste materials in a stable site which is not hydrologically connected to any stream.

Was PDC E7 met? or varied?

E8. The installation of cross drain culverts must result in a culvert which drains to a stable hill slope with porous soils, allowing for water infiltration, with a low probability of erosion, and subsequent new channel formation that connects to an existing stream.

Was PDC E8 met?

E9. Woody material removed from stream channels during culvert maintenance must be retained in the stream network. Typically this would entail repositioning wood located upstream from a culvert to a location downstream of the culvert.

Was PDC E9 met? or varied?

E10. Close and waterbar native surfaced roads prior to the wet season (Oct 16 and May 14) and between operating seasons to prevent use and reduce erosion.

Was PDC E10 met? or varied? No natural surface roads

E11. Dust abatement is limited to the application of water only. Do not draft water from LFH. Use a screen on the drafting hose when drafting from other fishbearing streams.

Was PDC E11 met? No dust abatement

E12. Pumping of water for use in road maintenance must allow for the retention of at least 90% of the original stream flow below the pumping site.

Was PDC E12 met? or varied?

E13. New aggregate surfacing must use durable rock (AASHTO T210), and have no more than 15% fines (#200 sieve).

Was PDC E13 met? or varied?

E14. At the termination of the sale, native surfaced roads must have drainage structures (e.g., waterbars) installed, and the road closed to prevent use, if the road is hydrologically connected to any stream.

Was PDC E14 met? or varied? No natural surface roads

Culvert or Bridge Replacement PDCs No culvert or bridge replacement, skip to F

E15. Prohibit the replacement of culverts or bridges if the crossing is located:

- a) on LFH,
- b) on a perennial stream less than one mile upstream from LFH, or
- c) on an intermittent stream less than 0.5 miles upstream from LFH.

Was PDC E15 met? or varied?

E16. All new replacement culverts and bridges at stream crossings must be designed to pass at least a 100-year flood streamflow.

Was PDC E16 met?

E17. Instream work must be completed during the ODFW instream work window.

Was PDC E17 met? or varied?

E18. Continuous stream flow must be maintained downstream from the installation site. Replacements over streams with intermittent flow must only occur when the stream is not flowing.

Was PDC E18 met? or varied?

E19. Require the complete excavation of overburden (road fill material) at each culvert replacement site prior to extracting the existing culvert.

Was PDC E19 met?

E20. Replacements bridges must consist of a single span with the abutments located outside of bankfull width.

Was PDC E20 met? or varied? No bridge replacement

E21. Abutment work areas must be isolated from any flowing water.

Was PDC E21 met? or varied? No bridge replacement

E22. Heavy machinery is prohibited from entering the active channel area of the stream.

Was PDC E22 met? or varied?

E23. Concrete will not be poured if any of the uncured concrete or contaminated wash water might enter a stream channel.

Was PDC E23 met? or varied?

No concrete use planned

F. Rock Quarry Operation

No rock quarry operation planned, skip to G

F1. Quarry operations (including interrelated activities) will not cause sediment and contaminant delivery mechanisms to any stream channel.

Was PDC F1 met?

F2. Quarries located in riparian reserves will only be operated during the dry season (generally May 15 to Oct 15).

Was PDC F2 met? or varied?

F3. For quarries located within one mile of LFH, do not allow any disturbance within 200 feet of any stream channel.

Was PDC F3 met? or varied?

G. Road Decommissioning and Closure

No road decommissioning or closure, skip H

G1. Do not decommission roads that are within 500 feet of LFH.

Was PDC G1 met? or varied?

G2. Remove all culverts, stream crossings, and cross-drains from roads that will be decommissioned (i.e. taken of the road network and will not be used again).

Was PDC G2 met? or varied?

G3. Reduce the fill material over culverts left in place on roads scheduled for closure.

Was PDC G3 met? or varied?

G4. Decommissioned roads must be effectively closed to all vehicle traffic.

Was PDC G4 met? or varied?

G5. Closed roads must have waterbars or other water drainage features installed.

Was PDC G5 met?

G6. Culverts to be removed on perennial streams must be at least one mile upstream from LFH and removals on intermittent streams must be at least 0.5 miles upstream from LFH.

Was PDC G6 met? or varied?

G7. Instream work must be completed during the ODFW instream work window.

Was PDC G7 met? or varied?

G8. On perennial streams, continuous stream flow must be maintained around the culvert removal site.

Was PDC G8 met?

G9. Excavations to remove stream culverts would be matched to the approximate bed elevation and bank-full stream width of the existing streambed. Cuts must match natural bank slopes.

Was PDC G9 met? or varied?

G10. At culvert removal sites, the road must have waterbars or other drainage features constructed to route surface water away from the newly excavated slopes.

Was PDC G10 met?

G11. De-compact the decommissioned road bed on natural and aggregate surfaced roads, and use seed or other materials to establish effective ground cover prior to the wet season.

Was PDC G11 met? or varied?

H. Timber Transport

There are no restrictions on the transport of timber over paved roads.

H1. Avoid haul routes that require travel over unstable road segments, if road use or failure would result in sediment delivery to any stream.

Was PDC H1 met?

H2. Timber transport operations will be stopped immediately if road use is causing rutting of the road surface, ponding of water on the road, failure of any drainage structure, or any other action occurs which increases the sediment delivery to a stream. Actively implement restorative work to reduce or eliminate the erosion. The road surface must be repaired before haul can resume.

Was PDC H2 met?

Dry Season Haul:

H3. Timber transport on aggregate surfaced and natural surfaced roads is allowed during the dry season (generally May 15 to Oct. 15) if the following criteria are met:

- a) The approach and crossing of each LFH stream is paved or has a high quality, well drained, and recently maintained aggregate surface.

Was PDC H3a met?

- b) Approaches and crossings for all other streams: The ditch lines draining to these streams are densely vegetated or have other effective sediment retaining structures in place.

Was PDC H3b met? or varied?

- c) The fill slopes on all haul route stream crossings will be vegetated or otherwise stabilized such that road surface sediments are retained prior to entering the stream channel.

Was PDC H3c met? or varied?

- d) Adequate cross drainage has been installed so that there is less than 200 feet of road draining to any stream/road crossing.

Was PDC H3d met? or varied?

Wet Season Haul: **No wet season haul, skip to I**

H4. Bridges on the haul routes do not discharge runoff directly to stream (i.e., no scuppers).

Was PDC H4 met? or varied?

H5. Timber transport is not allowed on native surfaced roads during the wet season (Oct 16 to May 14).

Was PDC H5 met? or varied?

H6. Timber transport is allowed during the wet season (Oct 16 to May 14) on aggregate surfaced roads if the following criteria are met:

- a) Aggregate surfaced haul routes must not cross LFH, or cross other streams that are within 1,000 feet from LFH. The haul route must not be closer than 500 feet of LFH at any given point.

Was PDC H6a met? or varied?

- b) Haul routes must be inspected weekly, or more frequently if weather conditions warrant. Inspections will focus on road surface condition, drainage maintenance, and sources of soil erosion and sediment delivery to streams.

Was PDC H6b met? or varied?

- c) Do not allow timber haul during periods of daily alternating freezing and thawing periods over a several day period. Haul is allowed on completely frozen or snow covered roads.

Was PDC H6c met? or varied?

- d) Hauling is not allowed when conditions exist (e.g. during intense or prolonged rainfall), that may cause generation of road related runoff to streams.

Was PDC H6d met? or varied?

- e) Spot rocking and/or sediment traps would be employed to reduce potential sediment inputs to streams. Sediment traps would be inspected weekly during the wet season and entrained soil would be removed when the traps have filled to $\frac{3}{4}$ capacity. Dispose of these materials in a stable site which is not hydrologically connected to any stream.

Was PDC H6e met? or varied?

I. Fuels Treatment

No fuels treatments, end

- I1. Fuels treatment of any kind is prohibited within the stream protection buffers (Table 1).

Was PDC I1 met?

- I2. Lop and scatter fuels treatment is allowed outside of the protection buffers.

Was PDC I2 met? or varied?

- I3. Hand piling of fuels intended for burning is prohibited closer than 100 feet from any stream channel.

Was PDC I3 met? or varied?

- I4. Mechanical fuels treatment, or the mechanical construction of fire control line is prohibited closer than 500 feet of LFH or closer than 200 feet from any other stream channel.

Was PDC I4 met? or varied?

No mechanical fuels treatment/fireline construction

- I5. Prohibit the construction of hand-built fire lines where water could be channeled into areas of instability, headwalls or streams. Construct waterbars on fire line to reduce soil erosion.

Was PDC I5 met? or varied?

Appendix C. PDC Variance Factor Analysis (Part C) and Example

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Project Consistency Worksheet

NLAA Thinning Sale Programmatic Consultation

Part C - PDC Variance Factor Analysis

Describe here why the proposed site specific PDC will not have an effect greater than that described in the programmatic using proximity, probability and magnitude as appropriate. Include discussion of other factors (nature, duration, timing, distribution and frequency), if applicable, that may help support define discountable or insignificant effects. **Completion of this form is required for all PDCs that are varied; the analysis must be done for each indicator that is potentially affected by the PDC** (see Appendix F).

Original Element and PDC:

Proposed PDC:

Indicator: Analyze all indicators for which there is a casual mechanism. Identify those indicators which are there is no casual mechanism and explain why.

Indicator:

Proximity:

Probability:

Magnitude:

Project Element and Indicator Summaries:

Conclusion

Project Consistency Worksheet (Example)

NLAA Thinning Sale Programmatic Consultation

Part C - PDC Variance Factor Analysis

Describe here why the proposed site specific PDC will not have an effect greater than that described in the programmatic using proximity, probability and magnitude as appropriate. Include discussion of other factors (nature, duration, timing, distribution and frequency), if applicable, that may help support define discountable or insignificant effects. **Completion of this form is required for all PDCs that are varied; the analysis must be done for each indicator that is potentially affected by the PDC** (see Appendix F).

Original Element and PDC: General Criteria, #A3 – Stands to be harvested must be less than 80 years old.

Proposed PDC: Stands proposed for harvest are currently 80 years old and will be 85 years old when harvest is completed. A diameter limit cut is proposed and harvested trees would be between 12- and 19-inches dbh. No trees greater than 19-inches dbh will be cut.

Indicator: Analyze all indicators for which there is a casual mechanism. Identify those indicators which are there is no casual mechanism and explain why.

The programmatic biological [assessment] identified 15 indicators that could be affected by timber felling and yarding. Of those 15 indicators, the revised PDC has causal mechanisms that may affect: Suspended Sediment/Turbidity and Disturbance History. The site specific PDC has no causal mechanism to affect the remaining 13 indicators.

Suspended Sediment/Turbidity

Proximity: There are three perennial and five intermittent streams adjacent to the subject stands. The stands proposed for thinning (~150 acres) will have no-cut buffers in accordance with PDC #A6. In fact, the no-cut buffer along the perennial streams is more than 200 feet in order to avoid slope breaks. UWR steelhead and Chinook salmon occur more than 1.2 miles downstream, below Cliff Falls.

Probability: The diameter of the harvested trees will be ≤19-inches. Logs of this size are equivalent to those analyzed in the programmatic biological assessment. The stands proposed for harvest are more than 200 feet from any perennial stream and 30 feet from any intermittent stream. Slopes within the proposed harvest area are <70%. Sediment disturbed during felling and yarding potentially conveyed down slope during the wet season is unlikely to be delivered via over-ground flow through the 200-foot no-cut buffer to adjacent perennial streams. A small probability exists that sediment will be delivered to intermittent streams where slopes are steeper and the buffer narrower.

Magnitude: Sediment reaching the intermittent streams is likely to be of limited volume due to the light touch harvest, expected small area of disturbed soil adjacent to intermittent streams, and the 30-foot minimum no-cut buffer. Sediment delivery is likely to occur during the wet season when soils are saturated and intermittent streams are flowing. Under such conditions, most fine sediment entering these intermittent stream channels will be transported downstream. However, the numerous inflows and depositional reaches between the potential source sites and LFH (>1.2 miles) will prevent measurable changes of suspended sediment where UWR steelhead and Chinook salmon occur.

Project Element and Indicator Summaries: The timber felling and yarding element summaries and indicator summary in the programmatic biological [assessment] found that the proposed action would have a discountable or insignificant affect on the Suspended Sediment/Turbidity indicator. The site specific PDC does not alter that conclusion.

Disturbance History (WCI)

In the programmatic biological [assessment], all of the non-watershed condition indicators that were associated with the Disturbance History indicator were found to be of discountable probability or insignificant magnitude. The site specific PDC does not alter that conclusion, since the re-analysis of the only non-watershed condition indicator with a causal mechanism found affects to the indicator remained discountable or insignificant (see analysis above).

Conclusion

The effects of the proposed action, inclusive of the site specific PDC, on the listed species and their critical habitat are consistent with the effects considered in the programmatic opinion.

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Appendix D. Project Certification, Part D

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Part D. Project Certification

Project Title:

Administrative Unit:

Biologist Certification: I have reviewed the above project and have determined that it meets the terms of the TS Programmatic Biological Assessment, and that the appropriate determination of effect for this project is "May Affect, Not Likely to Adversely Affect" the ESA listed fish and/or critical habitat as listed in the project description.

I have also concluded that the effect to any EFH for any species protected by the MSA does not exceed the May Affect threshold.

Fish Biologist (preparer): _____ Date:

Level 1 Team Certification (Sign Below):

Date:

We have reviewed this project information and find that it is consistent with the programmatic timber sale consultation Biological Assessment and Letter of Concurrence
