



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
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Seattle, WA 98115

Refer to NMFS No:
NWR-2013-9719

May 29, 2013

Lisa A. Northrop
U.S. Forest Service
Acting Forest Supervisor
Mount Hood National Forest
16400 Champion Way
Sandy, Oregon 97055-7248

Re: Endangered Species Act Section Concurrence Letter, Conference Letter, and Magnuson-Stevens Essential Fish Habitat Response for the Red Hill Timber Sale, West Fork Hood River (6th field HUC: 170701050701), Mount Hood National Forest, Hood River County, Oregon

Dear Ms. Northrop:

On February 12, 2013, the National Marine Fisheries Service (NMFS) received a biological assessment and your request for a written concurrence that the Red Hill timber sale, proposed by the U.S. Forest Service (USFS) under the National Forest Management Act (16 U.S.C. 1600-1614), is not likely to adversely affect (NLAA) species listed as threatened or endangered under the Endangered Species Act (ESA), or critical habitat designated and proposed under the ESA. This response to your request was prepared by NMFS pursuant section 7(a)(2) of the ESA, implementing regulations at 50 CFR 402, and agency guidance for preparation of letters of concurrence.¹

NMFS also reviewed the proposed action for potential effects on essential fish habitat (EFH) designated under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), including conservation measures and any determination that you made regarding the potential effects of the action. This review was pursuant to section 305(b) of the MSA, implementing regulations at 50 CFR 600.920, and agency guidance for use of the ESA consultation process to complete EFH consultation.² In this case, NMFS concluded that the action would not adversely affect EFH. Thus, consultation under the MSA is not required for this action.

This letter is in compliance with section 515 of the Treasury and General Government Appropriations Act of 2001 (Data Quality Act) (44 U.S.C. 3504 (d) (1) and 3516), and underwent pre-dissemination review using standards for utility, integrity and objectivity.

¹ Memorandum from D. Robert Lohn, Regional Administrator, to ESA consultation biologists (guidance on informal consultation and preparation of letters of concurrence) (January 30, 2006).

² Memorandum from William T. Hogarth, Acting Administrator for Fisheries, to Regional Administrators (national finding for use of Endangered Species Act section 7 consultation process to complete essential fish habitat consultations) (February 28, 2001).



Consultation History

On February 12, 2013, NMFS received a request for ESA section 7 consultation from the USFS for the Red Hill timber sale, as proposed under the Organic Administration Act (16 USC 477) and section 14 of the National Forest Management Act (16 USC 1600-1614). Accompanying the request was a biological assessment (BA). NMFS staff reviewed a preliminary draft of the BA under an interagency agreement. A site visit was conducted on May 23, 2012, by NMFS and USFS staff.

The USFS' determination for the project is that it is NLAA Lower Columbia River (LCR) Chinook salmon (*Oncorhynchus tshawytscha*), LCR coho salmon (*O. kisutch*), LCR steelhead (*O. mykiss*), and their designated and proposed (LCR coho salmon) critical habitat.

A complete record of this consultation is on file at the Oregon State Habitat Office in Portland, Oregon.

Description of the Proposed Action

The USFS proposes to implement the Red Hill timber sale, using pre-commercial thinning and commercial thinning techniques, on approximately 1,500 acres in the Mount Hood National Forest in the Upper West Fork Hood River watershed (Figure 1). Thinning would occur in various land allocations as described in the Northwest Forest Plan (NWFP), including matrix and riparian reserves.³ The project area includes 12,000 acres. The USFS describes the project area as a mix of healthy and unhealthy mature stands of trees that are in high density. The USFS states that the poor forest health is due to insects and disease. The USFS states that the goal of the project is to improve overall forest conditions within the watershed and to reduce the risk of sediment delivery to streams via road related treatments.

The proposed action includes five project elements which are summarized below and described in detail in the BA:

1. Timber felling
2. Timber yarding
3. Timber and rock hauling
4. Road and landing work
5. Fuels treatment

³ The greater of: two site-potential trees or 300 feet slope distance for fish-bearing streams, one site-potential tree or 150 feet for perennial non fish-bearing streams, and one site-potential tree or 100 feet for seasonal or intermittent streams.

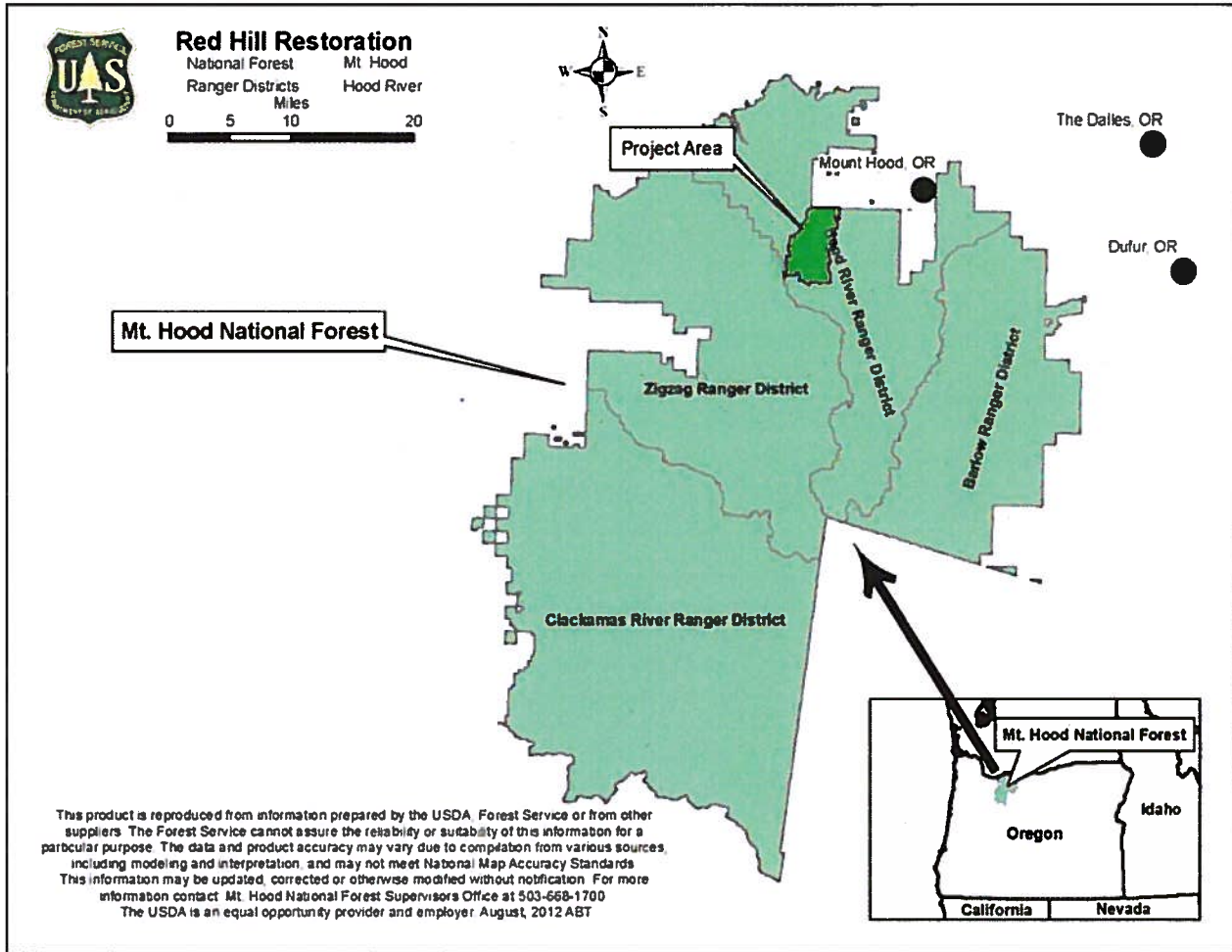


Figure 1. Vicinity map for the Red Hill timber sale in the Mount Hood National Forest in the Upper West Fork Hood River watershed.

Timber Felling

The USFS proposes to commercially thin 1,536 acres within matrix land allocations and 216 acres within riparian reserves (Table 1) and pre-commercially thin 76 acres. The majority of thinning will occur in managed stands up to 75 years of age. However, there is one unit (Unit 44) that consists of 100 year old trees, totaling 116 acres. The site potential tree height (SPTH) in this area ranges from 95-130 feet. There are units adjacent to listed fish habitat⁴ (LFH) and upstream of LFH (Table 1). Ten units (4, 8, 13, 19, 30, 35, 43, 59, 61, and 62) will not have any activities within the riparian reserves.

For units where activities will occur within riparian reserves, there will be no-cut buffers. There are four units adjacent to LFH and the following no-cut buffers will be maintained:

⁴ Listed fish habitat (LFH) is defined as any stream reach potentially occupied by a ESA-listed fish species or any stream reach designated as critical habitat

- Unit 1: 260-foot no-cut buffer on the West Fork Hood River
- Unit 6: 200-foot no-cut buffer on Red Hill Creek
- Unit 44: 150-foot no-cut buffer on the West Fork Hood River
- Unit 50: 250-foot no-cut buffer on the West Fork Hood River

The remaining 20 units are located upstream of LFH, ranging from 1,000 feet to over 10,000 feet upstream of LFH. For these units, all perennial streams will maintain a 60-foot no-cut buffer. All intermittent streams will maintain a 30-foot no-cut buffer.

The thinning prescriptions within riparian reserves will have a relative density (RD) between 27 and 49. The canopy cover will range from 40-90%, with most units at 50% (Table 1). Table 2 in the BA gives detailed stand and prescriptions information for each unit. Within the harvest areas, tree densities are 198-751 trees per acre and will be thinned to 82-480 trees per acre (Table 2). Table 2 in the BA gives detailed stand and prescription information for each unit. Table 5 in the BA shows detailed unit information. Six different harvest prescriptions are included in the proposed action and are described below.

Table 1. General information regarding the proposed thinning units.

Acres Treated	RR Acres Treated	Mean Tree Height (feet)	Quadratic Mean Tree Diameter (inches)	Distance to LFH (feet)
1,536	160	30-104	3-17	0-11,440

Table 2. General pre- and post-harvest stand data.

Canopy Cover		Trees Per Acre		Relative Density	
Pre	Post	Pre	Post	Pre	Post
60-90	40-90%	198-751	82-480	46-107	27-72

Plantation (commercial) Thin – 1209 Acres. Plantation thinning treatments will be a variable density thinning from below in even-aged managed units designed to address high density issues that are leading to forest health concerns. Trees per acre after treatment will range from 65 to 480, depending on the unit. Within six plantation thinning units (1, 17, 18, 19, 35, and 58) there are areas of heavy thinning where 25 to 50 trees per acre will remain. Heavy thinning will total 23 acres; most of the heavy thin areas will be 2-4 acres in size although in unit 18 the area will approach 10 acres. No heavy thinning will occur in riparian reserves.

Forest Health Improvement – 239 Acres. Thinning for forest health improvement (units 43, 44, and 50) will be done within densely stocked stands that were selectively harvested or had fuels reduction treatments within the past 80 years. The variable density thinning from below treatments are also designed to encourage regeneration to maintain species and structural diversity. Heavy thinning, as described above, will occur in units 43 and 44 totaling 9 acres.

Sapling (pre-commercial) Thinning – 76 Acres. Sapling thinning will occur, using both hand and mechanical treatment methods, leaving approximately 100 to 200 trees per acre in wet forest type to promote and develop more disease and fire resilient stand conditions.

Logging System Access – 12 Acres. Logging system access only applies to unit 59, which is adjacent to unit 8 on the south and east. The only tree falling activity in this unit is to extend skyline corridors from unit 8 up to Forest Service Road (FSR) 1600 so that diagonal (or cross slope) corridors are not required. No more than 10 percent of the unit will have trees removed for skyline corridors. No other activities will occur in this unit.

Gaps – 165 Acres. Gaps will be placed in plantation thin and forest health units. Locations will be focused where openings already exist, such as frost, wind throw, and root rot pockets. Gap areas will be incorporated into average canopy cover calculations for the unit. They will be randomly shaped and will be one to five acres in size and will retain one to six trees per acre. Minor tree species, those native species key to functioning forest habitat that currently number less than five trees per acre (larch, western white pine, and noble fir) will be retained if present.

Gaps are planned within riparian reserves in 16 units totaling 27 acres. Gaps will be located a minimum of 60 feet from perennial streams and 30 feet from intermittent streams. Gaps will not be located within 1 SPTH of a perennial stream unless the stream is spring or glacially influenced or if the gap is located on the north side of the stream. Gaps would not be placed in landslide prone areas. Gaps could be placed along the edge of a unit if that is the good location and all project design criteria (PDCs) are met.

No Harvest – 154 acres. Skips will be created in a variety of sizes. The sizes and total quantity will vary within and between units. Skips will be placed where there are special features such as clumps of minor species, clumps of down logs, key snags or potential snag concentrations; or around areas of concern or protection such as wet areas, rare or uncommon plant or animal species, or archaeological sites. Perennial streams, wetlands, lakes, ponds, and intermittent streams will all have a minimum no-harvest buffer, as described above. Units 1, 6, 44, and 50 are adjacent to listed fish habitat (LFH) but no-harvest buffers in these four units will be 150 feet or greater.

Timber Yarding

Timber yarding systems will include ground (188 acres), skyline (660 acres), and helicopter (403 acres) methods.

All ground-based yarding will take place on slopes averaging less than 30%, when soils are relatively dry, or during the winter months by special permission of the District Ranger when soils are sufficiently frozen to support equipment or under close inspection by a soil scientist (see PDC Soils-2, below). Operations will be suspended before rainfall or precipitation results in offsite movement of sediment into drainage courses.

Ground-based equipment will be required to use existing skid trails. Ground-based equipment used for yarding, processing, or other project activities will not be permitted within 100 feet of streams or wetlands. As such, skid trails will be located outside drainages, seeps, springs and/or concave landforms, which could accumulate and transport overland flow and sediment. Existing skid trails that are outside drainages, seeps and springs that meet the needs of the yarding system will be used wherever possible.

Skyline yarding will occur on terrain with sufficient slope to allow at least one end log suspension at all times. Full suspension will be utilized wherever topography permits and is required over all stream channels. Yarding corridors will be spaced at least 100 feet apart and will not exceed 15 feet in width. No seasonal restrictions will apply to skyline yarding operations. However, skyline yarding systems will operate only when landing conditions are relatively dry. Operations will be suspended if rainfall or precipitation results in pooling of water in landings.

There are two units where yarding corridors will cross a perennial stream: units 29 (Marco Creek) and 31 (Tumbledown Creek). The reach of Marco Creek in this unit is about 2,000 feet long; given PDCs (see below) up to 10 corridors could be established across the creek. If each corridor is 15 feet wide a total of 150 feet of stream could be exposed. The Tumbledown Creek reach is about 1,000 feet long so five corridors, totaling 75 feet, could be established across the creek. Intermittent streams may be crossed in units 3, 9, and 18. Other skyline logging units lie adjacent to streams but would not cross them (units 15 and 58 are examples). In these units yarding corridors will not encroach into the no-harvest buffer.

Areas planned for helicopter yarding include all of the harvested acres at risk of soil disturbance due to ground slope. Helicopter yarding will also be used where access to system roads is limited. Helicopter yarding will provide full suspension of logs.

Helicopter yarding units will use a processor or feller buncher to cut and/or process the trees and pre-bunch the logs. The upper slope limit for processor pre-bunching is 40% and will only occur if soils are dry.

Timber and Rock Hauling

The USFS proposes to haul on approximately 41 miles of roads (Table 3). The haul routes consist of 24 miles of paved road, 16 miles of aggregate-surfaced road, and 5.7 miles of native-surfaced road. Year-round hauling will take place on paved roads. The exception is a 1.8 mile section of paved road that is bracketed by aggregate-surfaced roads. This section of the haul route will occur during the dry season. Dry season hauling will occur on most aggregate-surfaced roads. However, there are 3.3 miles of road that will be used for year-round hauling. FSR 1340 crosses an intermittent stream in two locations that are 0.1-0.5 miles upstream of LFH. Year round- and dry season hauling will occur on native-surfaced roads. Native-surfaced haul routes that have no hydrologic connection to a stream will be used for year-round hauling (see PDC Log Hauling #2, below).

An estimated total of 1,835 log and rock loads would be hauled on roads in the action area . Hauling routes designated for year-round hauling will not be allowed when prolonged conditions exist (*e.g.*, during intense or prolonged rainfall), that may generate road-related runoff to streams. Hauling will be allowed on completely frozen or snow covered roads. However, hauling will not be allowed during periods of daily alternating freezing and thawing periods over a several day period. Spot rocking and sediment traps will be employed to reduce potential sediment inputs to streams. Year-round hauling on any road will be stopped immediately if the timber sale administrator finds sign of road surface deformation leading to sediment delivery to live streams.

Table 3. Hauling route information for the Red Hill timber sale.

Haul Road Number	Miles of Haul	Road Surface Type	Number of Crossings Over:			Crossing Proximity Range to LFH (mi)	Road Length Within 100' of LFH (ft.) ¹	Haul Season	
			LFH/EFH		Other Peren.				Inter.
			Bridge	Culvert					
130000	1.2	P	0	0	0		YR		
1340000	3.0	A	0	0	0	0.1-0.5	D		
1340000	1.8	P	0	0	4	0.4-0.5	D		
1600000	12.5	P	0	1	5	0-2.5	D ² , YR		
1600018	1.3	N	0	0	0		YR		
1600670	0.4	A	0	0	0		YR		
1600720	0.7	N	0	0	0	2.1-2.2	D		
1630000	1.2	A	0	0	0		D		
1631000	0.7	A	0	0	0	0.6-0.9	D		
1631630	0.1	A	0	0	0	1.0	D		
16500003	3.5	A	0	0	0	0.1-2.6	YR/D ⁴		
1800000	8.1	P	2	0	6	0-1.2	YR		
1811000	2.8	A	0	0	0	0.4-1.8	D		
Temp 1	0.6	N	0	0	0		YR		
Temp 2	0.35	N	0	0	0		YR		
Temp 3	0.07	N	0	0	0		YR		
Temp 4	0.14	N	0	0	0		YR		
Temp 5	0.47	N	0	0	0		YR		
Temp 6	0.34	N	0	0	0		YR		
Temp 7	0.2	N	0	0	0		YR		
Temp 8	0.35	N	0	0	0		YR		
Temp 9	0.13	N	0	0	0		YR		
Temp 10	0.49	N	0	0	0		YR		
Temp 11	0.19	N	0	0	0		YR		
Temp 12	0.33	N	0	0	0		YR		

Haul Road Number	Miles of Haul	Road Surface Type	Number of Crossings Over:			Crossing Proximity Range to LFH (mi)	Road Length Within 100' of LFH (ft.) ¹	Haul Season	
			LFH/EFH		Other Peren.				Inter.
			Bridge	Culvert					
Totals	41.0		2	1	15	34	2550		

¹ Although relief culverts may be spaced 200-500 feet apart it is also common practice to place a relief culvert within 100 feet of larger streams. In this case relief culverts are located 100 feet or closer to LFH streams. (Note this differs from our analysis of stream network increase where we used 200-500 feet to calculate stream network increase.)

² Two miles of FSR 1600 located within the Tony Creek 7th field watershed is a potential haul route for government supplied rock. This section of road will only be hauled on during dry periods.

³ One "stream" crossed by this road is in fact an ephemeral draw with no evidence of annual deposition or scour and thus it is not a stream as defined in the NWFP and it is not fish bearing. It is mapped as designated critical habitat for bull trout but the definable stream channel does not begin until about 800 feet below FSR 1650. It is an intermittent stream for about one mile before becoming perennial. 1.4 miles of this road is suitable for year-round hauling, the remaining 2.1 miles is dry season only.

⁴ The entire length of FSR 1650 (to unit 35) is available for dry weather haul but only the northern 1.4 miles are available for wet weather haul. This 1.4 mile section does not cross the mapped bull trout LFH and is located more than 1000 feet from any LFH; it does cross another intermittent stream which is not LFH.

Road and Landing Work

Road work consists of maintenance, reconstruction, construction, and decommissioning. Landing work consists of maintenance and construction.

Road Maintenance and Reconstruction. Approximately 36 miles of road will receive road maintenance and reconstruction. Road maintenance activities include surface blading, danger tree felling, roadside brushing, spot rock surfacing, and cleaning ditches and culverts. Road work will generally occur June 1-October 31, but is not limited to this timeframe, depending on weather and soil conditions. Road maintenance and reconstruction will not occur when soils are saturated and during or immediately following heavy precipitation events to minimize erosion and sedimentation.

Road maintenance will also include water application. Water will not be drafted from occupied LFH (West Fork Hood River, McGee Creek, and Red Hill Creek at and below the FSR 1800 road crossing). Drafting will occur in non-LFH streams. Water withdrawal will be isolated in space and time in that multiple drafting operations will not occur simultaneously in the action area. Water withdrawal will not reduce flow by more than 50 percent from non-LFH streams or reduce flow by more than 10 percent in LFH streams. Pumps will have fish screens and be operated in accordance with NMFS fish screen criteria.

Road reconstruction includes any work that creates or improves an existing system road where such work is not covered by standard maintenance activities. Road reconstruction also includes repairing soft and unstable areas by removing unsuitable material and filling with structural quality backfill, base aggregate, or surface aggregate. Road reconstruction also includes scarifying subgrade, shaping the roadway and compacting the surface.

Road and Landing Construction. The USFS proposes to construct 3.66 miles of temporary roads. Of these, 1.1 miles will be new construction. The remaining 2.6 miles are previous, decommissioned, or existing roads. The decommissioned roads were rated as “low to moderate” for an aquatic risk rating. The roads will not cross any streams and will not be hydrologically connected to streams. The majority of the roads will be located outside of riparian reserves. However, there are two areas where the roads will be located within the riparian reserves (temporary road 7 in unit 31: the old FSR 1670 and a new temporary road in unit 12). In both units, the roads will be located at least 100 feet from the streams. The stream in unit 12 is 5,170 feet upstream of LFH. The stream in unit 31 is 4,850 feet upstream of LFH.

One culvert will be replaced on an intermittent stream. This culvert is approximately 2,800 feet upstream of LFH. The culvert will be sized to accommodate the 100 year flow event. Culvert replacement will occur during the Oregon Department of Fish and Wildlife (ODFW) guidelines for timing of in-water work (July 15-August 15) and when the stream bed is dry.

The USFS proposes to construct 83 landing, totaling 30 acres. Existing landings will be used whenever possible. Landings will be approximately ¼ acre in size. Many landing locations occur on the existing road system and will require minor maintenance and rebuilding to become functional. All new landing construction will occur outside of riparian reserves. Landings will

not be closer than 300 feet slope distance to LFH and will not be hydrologically connected to streams. If a landing is needed more than one season, suitable erosion control measures will be implemented to minimize accumulation of runoff and transport of sediment. Any landing with potential to impact aquatic resources upon completion of logging, as determined by a fisheries, hydrology, or soils specialist, will be rehabilitated after use by scarifying or ripping the landing and, if required, seeding and mulching.

Road Decommissioning. Temporary roads will be decommissioned after thinning and fuels treatment is completed. In addition, 12 miles of roads will be decommissioned over several years as funding becomes available through retained receipts. An additional 8 miles of roads will be closed and 7 miles of roads will be storm proofed and closed. Road closure will consist of installing an entrance berm or gate. Storm proofing will consist of installing water bars or other structures to provide drainage. Passive decommissioning will consist of an entrance berm or gate and decompaction of 1/8 mile of the road past the entrance. Active decommissioning will include culvert removal, reestablishing drainage patterns, installing water bars, removing gravel surfacing, decompacting road surfaces, pulling back unstable fill slopes, scattering slash on the roadbed, applying erosion control mulch and seed on disturbed areas, and disguising the road entrance. Road decommissioning activities will be restricted to the dry season (June 1 to October 31) unless unusually dry conditions permit activities outside this window.

Nine culverts will be removed as part of road decommissioning. The culverts are 2,750 feet-3.3 miles upstream of LFH. Culvert removal will occur during the ODFW guidelines for timing of in-water work (July 15-August 15).

Fuels Treatment

Fuels treatment will consist of machine piling of woody material and pile burning. Piles will be located on skid trails and landing. Piles will not be placed within 100 feet of streams. Pile burning will occur during high moisture conditions in the fall and winter.

Project Design Criteria

The following PDCs and best management practices are proposed:

Timber Felling

Vegetation Management

1. Patch opening size (gaps) needs to be sufficient to provide for conditions suitable for early seral species establishment and growth (normally at least 1-acre in size). Openings shall be irregular shaped with scattered retention trees in openings larger than 3 acres. Openings in this project vary from 1 to 5-acres in size.
2. Skip and gap sizes and distribution shall be determined based on individual stand conditions.

3. No gap will be located within 130 feet of any perennial stream unless the stream is spring or glacially influenced and/or the gap is located on the north side of the stream. Given the above, gaps associated with units 6, 9, and 18 will be located at least 130 feet from surface water.
4. No gaps will be located in Riparian Reserves in units 29 and 31 (due to presence of skyline yarding corridors across streams in those units).

Aquatic Resources

1. No tree felling would occur within no-harvest buffers as shown in Table 3 except associated with skyline yarding corridor creation in Units 3, 9, 18, 29, and 31. Trees felled to create skyline yarding corridors within the protection buffer must be left where they fall. Trees can be felled towards streams but any tree, or portion thereof, that could land in the bankfull stream channel must be felled during the ODFW in-water work window (July 15 to August 15). Buffers are measured from the edge of the bankfull channel on both sides of the stream. Minimum buffers should be expanded to include slope breaks where appropriate.
2. If a tree located outside a no-harvest buffer lands wholly or partially within the no-harvest buffer when felled, none of the tree located within the buffer will be removed.

Timber Yarding

Aquatic Resources

1. No ground based mechanized equipment, including but not limited to tractors or skidders, may operate within 100-feet of streams, seeps, springs or wetlands while conducting logging operations.
2. Heavy equipment, such as skidders, dozers, and feller-bunchers, operation will not be allowed outside the normal operating season (generally from June 1-October 31) in Riparian Reserves.
3. Skyline yarding may occur over streams outside of LFH, but trees must be fully suspended within the no-harvest buffers and must have at least one end suspension within the remaining Riparian Reserve.
4. Skyline yarding corridors over perennial stream will be limited to 5 corridors per 1,000 lineal feet of stream. Corridors must not exceed 15-feet in width. Corridors must be spaced at least 100-feet apart.

Soils

1. Ground-based harvest systems shall not be used on slopes greater than 30 percent to avoid detrimental soil and/or watershed impacts. Processors only are allowed to operate on slopes up to 40 percent in conjunction with non-ground based yarding systems.
2. If a proposal to implement winter logging is presented, the following shall be considered by the District Ranger if the ground is not frozen hard enough and/or insufficient snow depth to support the weight and movement of machinery in moist to wet soil conditions:
 - a. The proposal shall be considered on a unit-by-unit basis using soil types in the area since some soils may be more prone to detrimental damage than others.
 - b. Because the margin between not detrimental and detrimental soil damage can be slim under moist to wet soil conditions, monitoring of the logging activity may need to occur daily, or more, as agreed to by sale administration and soil scientist.
 - c. Equipment normally expected to traverse the forest, such as feller bunchers, track mounted shears, etc., shall be restricted to skid trails once soil moistures are such that even one or two trips off the skid trails are causing detrimental soil damage (i.e. not on landings or skid trails).
 - d. Due to higher pounds per square inch (PSI) than track mounted equipment, no skidders with rubber tires shall be used, even on skid trails, once soils become fully saturated (approach their liquid limit).

Timber and Rock Hauling

1. Log and rock haul will be restricted to operating within the normal operating season (generally June 1 – October 31) unless a waiver is approved. Purchasers desiring to haul outside of the normal operating season will be required to apply for a written waiver from the Forest Service Representative for the Timber Sale, who will obtain approval from the District Ranger prior to the issuance of any waiver.
2. Log and rock haul outside of normal operating season shall not occur on the following roads or road segments: 1340000, 1600720, 1630000, 1631000, 1631630, 1650000 (south of Unit 61), and 1811000.
3. Log and rock haul on system and temporary roads shall be prohibited when the temperature of the road surface, as measured both at the origin and hauls end at the lowest elevation along the haul route on National Forest system lands, is between 28 F and 38 F and/or there is 1.5 inches of precipitation within any given 24-hour period as measured at the lowest elevation, or at any time when the designated Timber Sale Administrator determines that freeze-thaw conditions along the haul route exist or that the subgrade on the paved and aggregate road

is saturated. To measure precipitation, the purchaser may install a temporary rain gauge on National Forest System land near or adjacent to the lowest elevation along the haul route; otherwise, precipitation would be measured according to a running average of the data measured from the Log Creek RAWS station (LGFO3) and the Parkdale RAWS station (PARO).

4. Log haul, rock haul and timber transportation may be allowed outside the normal operating season on aggregate and native surface roads, if the following criteria are met:
 - a. The native surface road is not hydrologically connected to any stream or wetland.
 - b. Aggregate and native surface haul routes must not cross any streams that are within 1,000 feet stream distance to listed fish habitat (LFH). The haul route must not be closer than 500 feet direct distance from LFH if hydrologically connected to that waterway.
 - c. Haul routes must be inspected weekly, or more frequently if weather conditions warrant. Inspections by the timber sale administrator (or qualified specialist) would focus on road surface condition, drainage maintenance, and sources of erosion and sediment delivery to streams.
 - d. Sediment traps would be installed where there are potential sediment inputs to streams. Sediment traps would be inspected weekly by the timber sale administrator (or qualified specialist) during the wet season and entrained soil would be removed when the traps have filled to 3/4 capacity. Dispose of these materials in a stable site not hydrologically connected to any stream.

Road and Landing Work

Roads

1. Temporary roads and landings located on or intersecting National Forest System roads that are asphalt surface will have 3-inch minus or finer dense graded aggregate placed at the approach to prevent surface damage. The purchaser shall purchase the material from a commercial source and place the material so that the approach flares are wide enough to accommodate the off-tracking of vehicles entering onto or leaving the site.
2. Temporary roads and landings will not obstruct ditch lines. Temporary roads and landings that obstruct ditch lines or drainage ways shall be improved by the purchaser, prior to commencing operations, with French drains, drivable dips or materials that provide effective drainage and prevent erosion.
3. Temporary roads will be obliterated upon completion of use. Temporary roads and landings on temporary roads shall be sub-soiled or scarified as necessary. Culverts shall be removed as appropriate and cross-drain ditches or water bars shall be installed as needed. Disturbed ground shall be seeded and mulched and

available logging slash, logs, or root wads shall be placed across the road or landing surface. Post-harvest motorized access will be prevented by construction of a berm and/or placement of available large boulders.

4. Temporary roads would not cross any stream and would not be hydrologically connected to any stream.
5. Pit run rock may be used when necessary to reduce erosion, puddling, rutting, and compaction on temporary roads and landings. To provide an efficient substrate for vegetative growth and water infiltration, rock will be removed or incorporated into the soil by ripping or scarifying the roadbed following harvest activities.
6. Unsuitable excavation resulting from ditch cleaning and other operations will be disposed of only at Forest Service approved sites. Material disposed of shall be spread evenly over an appropriate area in non-conical shaped piles with a maximum layer thickness of 3 feet. All disposed material (unless it contains no soil) shall be seeded and mulched at the completion of operations.
7. Stockpiles of aggregate intended for use on the project will be staged only at Forest Service approved sites. Materials shall be placed in non-conical shaped piles with a maximum layer thickness of 3-feet. Stockpiles shall be covered with weighted plastic sheeting when inclement weather is expected to protect it from precipitation and to prevent water quality degradation from runoff.
8. Existing vegetation in ditch lines hydrologically connected to streams (as defined in NWFP) must not be removed unless an effective sediment trap is installed and maintained until vegetation is reestablished. Vegetation and slough removal will be immediately mitigated with sediment control features such as check dams constructed of bio-bags, straw bales, or other biodegradable materials.
9. Scheduled soil disturbing road maintenance or reconstruction shall occur during the normal operating season (generally June 1 – October 31), unless a waiver is obtained.

Aquatic Resources

1. Locate new landings outside of Riparian Reserves. Use of existing facilities within Riparian Reserves may be allowed if erosion potential and sedimentation concerns can be sufficiently mitigated as determined by a qualified soil scientist or hydrologist. Existing landings within one site potential tree height (130 feet) of streams or wetlands would not be used unless the slope between the landing and surface water is thirty percent or less and there is an intact vegetated buffer between the landing and surface water.
2. Refuel mechanized equipment at least 150 feet from water bodies or as far as possible from the water body where local site conditions do not allow a 150-foot

setback to prevent direct delivery of contaminants into water. Each fueling area shall have a Forest Service approved spill kit on site. Park mechanized equipment overnight or for longer periods at least 150 feet from water bodies or as far as possible from the water body where local site conditions do not allow a 150-foot setback.

3. Use erosion control measures (e.g., silt fence, sediment traps) where road maintenance or reconstruction may result in delivery of sediment to adjacent surface water.
4. Install suitable storm water and erosion control measures to stabilize disturbed areas and waterways on incomplete projects prior to seasonal shutdown of operations, or when severe storm or cumulative precipitation events that could result in sediment mobilization to streams are expected.
5. The timber sale administrator or qualified specialist will monitor disturbed areas, as needed, to verify that erosion and storm water controls are implemented and functioning as designed and are suitably maintained.
6. Maintain erosion and storm water controls as necessary to ensure proper and effective functioning.
7. No expansion of the F SR 1340 footprint for use as a landing will be allowed on Units 9 or 50.
8. Road maintenance will protect the wet ditch area located at approximately milepost 2.75 of the FSR1340 to protect Columbia dusky snail. Ditch will not be cleaned or dewatered in the area and efforts shall be made to minimize excessive sedimentation to the area.
9. Ensure that any water withdrawal from non-LFH streams for road maintenance or other purposes would not reduce flow at the time of withdrawal by more than 50 percent in streams (visually estimated). Regardless of water withdrawal location, use of screen material with either of the following maximum openings is required: 1.75 mm opening for woven wire or 3/32 inch opening for perforated plate. No water withdrawal is allowed from occupied LFH streams (West Fork Hood River, McGee Creek, Red Hill Creek at and below FSR 1800).

Soils

1. All skid trails will be rehabilitated immediately after harvest activities. Landings and temporary roads will have erosion control measures installed following fuels or reforestation treatments. If those treatments are anticipated to be delayed beyond the current field season, then temporary effective closure of roads will occur to prevent unauthorized use.

Design Criteria/Mitigation Measures for Road Decommissioning and Storm-proofing

1. Ensure that an experienced professional fisheries biologist, hydrologist or technician is involved in the design of road decommissioning and/or culvert removal/replacement projects. The experience shall be commensurate with technical requirements of a project.
2. Follow the appropriate Oregon Department of Fish and Wildlife (ODFW) guidelines for timing of in-water work. Exceptions to the ODFW in-water work windows must be requested by the Forest or its contractors, and subsequently approved by ODFW, NMFS, USACE, and ODSL.
3. Project actions will follow all provisions and requirements (including permits) of the Clean Water Act for maintenance of water quality standards as described by the Oregon Department of Environmental Quality.
4. All mechanized equipment shall be cleaned and leaks repaired prior to entering the project area. Remove external oil and grease, along with dirt, mud and plant parts prior to entering National Forest system lands. Thereafter, inspect equipment daily for leaks or accumulations of grease, and fix any identified problems before entering streams or areas that drain directly to streams or wetlands. This practice does not apply to service vehicles traveling frequently in and out of the project area that will remain on the roadway.
5. Spill Prevention Control and Containment Plan (SPCCP) – The contractor will be required to have a written SPCCP, which describes measures to prevent or reduce impacts from potential spills (fuel, hydraulic fluid, etc.). The SPCCP shall contain a description of the hazardous materials that will be used, including inventory, storage, handling procedures; a description of quick response containment supplies that will be available on the site (e.g., a silt fence, straw bales, and an oil-absorbing, floating boom whenever surface water is present.).
6. All trucks used for refueling shall carry a hazardous material recovery kit, including absorbent pads to be used during refueling if that occurs in the project area. Any contaminated soil, vegetation or debris must be removed from National Forest System Lands and disposed of in accordance with state laws.
7. Refuel mechanized equipment at least 150 feet from water bodies or as far as possible from the water body where local site conditions do not allow a 150-foot setback to prevent direct delivery of contaminants into water. Each fueling area shall have a Forest Service approved spill kit on site. Park mechanized equipment overnight or for longer periods at least 150 feet from water bodies or as far as possible from the water body where local site conditions do not allow a 150-foot setback.

8. Absorbent pads will be required under all stationary equipment and fuel storage containers.
9. Dispose of slide and waste material in stable sites out of the flood prone area. Waste material other than hardened surface material (asphalt, concrete, etc.) may be used to restore natural or near-natural contours.
10. Trees that need to be felled during project implementation shall be directionally felled, where feasible, away from the road prism and into the surrounding forest. Trees will not be bucked and will be left undisturbed to the extent possible.
11. Place sediment barriers prior to construction around sites where significant levels of fine sediment may enter the stream directly or through road ditches. Maintain barriers throughout construction.
12. For road decommissioning projects within riparian areas, re-contour the road prism to mimic natural floodplain contours and gradient to the greatest degree possible.
13. Drainage features used for storm-proofing projects shall be spaced to disconnect road surface runoff from stream channels.
14. Minimize disturbance of existing vegetation in ditches and at stream crossings to the greatest extent possible.
15. Conduct activities during dry-field conditions—low to moderate soil moisture levels.
16. Restore the stream channel and banks to original pre-road (natural) contours as much as possible when culverts are removed from the road prism.
17. The following PDC applies to culvert removal/replacement when water is in the channel:
 - a. Dewater Construction Site – Upstream of the isolated construction area, coffer dams (diversions) constructed with non-erosive materials are typically used to divert stream flow with pumps or a by-pass culvert. Diversions constructed with material mined from the streambed or floodplain are not permitted. Pumps must have fish screens and be operated in accordance with NMFS fish screen criteria. Dissipate flow energy at the bypass outflow to prevent damage to riparian vegetation or stream channel. If diversion allows for downstream fish passage, (i.e., is not screened), place diversion outlet in a location to promote safe reentry of fish into the stream channel, preferably into pool habitat with cover. When necessary, pump seepage water from the dewatered work area to a temporary storage and treatment site or into upland areas and allow water to filter through vegetation prior to reentering the stream channel.

- b. Stream Re-Watering – Upon project completion, slowly re-water the construction site to prevent loss of surface water downstream as the construction site streambed absorbs water and to prevent a sudden increase in stream turbidity. Monitor downstream during re-watering to prevent stranding of aquatic organisms below the construction site

Action Area

For this consultation, the action area is the Upper West Fork Hood River 6th-field watershed (Figure 2).

Description of the Species and Critical Habitat

LCR Chinook and coho salmon, and LCR steelhead occur in the action area. Proposed critical habitat for LCR coho salmon and designated critical habitat for LCR Chinook salmon and LCR steelhead also occurs in the action area.

The listing status, critical habitat, and protective regulations for LCR Chinook and coho salmon, and LCR steelhead are identified in Table 4.

Table 4. Federal Register notices for final rules that list threatened and endangered species, designate critical habitats, or apply protective regulations to listed species considered in this consultation. Listing status: ‘T’ means listed as threatened under the ESA. P means proposed

Species	Listing Status	Critical Habitat	Protective Regulations
Chinook salmon (<i>Oncorhynchus tshawytscha</i>)			
Lower Columbia River	T 6/28/05; 70 FR 37160	9/02/05; 70 FR 52630	6/28/05; 70 FR 37160
Coho salmon (<i>O. kisutch</i>)			
Lower Columbia River	T 6/28/05; 70 FR 37160	P 1/14/13; 78 FR 2726	6/28/05; 70 FR 37160
Steelhead (<i>O. mykiss</i>)			
Lower Columbia River	T 1/05/06; 71 FR 834	9/02/05; 70 FR 52630	6/28/05; 70 FR 37160

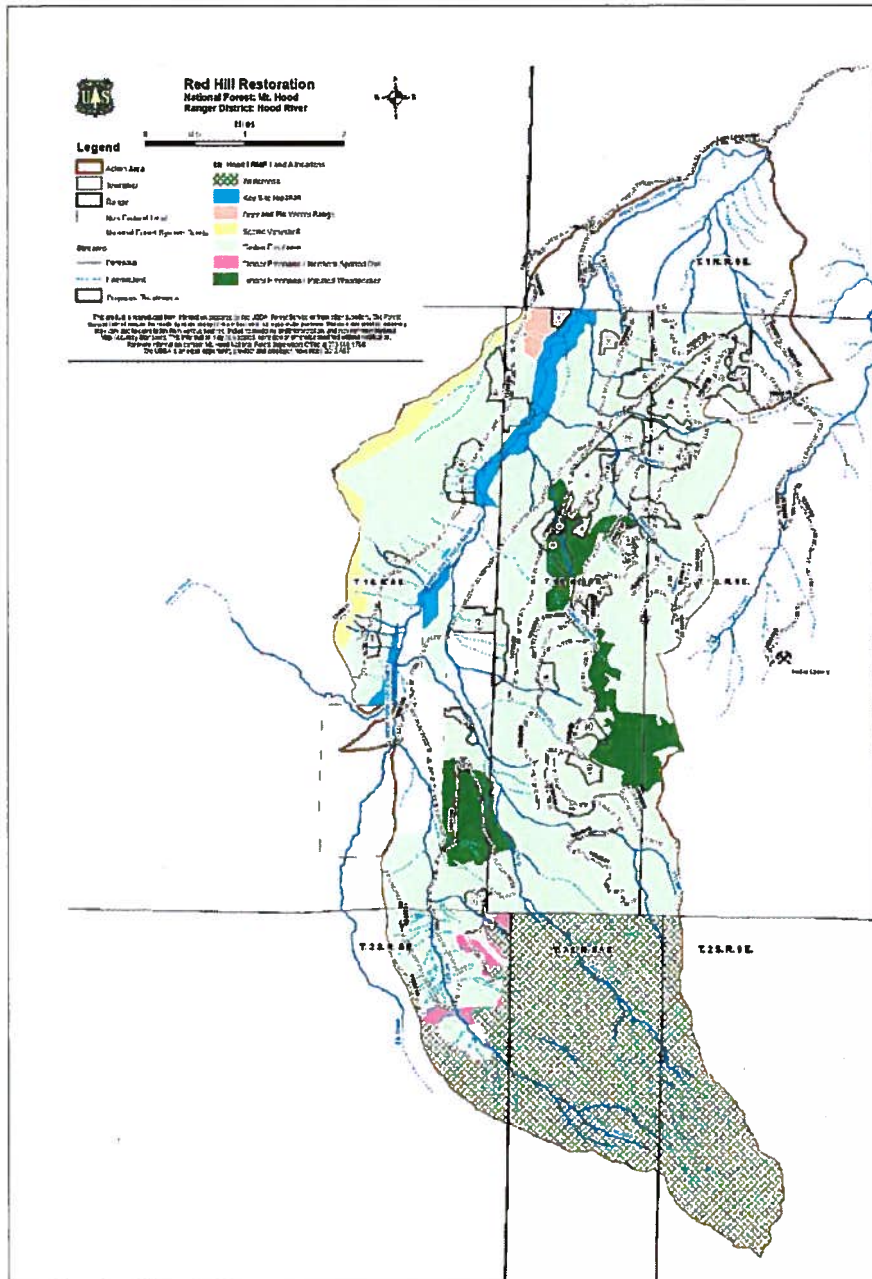


Figure 2. Action area for the proposed Red Hill timber sale.

Effects of the Action

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 (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.⁵ Beneficial effects are contemporaneous positive effects without any adverse effects to the species. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those extremely unlikely to occur.

In 2004, NMFS worked with the U.S. Fish and Wildlife Service (USFWS), the Bureau of Land Management (BLM), and the USFS to revise the process for developing biological assessments for certain land management activities impacting ESA-listed salmonid species in the NWFP geographical area.⁶ This approach was used here, in the USFS's BA, and has also been utilized as appropriate by NMFS in the consultation. In this regard, the constituent activities or elements of the proposed action (*e.g.*, timber harvest, road activities, timber hauling) were analyzed for potential effects on the 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, physical barriers and large woody debris. In addition, where critical habitat has been designated (or proposed), the primary constituent elements (PCEs) were analyzed in the same manner as the habitat indicators.

In applying the revised analytical approach, the agencies consider eight factors, derived largely from the 1998 joint NMFS and USFWS ESA Section 7 Consultation Handbook, when evaluating the effects of an action on habitat indicators and subsequently the effects on ESA-listed fish. 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, then the element has a neutral⁷ effect on this indicator and no further analysis is needed. Likewise, if the outcome of assessment of the probability factor is entirely discountable, 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 element.

The BA for the proposed action details and summarizes the effect of each project element 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 BA, the USFS' analysis of the potential effects of each project element on the relevant habitat indicators led to a conclusion that the expected effects on LCR Chinook and coho salmon, and LCR steelhead, and designated and proposed critical habitat will be neutral, discountable, or insignificant. This conclusion was based on the distance of the project from LCR Chinook and coho salmon, and LCR steelhead occurrence, or their habitat (proximity), the

⁵ U.S. Fish and Wildlife Service and National Marine Fisheries Service. 1998. Endangered Species Act Consultation Handbook: Procedures for Conducting Section 7 Consultations and Conferences. March, 1998. Final. p. 3-12.

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

⁷ Although the revised Analytic Process, and thus the USFS BA, categorizes some effects as neutral, in this Letter of Concurrence we only apply the insignificant and discountable standards set out in agency guidance for section 7 consultations – see footnote 5. The potential for an effect is still analyzed, but the lack of proximity typically means that there is no effect or that the effect is discountable.

likelihood that implementation of any of the project elements would affect LCR Chinook and coho salmon, and LCR steelhead (probability), or the severity and intensity of any affects that might occur (magnitude). Analysis of the proximity, probability and magnitude factors resulted in the USFS' conclusion that the proposed Red Hill timber sale is NLAA LCR Chinook and coho salmon, LCR steelhead, and designated and proposed critical habitat. The other five evaluation factors were therefore not relevant to the effects determination for these proposed actions and were not addressed further in the BA.

The NMFS concludes that all effects of the proposed action are discountable or insignificant, and are therefore NLAA LCR Chinook and coho salmon, LCR steelhead, and their designated and proposed critical habitat. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are extremely unlikely to occur. Based on best judgment, a person would not: be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur. These conclusions were reached for the following reasons:

1. No activity is proposed within any stream channel identified as containing ESA-listed fish or designated (or proposed) as their critical habitat. Direct take of individuals (*e.g.*, capture, collect) will not occur under the proposed action.
2. While some of the habitat indicators could be affected by the proposed project, those effects are expected to be discountable or insignificant, as described below:

Physical barriers. One habitat indicator, physical barriers, will not be affected in LFH by any of the project elements in the proposed action.

Temperature. Timber felling and yarding could affect stream temperature, but the effects would be insignificant in magnitude. While intermittent stream channels may influence water temperatures, their influence is minimal during most months of the year and is expected to be insignificant during the warmest months (*i.e.*, July through September), when extreme temperatures may affect salmon and steelhead. NMFS assumes that perennial streams that continue to flow during the warmest period of the year are at the greatest risk of increased water temperatures.

Removing trees in riparian areas reduces the amount of shade which leads to increases in thermal loading to the stream (Moore and Wondzell 2005). In clearcuts, substantial effects on shade have been observed with no-cut buffers ranging from 20 to 30 m (Brosofske *et al.* 1997, Kiffney *et al.* 2003, Groom *et al.* 2011b), and small effects were observed in studies that examined "no-cut" buffers 46 m wide (Science Team Review 2008, Groom *et al.* 2011a). For no-cut buffer widths of 46-69 m, the effects of tree removal on shade and temperature were either not detected or were minimal (Anderson *et al.* 2007, Science Team Review 2008, Groom *et al.* 2011a, Groom *et al.* 2011b). The limited response observed in these studies can be attributed to the lack of trees that were capable of casting a shadow >46 m during most of the day in the summer (Leinenbach 2011). Although clearcuts were used in these studies, the results demonstrate that vegetation that is 46 m (~150 feet) away from streams contributes shade to streams in some situations. In the

proposed action, each of the units adjacent to LFH within riparian reserves will maintain a no-cut buffer of at least 150 feet, thereby limiting the effects of riparian thinning.

Although stream shade correlates with the width of no-cut buffers, the relationship is quite variable, depending on site-specific factors such as stream size, substrate type, stream discharge, topography (Caissie 2006), channel aspect, and forest structure and species composition. Inputs of cold water from the streambed, seepage areas on the stream bank, and tributaries can help cool the stream on hot summer days if they are sufficiently large relative to the stream discharge (Wondzell 2012). The density of vegetation in riparian areas affects shade and thermal loading to a stream due to the penetration of solar radiation through gaps in the canopy and among the branches and stems (Brazier and Brown 1973, DeWalle 2010). In some instances (such as narrow streams with dense, overhanging streamside vegetation, or stands on the north sides of streams with an east-west orientation), no-cut buffers as narrow as 30 feet adjacent to clearcuts can maintain stream shade (Brazier and Brown 1973). Wilkerson *et al.* (2006) reported that the small size of the temperature changes might be partially explained by inflow of cold groundwater due to predominance of glacial silt subsurface in the study area.

Based on monitoring by the USFS, the LFH streams in the action area do not exceed summer rearing temperatures for salmonids, and it is important to prevent any increases in water temperature to avoid adverse effects on ESA-listed salmonids. The USFS proposes to protect stream temperature by avoiding riparian reserves on some streams and applying no-cut buffers on all other streams. There are four units adjacent to LFH and the no-cut buffers will be 150-250 feet. There are 20 units upstream of LFH, ranging from 1,000 feet to over 10,000 feet upstream of LFH. Of these 20 units, two of the units do not contain perennial streams. Perennial streams upstream of LFH will have a 60-foot no-cut buffer. Intermittent streams upstream of LFH will have a 30-foot no-cut buffer. However, as stated above, these intermittent streams are not likely to influence water temperatures in the summer.

Additionally, the USFS considered the stream direction, channel width, and cold water input when developing prescriptions for the units. There are 18 units upstream of LFH that contain perennial streams. The USFS developed prescriptions that generally only thinned units on the north side of the stream for streams running in an east-west direction. Vegetation on the south bank of these streams is more critical for stream shade than vegetation on the north bank. The remainder of the units will be thinned on both sides of the streams. These streams generally have glacial water input to the streams. Additionally, the units are between 1,080 feet and over 10,000 feet from LFH.

Although there could be a decrease in stream shade and a minor increase in stream temperature for some stream reaches, the cold water inputs and protection of south side vegetation are likely to prevent any increases in stream temperature in LFH. Additionally, the streams will likely equilibrate with the air temperatures prior to reaching LFH, particularly for streams greater than 1 mile upstream of LFH. Further, there are several tributaries with uncut stands that will contribute cold water to ameliorate any increases in stream temperature. Therefore, any increases in stream temperatures in LFH are likely to be immeasurable, and therefore there will be an insignificant effect on stream temperature.

Road and landing work has the potential to increase stream temperature from the removal of vegetation adjacent to streams. Road maintenance will occur on most of the haul routes. Road maintenance will require the removal of small understory vegetation (brushing). Overstory shade canopy will not be removed due to brushing. The removal of understory vegetation from brushing will not cause an increase in stream temperature since no overstory shade canopy will be removed.

Timber hauling will occur on roads adjacent to LFH. However, there is no vegetation that will be removed due to hauling. Thus, timber hauling is not expected to affect stream temperature.

Road maintenance will also include the removal of hazard trees. The USFS estimates that approximately 22 hazard trees will be removed within 1 SPTH of any stream throughout the action area. The 22 hazard trees will not be located in one area and will be spaced throughout the action area. The remaining trees will continue to provide adequate shade and will likely prevent an increase in stream temperature. In addition, the majority of the streams are influenced by glacial water input.

Road maintenance will also include water withdrawal. Water withdrawal will not occur in LFH. The USFS will not reduce flow at the time of withdrawal by more than 10 percent in LFH, or by more than 50 percent in other streams. While discharge to LFH will likely be reduced (<10% change) for short periods of time (<1 hr), the magnitude of flow reductions is not likely to affect the species because the periods of withdrawal will be short and will not affect inflow from tributary streams and hyporheic flow downstream of the point of withdrawal.

Culvert replacements will occur in the existing road bed and no overstory vegetation will be removed. Culvert replacement will not cause an increase in stream temperature since no overstory shade canopy will be removed.

Approximately 2,500 feet of temporary road construction will occur within riparian reserves. However, the new road will be at least 130 feet (1 SPTH) from the streams. The construction of new, temporary roads will not cause a measureable increase in stream temperature since roads will be located at least 130 feet (1SPTH) from the streams. This buffer will provide the majority of shade to the stream.

Landings will be at least 100 feet from streams. Landing construction has the potential to increase stream temperature from the removal of trees within 1 SPTH of streams. The 100-foot buffers for landing construction will provide the majority of the shade to streams. In addition, the majority of the streams are influenced by glacial water input. Any increases in stream temperature are likely to be offset by the cold water inputs.

Although there could be a decrease in stream shade and a minor increase in stream temperature for some stream reaches, the cold water inputs are likely to prevent any increases in stream temperature in LFH.

Fuels treatment has the potential to increase stream temperature from the loss of trees adjacent to streams. Piles will be located on skid trails and landings. Piles will not be placed within 100 feet

of streams. Pile burning will occur during high moisture conditions in the fall and winter when conditions are favorable for controlling the flame and will not likely result in the loss of trees in the no-treatment buffers. Based on this information, fuels treatment is unlikely to elevate stream temperature, so the effect of fuels treatment on stream temperature is discountable.

Suspended Sediment and Substrate Embeddedness. Living tree roots help stabilize soil. Timber felling kills the roots, which increases the probability of slope failure, particularly on steep slopes (i.e., >70% concave, >80% planar or convex slopes). This also increases the potential of sediment delivery to the stream network. The occurrence probability is related to the harvest intensity, soil properties, geology, unit slope, and precipitation level. Depending on the prescription used, thinning would greatly reduce the number of living trees within the treated stands. As the roots of harvested trees die and decompose, their effectiveness in stabilizing soils would decrease. However, the remaining trees are likely to experience rapid growth from decreased competition and, as a result, increase their root mass and ability to stabilize soils in the treated stand. Some timber harvest will occur on some slopes >70%. Harvest units with steep slopes were reviewed by soil and hydrologist specialists, and areas with features associated with slope failures were eliminated from the proposed action.

Timber felling and yarding disturbs soils and increases their potential for transport to area stream channels. Several studies document the ability of buffer strips to reduce erosion and sediment delivery. Rashin *et al.* (2006) looked at 21 harvest sites that had a variety of treatments ranging from no buffers to buffers up to 66 meters (216.5 feet) wide. They found that “Of 157 individual erosion features determined to deliver sediment to streams during either the first or second year following timber harvest, 94 percent were located within 10 meters (33 feet) of the stream. Conversely, 74 percent of the 248 erosion features with no evidence of sediment delivery were greater than 10 m from streams. ...results indicate that when erosion is initiated by ground disturbing activities within 10 meters (slope distance) of a stream, delivery of sediment was more likely than not.” There are four units adjacent to LFH and the no-cut buffers will be 150-250 feet. There are 20 units upstream of LFH, ranging from 1,000 feet to over 10,000 feet upstream of LFH. Perennial stream upstream of LFH will maintain a 60-foot no-cut buffer. Intermittent streams upstream of LFH will maintain a 30-foot no-cut buffer. Among other functions, these buffers will help stabilize streambanks and prevent the transport of soils to streams.

Ground-based yarding can be accomplished with relatively little damage to the existing shrub and herbaceous ground cover, thus limiting the exposure of bare soil and maintaining important root structure that holds soil in place. Skyline or multi-spanning yarding systems reduce soil impacts because the logs are suspended above the ground throughout much or all of the yarding process. 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. Given that soil disturbance will be minimal, the no-cut buffers are likely adequate to prevent nearly all sediment delivery to streams. However, if sediment enters the stream, it is unlikely that it will cause a measureable effect due to the small volume of sediment. Therefore, the effect of timber felling and yarding on suspended sediment and substrate embeddedness will be insignificant.

There is a high probability that the use of hauling roads will introduce some sediment into roadside ditches and, in some cases, into streams. The amount of sediment eroded from road surfaces depends on the amount of traffic, the durability of the surface, the level of maintenance, the condition of the ditches and the amount of precipitation. Timber hauling on native-surfaced and aggregate-surfaced roads will generally occur during the dry season (generally June 1 - October 31). However, hauling will be allowed outside the dry season if a waiver is approved by the District Ranger, who must ensure at a minimum that the following PDCs are met:

- The native surface road is not hydrologically connected to any stream or wetland.
- Aggregate and native surface haul routes must not cross any streams that are within 1,000 feet stream distance to listed fish habitat (LFH). The haul route must not be closer than 500 feet direct distance from LFH if hydrologically connected to that waterway.
- Haul routes must be inspected weekly, or more frequently if weather conditions warrant. Inspections by the timber sale administrator (or qualified specialist) would focus on road surface condition, drainage maintenance, and sources of erosion and sediment delivery to streams.
- Sediment traps would be installed where there are potential sediment inputs to streams. Sediment traps would be inspected weekly by the timber sale administrator (or qualified specialist) during the wet season and entrained soil would be removed when the traps have filled to 3/4 capacity. Disposal of these materials would be in a stable site not hydrologically connected to any stream.

Implementation of the PDCs reduces the risk of runoff from precipitation. Any sediment that leaves the road surfaces due to run-off will disperse over land, into well-vegetated roadside ditches, or be stored within the smaller tributary streams along the hauling route. Therefore, the effect of timber hauling on suspended sediment and substrate embeddedness will be insignificant.

There is a high probability that road maintenance and reconstruction, road and landing reconstruction, and culvert replacement will introduce some sediment into ditch lines and into streams. At greatest risk of contributing sediment to LFH are: (1) Road maintenance on road segments draining to LFH; (2) road and landing construction on road segments draining to LFH; and (3) stream culvert replacements within 500 feet of LFH.

Road maintenance and reconstruction activities include surface blading, danger tree felling, roadside brushing, spot rock surfacing, slide repair, cleaning ditches and culverts, and roadbed reconditioning. Road work will generally occur during the normal operating season, generally June 1 – October 31, but is not limited to this timeframe depending on weather and soil conditions. Road maintenance and reconstruction will not occur when soils are saturated and during or immediately following heavy precipitation events to minimize erosion and sedimentation. Sediment will be generated and delivered to the ditches from road maintenance, though the ditches will deliver any runoff containing sediment to the forest floor, where it will be filtered out by vegetation, duff, and the soil during infiltration. Based on this information, the effect of road maintenance and reconstruction on suspended sediment and substrate embeddedness will be insignificant.

The USFS proposed to either remove or replace 10 culverts. None of the culverts are on LFH. Culverts range from 1,060 feet to over 3 miles upstream of LFH. Culvert replacement will occur during the ODFW Oregon Guidelines for Timing of In-Water Work. Culvert replacement will generate sediment and will likely be mobilized during re-watering of the channel in perennial streams and during the first rain event for intermittent streams. The closest culvert on a perennial stream is 4,200 feet upstream of LFH. Any suspended sediment will likely settle out prior to reaching LFH and will not be detectable. The closest culvert on an intermittent stream is 1,060 feet upstream from LFH. Sediment mobilized on intermittent streams will occur during the first rain event, when background levels of suspended sediment will be higher and will not be measurable in LFH. Based on this information, the effect of culvert replacement will be insignificant.

The USFS proposes to construct 3.66 miles of temporary roads. Of these, 1.1 miles will be new construction. The remaining 2.6 miles are previous, decommissioned, or existing roads. The roads will not cross any streams and will not be hydrologically connected to streams. The majority of the roads will be located outside or riparian reserves. However, there are two areas where the roads will be located within the riparian reserves. These roads will be at least 100 feet from the streams. The USFS proposes to construct 83 landings, totaling 30 acres. Existing landings will be used whenever possible. Landings will be approximately ¼ acre in size. All new landing construction will occur outside of riparian reserves. Landings will not be closer than 300 feet slope distance to LFH and will not be hydrologically connected to streams. Road and landing construction will occur during the dry season, and erosion control measures will be used to prevent offsite movement of disturbed or exposed soil. The degree of soil disturbance and the transport potential of disturbed soils decreases when operations are limited to the dry season. Although road and landing work have the potential to affect this indicator, there will not likely be a measurable effect in LFH. Therefore, the effect of road and landing work on suspended sediment and substrate embeddedness will be insignificant.

Fuels treatment will consist of piling and burning. Piles will be located on skid trails and landings. Piles will not be placed within 100 feet of streams. The set-back of 100 feet from streams will likely be adequate to prevent nearly all sediment delivery to streams. However, if sediment enters the stream, it is unlikely that it will cause a measureable effect due to the small volume of sediment generated from piling and burning. Therefore, the effect of fuels treatment on suspended sediment and substrate embeddedness will be insignificant.

Chemicals and Nutrients. Timber felling, timber yarding, timber hauling, road and landing work, and fuels treatment have the potential to affect the chemicals and nutrients habitat indicator due to the operation of machinery near streams. The proposed action does not include introduction of contaminants or excess nutrients into any stream channel. Furthermore, the PDCs to be implemented by the USFS, including 150-foot setbacks for refueling, reduce the aquatic contamination risk to extremely unlikely. Therefore, the potential for an effect on the chemical contamination indicator where LFH occurs is discountable.

Woody Material. Removal of wood mass within 1 SPTH has the greatest potential of affecting recruitment of woody material (FEMAT 1993). For near-stream riparian inputs, empirical and modeling studies suggest that stream wood input rates decline exponentially with

distance from the stream and varies by stand type and age (McDade *et al.* 1990, Van Sickle and Gregory 1990, Gregory *et al.* 2003). Timber felling and yarding within riparian reserves may have a minor effect on the recruitment of functionally-sized wood to adjacent small stream channels. The USFS proposes to protect in-stream wood recruitment by avoiding riparian reserves on some streams and applying no-cut buffers on all other streams. There are four units adjacent to LFH, where no-cut buffers will be 150-250 feet. There are 20 units upstream of LFH, ranging from 1,000 feet to over 10,000 feet upstream of LFH. Perennial stream upstream of LFH will maintain a 60-foot no-cut buffer. Intermittent streams upstream of LFH will maintain a 30-foot no-cut buffer. The units adjacent to LFH have buffers that are protective of in-stream wood recruitment. Assuming the buffers are fully stocked, the 30-foot no-cut buffers would capture approximately 45 to 50% and the 60-foot no-cut buffers would capture approximately 60-70% of the existing wood recruitment from the adjacent stands (McDade *et al.* 1990, Spies *et al.* 2013). Thinning is likely to preclude suppression mortality of trees in the treated units for decades. Additional wood can be recruited to fish-bearing streams from upslope and upstream areas through landslides and debris flows (McGarry 1994, Reeves *et al.* 1995). In some areas, wood transported in this manner may constitute up to 50% of the wood recruited to downstream reaches (McGarry 1994). The USFS stated that debris flows are not a prevalent process in the action area due to the wide, glacial terraces present. However, there are three units that are likely to experience debris flows. Two of these units are upslope from a road that blocks woody material from moving downstream into LFH. The third unit has the potential to deliver woody material to LFH via debris flows. A geologist also surveyed the units for slope stability and modified unit boundaries to avoid removing trees from unstable slopes. Although site-scale reductions in stream channel wood loads are reasonably likely to result from the proposed action, changes in LFH are not likely to be measurable. This is because the untreated buffers and adjacent stands, as well as stands along unlogged streams in the action area, likely will continue to provide adequate wood loading to affected streams in the near term to prevent measurable adverse effects (*e.g.*, changes in sediment transport, increases in stream velocity) in LFH. Based on this information, timber felling will have an insignificant effect on woody material.

Timber hauling will occur on roads adjacent to LFH. However, there is no vegetation that will be removed due to hauling. Thus, timber hauling is not expected to affect woody material.

Road maintenance will require the removal of small, understory vegetation. Since no overstory vegetation will be removed, there is a discountable probability that road maintenance will negatively affect wood recruitment in streams.

Approximately 2,500 feet of temporary road construction will occur within riparian reserves. However, the new road will be at least 130 feet (1 SPTH) from the streams. The construction of new, temporary roads will not cause a measurable decrease in in-stream wood recruitment since the 130-foot buffer will provide the majority of the wood to the stream. Therefore, there will be an insignificant effect to this indicator from road construction.

Landings will be at least 100 feet from streams. Landing construction has the potential to decrease in-stream wood recruitment from the removal of trees within 1 SPTH of streams. The 100-foot buffers for landing construction will provide the majority of in-stream wood. Additionally, the untreated buffers and adjacent stands, as well as stands along unlogged streams

in the action area, likely will continue to provide adequate wood loading to affected streams in the near term to prevent measurable adverse effects (*e.g.*, changes in sediment transport, increases in stream velocity) in LFH. Based on this information, road and landing construction will have an insignificant effect on woody material.

Fuels treatment has the potential to decrease woody material from the loss of trees adjacent to streams. Piles will be located on skid trails and landings. Piles will not be placed within 100 feet of streams. Pile burning will occur during high moisture conditions in the fall and winter when conditions are favorable for controlling the flame and will not likely result in the loss of trees in the no-treatment buffers. Based on this information, the effect of fuels treatment on woody material is discountable.

Pool Frequency and Quality, Large Pools, Off-Channel Habitat, Refugia, Width to Depth Ratio, Streambank Condition, and 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 habitat features related to these processes (*i.e.*, suspended sediment, substrate character, woody material) will not be measurable, it is likely that effects on these six indicators will also be discountable or insignificant.

Change in Peak/Base Flows. Forest management activities can affect the rate that water is stored or discharged from a watershed. Total water yield typically increases due to reduced evapotranspiration (Harr *et al.* 1975, Harr 1976, Hetherington 1982, Duncan 1986, Keppler and Zeimer 1990, Jones 2000). Timber felling may result in winter flows with higher peak volumes, and potentially result in earlier peak discharge times (Satterlund and Adams 1992, Jones and Grant 1996). Timber yarding and fuels treatment may, to a lesser degree, increase the probability and magnitude of these effects. Hauling may increase compacted soil at landings, and on temporary and permanent roads. The complex process of water routing can be modified by management via harvesting of trees and compaction of soil. Routing is predominantly affected by road and ditch networks (Harr *et al.* 1975, Jones and Grant 1996). New, temporary roads would not be hydrologically connected to the stream network from the installation of cross drains that would drain to relatively flat, vegetated slopes. Reconstructed roads would have some hydrologic connection; however, the roads are already present on the landscape. Installation of additional cross-drains and ditch-relief culverts may ameliorate the hydrologic connectivity. Due to the hydrological disconnection of new roads, and upgrading of cross-drains and ditch-relief culverts on reconstructed roads, there will likely be an insignificant effect to this indicator from the proposed project.

The removal of vegetation and associated changes in evapotranspiration are not likely to result in measurable changes in stream flow. The affected areas are well below the threshold that allows detectable change in rain-dominated areas. The increase in soil compaction is minor due to conservation measures proposed by the USFS (*e.g.*, aerial yarding, limiting ground-based yarding to the dry season). Fuels treatment will not expose large areas of mineral soils or hydrophobic conditions. Proposed road work (*e.g.*, road decommissioning, cross drain installation) is expected to reduce the volume of water discharged from roads to area stream channels.

The USFS has indicated that water required for project activities (*e.g.*, road maintenance) will be acquired from streams within the action area. Withdrawing water from streams may adversely affect fish at the site and downstream. The USFS proposes to withdrawal water on non-LFH streams. Withdrawals associated with road work are likely to occur during summer low-flow periods. While discharge to LFH could be reduced (<10% change), the flow reductions is not likely to affect LFH because inflow from tributary streams and hyporheic flow downstream of the point of withdrawal will compensate for the loss of water at the point of diversion.

Drainage Network Increase. Timber felling, timber yarding, timber hauling, and fuels treatment have no causal mechanism to affect an increase in the drainage network.

Road construction could cause a minor increase in the drainage network. The USFS proposes to construct 3.66 miles of temporary roads. Of these, 1.1 miles will be new construction. The remaining 2.6 miles are previous, decommissioned, or existing roads. The roads will not cross any streams and will not be hydrologically connected to streams. Reconstructed roads will cause a minor increase in the drainage network. This minor increase in the drainage network will be offset to some degree by the installation of new cross drains that would drain to relatively, flat, vegetated slopes. Road decommissioning would restore and improve hydrological function to the drainage network. All decommissioned roads would be hydrologically disconnected from streams. Due to work completed under the road and landing work project element, the proposed action would affect this indicator, but the effect is likely to be insignificant.

Road Density and Location. The USFS proposes to construct approximately 3.66 miles of temporary roads. The temporary roads will be decommissioned after project implementation. The project will generate short-term negative effects by increasing road density with temporary roads. The current road density in the action area is 1.9 mi/ mi² and would temporarily increase the road density by 0.1%. Although there will be a negative effect to this watershed condition indicator in the short term, the effect likely will be of insignificant magnitude, and likely will not result in measurable, negative effects to LFH. In the long term, there will be a positive effect on this watershed condition as roads are decommissioned.

Disturbance History and Disturbance Regime. The proposed action will disturb stands and riparian features, and thereby affect the history and disturbance regime indicators. However, the effects will be insignificant in magnitude. These are watershed condition analysis indicators associated with spawning, rearing, and migration. The effects of the proposed action are insignificant to the disturbance history and disturbance regime indicators because (1) The harvest only treats managed stands; (2) effects of the proposed activities are minimized in part by the no-cut buffers; (3) road reconstruction will occur on previously constructed roads (4) new road construction is temporary with no hydrological connections to the stream network; and (5) all project elements will have discountable, or insignificant effects on all the other habitat and watershed condition indicators. Overall, the effects of the various disturbances from the project elements are insignificant.

Riparian Reserves. The proposed project will cause a short-term effect to this watershed condition indicator. The magnitude of effect can be assessed by referring to the likely effects on related individual habitat indicators (*e.g.*, temperature, wood recruitment). Although effects to

some of the habitat indicators may occur, these effects are likely to be insignificant, and will not result in adverse effects to LFH.

Effects on Listed Species and Critical Habitat

The following discussion applies the analysis of individual habitat indicators to listed species and their critical habitats to determine if there are likely to be adverse effects on those species or habitats, or not.

Individual LCR Chinook and coho salmon, and LCR steelhead will be exposed to the above-described effects of the proposed action. Although negative changes to water temperature, suspended sediment, physical barriers, chemicals/nutrients, woody material, pool frequency and quality, large pools, off-channel habitat, refugia, width to depth ratio, streambank condition, floodplain connectivity, change in peak/base flow, drainage network increase, road density and location, disturbance history and regime, and riparian reserves because of reduced shade, soil disturbing activities, created openings, and decreased wood volume were identified; overall, these effects of the proposed action are reasonably certain to be discountable or insignificant. Because of the use of proposed design criteria including no-cut buffers, restrictions on yarding corridors, required minimal suspension during yarding, road maintenance, road reconstruction, road construction, haul route inspections, and suspension of wet season haul to prevent road surface degradation and generation of sediment (except if waivers are granted under strict criteria), as well as the limited scope of the project, and general site-specific characteristics, it is reasonably certain that any associated effects on listed species will be of such a small magnitude that they could not be meaningfully measured, detected, or evaluated and/or extremely unlikely and therefore discountable. Furthermore, the combined effects from the proposed action on LCR Chinook and coho salmon, and LCR steelhead is reasonably certain to be insignificant or discountable.

The proposed action will affect freshwater spawning, rearing, and migration critical habitat PCEs of LCR Chinook and coho salmon, and LCR steelhead, including substrate, water quality, water quantity, floodplain connectivity, forage, and natural cover. The effects of the proposed action on these features are summarized above as a subset of the habitat-related effects of the action that were discussed more fully in the Effects of the Action section. However, as described above, the effects to critical habitat from the proposed action will be discountable or insignificant. Furthermore, NMFS also analyzed the combined effects from the proposed action on designated and proposed critical habitat and is reasonably certain that the combined effect to critical habitat will also be insignificant or discountable.

There are no other concurrent Federal action consultations within the watersheds that, when combined with the proposed action, would change the effects analysis for this action. In addition, 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.

Conclusion

NMFS analyzed the combined impacts of all of the project elements of the proposed action on LCR Chinook and coho salmon, and LCR steelhead, and designated and proposed critical habitat and concludes that all effects of the proposed action are discountable or insignificant and therefore are NLAA LCR Chinook and coho salmon, and LCR steelhead, and designated and proposed critical habitat.

As noted above, we conclude that the proposed action will only have discountable or insignificant effects on critical habitat proposed for LCR coho salmon. The USFS may ask NMFS to confirm our concurrence with the NLAA finding once critical habitat for LCR coho salmon is designated. The request must be in writing. If we review the proposed action and find there have been no significant changes to the action that would alter the contents of this letter of concurrence and no significant new information has been developed (including during the rulemaking process), we may inform you that no further consultation will be necessary.

Reinitiation of Consultation

Reinitiation of consultation is required and shall be requested by the Federal agency, or by NMFS, 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 (50 CFR 402.16). This concludes the ESA portion of this consultation.

MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT

For purposes of MSA, "adverse effect" means any impact which reduces quality or quantity of EFH. Adverse effects may include direct, indirect, site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions [50 CFR 600.910(a)].

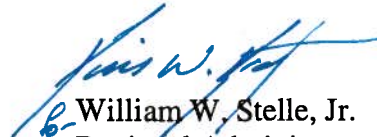
Because the properties of EFH that are necessary for the spawning, breeding, feeding or growth to maturity of managed species in the action area are the same or similar to the biological requirements of the ESA-listed species as analyzed above, and because the conservation measures that the Federal agency included as part of the proposed action are adequate to avoid, minimize, or otherwise offset those adverse effects to designated EFH, NMFS concurs that the proposed action would not adversely affect EFH. Further, NMFS has no conservation recommendations to make at this time and no reporting is necessary. This concludes the EFH portion of this consultation.

DATA QUALITY ACT DOCUMENTATION AND PRE-DISSEMINATION REVIEW

This letter meets Data Quality Act standards for utility, integrity and objectivity.

Please direct questions regarding this letter to Mischa Connine in the Willamette Basin/Lower Columbia Branch of the Oregon State Habitat Office, at 503-230-5401.

Sincerely,



William W. Stelle, Jr.
Regional Administrator

cc: Chuti Fiedler, U.S. Forest Service

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