



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
Northwest Region  
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Refer to:  
OHB2001-0118-FEC

April 16, 2002

Mr. Jeff Blackwood  
Forest Supervisor  
Umatilla National Forest  
2517 SW Hailey Ave.  
Pendleton, Oregon 97801

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Act  
Essential Fish Habitat Consultation on the Effects of the Rimrock Ecosystem Restoration  
Projects, Wheeler, Morrow, and Grant County, Oregon

Dear Mr. Blackwood:

Enclosed is a biological opinion (Opinion) prepared by the National Marine Fisheries Service (NMFS) pursuant to the section 7 of the Endangered Species Act (ESA) on the effects of the Rimrock Ecosystem Restoration projects proposed by the Umatilla National Forest (UNF) in the John Day River Basin, Oregon. These actions were proposed by the UNF in a letter and biological assessment dated June 11, 2001. NMFS concludes in this Opinion that the proposed action is not likely to jeopardize Middle Columbia River (MCR) steelhead (*Onchorynchus mykiss*) or adversely modify MCR steelhead designated critical habitat. As required by section 7 of the ESA, NMFS included reasonable and prudent measures with non-discretionary terms and conditions that NMFS believes are reasonable and appropriate to minimize the impact of incidental take associated with these actions.

This Opinion also serves as consultation on essential fish habitat (EFH) pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation Management Act and implementing regulations at 50 CFR Part 600.

If you have any questions regarding this consultation please contact Eric Murray of my staff in the Oregon Habitat Branch, at 541.975.1835 ext 222.

Sincerely,

*for* Michael R. Crouse

D. Robert Lohn  
Regional Administrator

cc: Katherine Ramsey, UNF  
Greg Smith, USFWS  
Dorthy Mason, BLM



Endangered Species Act - Section 7 Consultation  
&  
Magnuson-Stevens Act  
Essential Fish Habitat Consultation

**BIOLOGICAL OPINION**

Rimrock Ecosystem Restoration Projects  
Umatilla National Forest, Heppner Ranger District

Agency: U.S.D.A. Forest Service

Consultation Conducted By: National Marine Fisheries Service,  
Northwest Region

Date Issued: April 16, 2002

Issued by: *f.1* *Michael R Crouse*  
D. Robert Lohn  
Regional Administrator

Refer to: OSB-2001-0118-FEC

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# 1. ENDANGERED SPECIES ACT

## 1.1 Background

NMFS began informal consultation on Rimrock Ecosystem Restoration Project (ERP) through early involvement of the Interagency Level 1 Team, and a Level 1 Team field review during early project planning stages. The National Marine Fisheries Service (NMFS) provided comments on a draft biological assessment (BA) for the Rimrock ERP in March 2001. A Final BA was submitted to NMFS on June 11, 2001, with a letter requesting formal consultation on the Rimrock ERP regarding the potential effects on Middle Columbia River (MCR) steelhead and their designated critical habitat. The BA described actions proposed for implementation over the 10-year period, FY2003-2012, on the Heppner Ranger District of the UNF, the environmental baseline, and the potential effects of those actions on MCR steelhead and their designated critical habitat in the North Fork John Day River (NFJDR) subbasin.

The MCR steelhead was listed as threatened under the Endangered Species Act (ESA) by NMFS on March 25, 1999 (64 FR 14517). NMFS designated critical habitat for the MCR steelhead on February 16, 2000 (65 FR 7764) and applied protective regulations under section 4(d) of the ESA on July 10, 2000 (65 FR 42422). All streams and their adjacent riparian areas in the John Day River (JDR) basin downstream from longstanding, naturally-impassable barriers (i.e., natural waterfalls in existence for at least several hundred years) are designated as critical habitat for MCR steelhead. The proposed action addressed in this biological opinion (Opinion) is within designated critical habitat for MCR steelhead in the NFJD sub-basin.

The objective of this Opinion is to determine whether the subject action is likely to jeopardize the continued existence of MCR steelhead or result in the destruction or adverse modification of designated critical habitat for MCR steelhead.

## 1.2 Proposed Action

The BA describes the proposed Rimrock ERP which consists of several projects scheduled for implementation between 2003 and 2012. The UNF determined that vegetation management and miscellaneous restoration activities “may affect, but are not likely to adversely affect” (NLAA) MCR steelhead or its designated critical habitat. The remaining project components, prescribed fire, road management and in-channel treatments, were determined by the UNF to “may affect, and likely to adversely affect” (LAA) MCR steelhead, though not likely to adversely modify or destroy its designated critical habitat. An LAA determination was made for the Rimrock ERP as a whole, since the prescribed fire, road management and miscellaneous restoration activities are interrelated and/or interdependent to the vegetation management. The proposed projects are summarized in Tables 1 and 2 below, and are the subject of this Opinion.

Vegetation management, prescribed fire and road management projects will be implemented throughout the 7 subwatersheds (SWS) of the Big Wall Creek 5<sup>th</sup> field watershed (U.S. Geological Survey Hydrological Unit # 17070202{24}), located in Wheeler, Morrow and Grant

Counties. The in-channel and miscellaneous restoration activities will only occur in those Big Wall Creek subwatersheds specified in Tables 1 and 2 below.

**Table 1. Rimrock ERP Proposed Activities in the Big Wall Creek Watershed, North Fork John Day River Subbasin on the UNF scheduled for the period 2003-2012.**

<b>Projects/Activities</b>	<b>Sub-watershed(s)</b>	<b>Total Acres of Activity proposed</b>	<b>Associated streams with MCR Steelhead spawning/rearing habitat in the UNF</b>
<b>Vegetation Management</b>			
Commercial Thinning	24A-G	4,625	Big Wall, Wilson, Indian, South Fork (SF) Big Wall, Porter, Dark Canyon
Pre-Commercial Thinning	24A-G	859	Big Wall, Wilson, Indian, SF Big Wall, Porter, Dark Canyon
<b>Prescribed Fire (PF)</b>			
Underburning	24A-G	29,462	Big Wall, Wilson, Indian, SF Big Wall, Porter, Dark Canyon
Spring PF	24A-G	21,981	Big Wall, Wilson, Indian, SF Big Wall, Porter, Dark Canyon
Spring or fall PF	24A,B,F,G	7,481	Big Wall, Wilson, Indian, Dark Canyon
Slash Treatment: (jackpot/underburning)	24A-G	4,518	Big Wall, Wilson, Indian, SF Big Wall, Porter, Dark Canyon
<b>Miscellaneous Projects</b>			
Aspen regeneration	24C-F	24	Big Wall, Wilson, SF Big Wall, Porter, Dark Canyon
Manual noxious weed control (hand pulling)	24A-G	to be determined (see write-up)	Big Wall, Wilson, Indian, SF Big Wall, Porter, Dark Canyon
<b>Road Management</b>		<b>Miles of Work</b>	
Reconstruction	24A-C, E-G	14.45	Big Wall, Wilson, Indian, SF Bill Wall, Dark Canyon
Resurfacing	24A,B,D,E,G	22.26	Big Wall, Wilson, Indian, Porter, Dark Canyon
Closed roads (re-opened for timber sales)	24A-C, E-G	33.23	Big Wall, Wilson, Indian, SF Bill Wall, Dark Canyon
<b>Projects/Activities</b>	<b>Sub-watershed(s)</b>	<b>Total Acres of Activity proposed</b>	<b>Associated streams with MCR Steelhead spawning/rearing habitat in the UNF</b>

<b>Road Management</b>		<b>Miles of Work</b>	
Roads decommissioned	24B-D, F	3.86	Big Wall, Wilson, SF Bill Wall, Porter, Dark Canyon
Roads obliterated	24B-F	9.74	Big Wall, Wilson, SF Bill Wall, Porter, Dark Canyon
Closure improvement	24A-G	22.0	Big Wall, Wilson, Indian, SF Bill Wall, Porter, Dark Canyon
Temporary road construction	24A-G	13.51	Big Wall, Wilson, Indian, SF Bill Wall, Porter, Dark Canyon
<b>In-channel Work</b>			
Fish habitat structure maintenance	24A, B, F	11.0	Big Wall and Wilson Creeks

### 1.2.1 Vegetation Management

Under this proposed action the UNF would commercially thin 4,625 acres of green trees from 7 to 21 inches diameter at breast height (dbh) using a combination of logging systems including forwarders (3,578 acres), helicopter (1,018 acres), and horse or other draft animal (29 acres) to minimize soil disturbance. Table 2 summarizes these timber sale activities by subwatershed. Helicopter logging would occur on slopes of 35% or greater or in units where new road construction would have otherwise been required. Forwarder logging will minimize impacts to areas with sensitive soils.

The BA states that precommercial thinning (PCT) will be done on 859 acres to improve stand vigor, move tree species composition toward the historical range of variability (HRV), and promote late/old structure characteristics in the long-term. PCT will remove only trees ranging from one to seven inches dbh. Five hundred of the precommercial thinning acres will also receive commercial thinning. The other 359 acres of PCT will be located outside of commercial harvest units. PCT would be done manually using chainsaw and left on site with slash primarily being lopped and scattered. Juniper removal would also occur in plant association groups that would not normally support that species.

**Table 2. Rimrock Timber Sale Prescriptions/Logging Systems by Subwatershed (SWS).**

Location		Logging System (acres)				
SWS Code	SWS Name	Forwarder	Helicopter	Horse	PCT*	Grand Total
24A	Lower Big Wall	246	213	--	23	482
24B	Middle Big Wall	1,088	287	--	133	1,508
24C	Upper Big Wall	1,294	259	--	47	1,600
24D	Porter	19	--	--	46	65
24E	Upper Wilson	178	--	29	68	275
24F	Lower Wilson	89	212	--	10	611
24G	Indian Creek	663	47	--	32	742
<b>Total</b>		3,578	1,018	29	359	4,984
		*PCT = Precommercial thinning units located outside of commercial thinning units				

Forwarder equipment may need to cross ephemeral channels qualifying as PACFISH Category IV intermittent streambeds, but equipment will be confined to designated crossings with no more than 3 crossing locations anticipated per subwatershed. Crossings will only occur when the channels are dry. Slash will be placed in the crossing to minimize stream bed and bank disturbance. Trees located in Category IV PACFISH Riparian Habitat Conservation Areas (RHCAs) may need to be cut to provide passage to forwarder equipment but trees will be left on site. The maximum width of the crossings will be 15 feet.

Seven helicopter landings would be located in natural openings at the outer edges of RHCAs, outside the 100-year floodplain. These sites will be located in areas supporting upland plant communities. Existing roads will be used to access the landings.

Each activity within the proposed project has been designed to include specific mandatory protection measures. Protection measures for each project are described in the BA.

### **1.2.2 Prescribed Fire**

Underburning will occur with either aerial ignition or hand ignition, or a combination of the two. Spring burning will take place when heavy fuel and duff moisture contents are high (between 20% and 25% for fuels 3-8 inches in diameter). Fall burning will take place when fuel moisture is lower (about 15% to 18% for fuels 3-8 inches in diameter). Fall burns will generally occur when spring burning has not been feasible; due to weather or fine fuel moisture or when

management goals prescribe higher consumption or intensity. Total planned acreage would be accomplished within 3-10 years, depending upon annual burning conditions available during this period of time. A total of 30,000 acres may be burned in a three-year period if the proper weather and burning conditions permit.

**Table 3. Planned acres of prescribed underburning by subwatershed and season.**

Subwatershed								
Season	24A	24B	24C	24D	24E	24F	24G	Total Acres
Spring	4,271	1,537	7,261	783	1,519	2,241	3,919	21,987
Spring or Fall	352	3,908	0	0	0	3,221	0	7,486
<b>Total</b>	5,073	5,445	7,261	783	1,519	5,462	3,919	29,462

The burn boss prior to each burn will determine the exact ignition sequence. The general ignition pattern will be a strip head/backing fire. Other areas will be ignited aerially using helicopters. Ridge tops, open scabs or rock areas, roads, and riparian areas will be used to define burn unit boundaries, minimizing the amount of line that may be constructed. No line construction will occur as part of the Rimrock ERP.

Direct ignition of prescribed fire will not occur in RHCAs. Fires ignited outside of the RHCAs will be allowed to back into these areas. There is a possibility that during aerial ignition, some dropping of ignition devices may occur in RHCAs. The BA identifies protective measures designed to minimize this risk.

Slash created by 4,518 acres of commercial thinning will be disposed of by burning in jackpots (forwarder trails) and through underburning within the thinned units. Burning will be restricted to those times when fuel moisture are such that fire intensity will be low. Individual burn plans will have exact prescriptions, but flame lengths will generally be restricted to less than 5 feet to minimize damage to the overstory.

### **1.2.3 Road Management**

#### Road Maintenance

Temporary roads will be built to access some proposed timber sale units. Construction of temporary roads will occur in all 7 subwatersheds in the project areas (Table 4). Reconstruction of existing roads will upgrade or modify existing drainage structures to pass 100-year flood events (per PACFISH Standards and Guidelines), and will add additional ditch relief culverts. Up to 18 miles of Forest Road 2400 and 9 miles of Forest Road 2300 would be resurfaced as funds allow. Resurfacing may include blading, placement of 4-6" deep aggregate, and/or

maintenance of drainage structures such as ditch relief culverts. Thirty-three miles of existing closed system roads specified in the BA, will be temporarily reopened for haul and access to timber sale units. Twenty-two existing road closures will be improved by installing either earthen berm barriers or guardrail barriers. The more appropriate method will be determined following additional field reviews by UNF staff and final evaluation of incidental administrative access needs. The UNF estimates there may be as many as five earthen barriers installed in Category IV RHCAs. Drainage structures on 3.8 miles of open road will be removed, in effect hydrologically disconnecting and decommissioning these roads from being used or maintained again for the foreseeable future, though they will be retained on the UNF's transportation system inventory.

#### Road Obliteration

A total of 9.7 miles of roads currently closed will be hydrologically-disconnected via permanent obliteration consisting of: Removal of drainage structures, subsoiling, and/or recontouring of the road beds, as needed. Areas of disturbed soil will be seeded. These roads will then be removed from the transportation system inventory.

#### Stream Crossing Improvements

Four existing drive-through stream fords on Big Wall (3) and Little Wilson Creeks (1) will each be replaced with a low-water crossing structure consisting of concrete precast abutments and piers, approaches with large gradation crushed aggregate, and a cattle guard-type suspended grate.

**Table 4. Proposed Transportation Activities for Big Wall Creek Watershed**

<b>Sub-watershed</b>	<b>Roads</b>	<b>Recon- struction</b>	<b>Resurf- aced</b>	<b>Closed roads opened for sale</b>	<b>Decomm- issioned roads</b>	<b>Oblit- erated roads</b>	<b>Closure improvement</b>	<b>Temporary roads</b>
	miles	miles	miles	miles	miles	miles	# existing closures to improve	miles
<b>Lower Big Wall (24A)</b>	19	2.44	2.97	0.39	0.00	0.00	1.0	1.20
<b>Middle Big Wall (24B)</b>	40	3.29	4.83	3.11	0.60	2.27	5.0	4.02
<b>Upper Big Wall (24C)</b>	45	5.39	7.21	12.52	1.13	3.00	2.00	3.90
<b>Porter (24D)</b>	44	0.00	0.00	0.00	0.95	2.74	3.00	0.23
<b>Upper Wilson (24E)</b>	51	2.52	1.27	1.93	0.00	0.73	7.00	1.65
<b>Lower Wilson (24F)</b>	37	0.01	0.00	6.60	1.18	1.00	1.00	0.94
<b>Indian Creek (24G)</b>	29	0.80	5.98	5.35	0.00	0.00	3.00	1.57
<b>Totals</b>	<b>265</b>	<b>14.45</b>	<b>22.26</b>	<b>33.23</b>	<b>3.86</b>	<b>9.74</b>	<b>22.0</b>	<b>13.51</b>

#### **1.2.4 In-channel Treatments**

Rock and log instream structures were installed on 11 miles of Big Wall and Wilson creeks between 1986 and 1991 to replace MCR steelhead rearing habitat lost as a consequence of a 100-year flood event in 1964 which severely degraded these streams. Periodic maintenance of the structures is necessary to continue the benefits through project design life (20 years). Some instream structures placed in Big Wall Creek and Wilson Creek between 1988 and 1991, are no longer functioning as designed. The proposed in-channel project is to maintain or restore a total of 181 in-channel fish structures on Big Wall Creek (55 of 86 existing structures) and lower Wilson Creek (126 of 219 existing structures). The restoration would take place within the Lower Big Wall (SWS 24A), Middle Big Wall (SWS 24B) and Lower Wilson (SWS 24C) subwatersheds. This work would include one or more of the following, as applicable for each individual structure: Pool deepening through sediment removal, rebuilding displaced structure wings, bank stabilization through re-vegetation, keystone replacement or adjustment, scour pool-creating boulder replacement, minor repair, or major repair up to or including total reconstruction (redesign). Restoration of streambank condition to a more natural state will occur

where extensive bank erosion has occurred as a result of improperly functioning instream structures.

Pool deepening would occur by using heavy equipment with an excavator bucket to remove sediment and place it behind the wings of pool creating structures. This sediment would then be stabilized by planting and seeding with native vegetation. Damaged or destroyed pool creating structures will be removed, repaired, or replaced with a more appropriate design. Thirty-seven structures are scheduled for full replacement, which would be based on designs appropriate to current channel morphology at each site (Rosgen 1994, 1996). Six structures would be completely removed. Repair, removal, and replacement of these structures will require the operation of heavy equipment instream or on the stream banks. Minor amounts of riparian disturbance will result from these activities. Similarly, the adjustment or replacement of keystone and boulder rock structures will require the use of heavy machinery and the disturbance of the streambed. Planting of streambanks with woody vegetation will require less disturbance, as this activity can be accomplished without the use of heavy machinery. These activities would likely take 3-6 years to complete.

**Table 5. Proposed In-channel Structure Maintenance/Restoration Activities.**

<b>SWS</b>	<b>SWS Name</b>	<b>Structures to maintain/restored</b>
24A	Lower Big Wall	21
24B	Middle Big Wall	34
24F	Lower Wilson	126

### **1.2.5 Miscellaneous Restoration Activities**

#### Aspen Restoration

Twelve aspen stands (24 acres) will be protected by girdling encroaching conifers up to 20 inches in diameter. Ten stands (totaling approximately 20 acres) are within RHCA's of which 4 acres (2 stands) are within the Big Wall Creek and South Fork Big Wall Creek Category I RHCAs in SWS 24C. The remaining 16 RHCA acres are all in perennial non-fishbearing Category II headwaters of Wilson Creek. The 4 non-RHCA acres of aspen are distributed along the upper slopes of the Wilson Creek, Porter Creek and Upper Big Wall Creek subwatersheds (SWS 24D-F). The girdled conifers in all 12 stands would all be left standing on-site. Each of the 12 stands would then be spring or fall burned. Prescribed burning may either encompass or be adjacent to the aspen stands. All of the protective measures described for prescribed burning would apply to burning in aspen stands, including no ignition in RHCAs and underburns in RHCAs limited to backing fires. Ungulate-proof fences would be constructed, either 8-foot or buck-and-pole fences, once burning is completed. Stands would be monitored to assess response from conifer removal, burning and fencing. If suckering response is unsatisfactory, on-site root

stock for nursery reproduction would be collected, after which suckering would be stimulated by using a winger subsoiler to break up the clonal root system. Subsoiling would release severed root segments from overstory hormonal dominance currently suppressing growth of new suckers. Monitoring would follow, to assess suckering response from root stimulation. Finally, if no response from root stimulation is observed, the rooted stock obtained from these stands earlier would be outplanted from the nursery.

#### Noxious Weed Control

Existing noxious weed populations (394 acres) and any new noxious weed infestations that may be identified on NFS lands in the UNF analysis area would be controlled for at least 2 additional years following initial removal. Control of infestations would be accomplished with manual removals (hand-pulling) annually until eradicated. Existing populations of noxious species are scattered throughout the 7 subwatersheds of the Big Wall 5<sup>th</sup> field watershed. The four species present are diffuse knapweed, dalmation toadflax, houndstongue and Saint Johnswort. No chemical treatment is proposed at this time.

### **1.2.6 Protection Measures**

Each project of the proposed action is designed to include specific required protection measures that are fully described in the BA. Activities restricted from RHCAs include: Harvest of trees, ignition of prescribed fire, and refueling of machinery. Silt fences or straw bales will be used in areas where sediment from landing areas or roads may reach streams, and areas of disturbed soil will be revegetated. Cofferdams will be used in some areas to isolate the work area, but fish passage will be maintained.

Instream work will occur during the Oregon Department of Fish and Wildlife (ODFW) in-water work window for the area (July 15-August 31) (ODFW 2000). Activities requiring instream work will be supervised by a UNF fish biologist or hydrologist. To avoid direct harm or mortality to rearing juvenile MCR steelhead, work on pool creating structures will only occur when flows are sub-surface or sufficient flow between pools allows fish to move away from the work area. Some protection measures apply to more than one type of project covered by this Opinion. The projects and associated protection measures, fully described in the BA, are designed to avoid or minimize the harm or harassment of MCR steelhead and avoid destruction or adverse modification of designated MCR steelhead critical habitat.

### **1.2.7 Timing of Activities**

The different components of the Rimrock ERP will occur over a ten year period from 2003 to 2012. Summarized below is the approximate timing of the activities proposed for this project.

**Table 6. Timing of Rimrock ERP Activities**

<b>Activity</b>	<b>Which of the 10-Year Period Carried Out</b>
Road Maintenance for Timber Sale	Years 1-2
Reopen closed roads	Years 1-2
Improve Stream Crossings	Years 1-10
Noxious Weed Control	Years 1-10
Temporary Road Construction	Years 2-4
Harvest of Timber	Years 2-4
In-channel Treatments	Years 2-7
Temporary Road Obliteration	Years 3-4
Prescribed burning	Years 4-9
Road Surfacing	Years 5-10
Existing Road Obliteration/Decommission	Years 5-10

### **1.3 Biological Information and Critical Habitat**

Biological information concerning the MCR steelhead is found in Busby et al. (1996). The current status of the MCR steelhead, based on their risk of extinction, has not significantly improved since the species was listed.

Critical habitat for MCR steelhead encompasses the major Columbia River tributaries known to support this ESU, including the Deschutes, John Day, Klickitat, Umatilla, Walla Walla, and Yakima Rivers, as well as the Columbia River and estuary. Critical habitat consists of all waterways below long-standing (100 years or more), naturally impassable barriers. The adjacent riparian zone is also considered critical habitat. This zone is defined as the area that provides the following functions: Shade, sediment, nutrient/chemical regulation, streambank stability, and input of large woody debris (LWD)/organic matter.

Big Wall Creek enters the NFJDR from the north at river mile (RM) 22.5, near the town of Monument. Indian Creek, Dark Canyon, Little Wilson, Wilson and South Fork Big Wall Creeks are tributaries to Big Wall Creek. Porter and Colvin Creeks are headwater tributaries to Wilson Creek. According to the BA, ODFW biologists have conducted annual spawning surveys on Big Wall and Wilson Creeks since 1967. UNF Fishery Biologists completed supplemental MCR steelhead spawning habitat surveys in spring of 1999 and again in 2000, on Indian, Wilson, Little

Wilson, Porter, Dark Canyon, and South Fork of Big Wall Creek to determine where additional steelhead spawning habitat exists. Findings of those surveys and other information on habitat conditions are summarized under Environmental Baseline (Section 4.2), below.

There are approximately 33 miles of steelhead-bearing perennial streams in the Big Wall watershed, 25.6 miles of which are known or suspected to provide spawning habitat. The streams providing spawning and rearing habitat for MCR steelhead include Big Wall Creek, Dark Canyon, Indian Creek, Porter Creek, South Fork of Big Wall Creek, and Wilson Creek. Spring chinook salmon (*O. tshawytscha*) are known to spawn in the NFJDR, but have never been documented in the Big Wall watershed.

MCR steelhead spawn during spring runoff when water flow is high and stream temperatures are below 50 degrees Fahrenheit. Peak spring flows generally occur prior to early April in this watershed. The eggs hatch in 3-5 weeks depending on water temperatures. High summer water temperatures in most of the watershed may limit summer rearing habitat for juvenile steelhead. Streams in the watershed, with the exception of Little Wilson Creek, generally exceed the temperature standard for rearing steelhead (64 degrees Fahrenheit), later in the summer.

Essential features of designated critical habitat for MCR steelhead adult spawning, juvenile rearing, and adult and juvenile migration are: 1) Substrate, 2) water quality, 3) water quantity, 4) water temperature, 5) water velocity, 6) cover/shelter, 7) food (juvenile only), 8) riparian vegetation, 9) space, and 10) safe passage conditions (50 CFR 226). The proposed actions may affect all essential features except for water quantity.

#### **1.4 Evaluating Proposed Actions**

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NMFS must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the initial steps of: 1) Defining the biological requirements and current status of the listed species, and 2) evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NMFS evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NMFS must consider the estimated level of mortality attributable to: 1) Collective effects of the proposed or continuing action, 2) the environmental baseline, and 3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmonid's life stages that occur beyond the action area. If NMFS finds that the action is likely to jeopardize the listed species, NMFS must identify reasonable and prudent alternatives for the action.

Furthermore, NMFS evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' designated critical habitat and NMFS must determine

whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. NMFS identifies those effects of the action that impair the function of any essential element of critical habitat. NMFS then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NMFS concludes that the action will destroy or adversely modify critical habitat it must identify any reasonable and prudent alternatives available.

For the proposed action, NMFS' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NMFS' critical habitat analysis considers the extent to which the proposed action impairs the function of essential elements necessary for juvenile and adult migration, spawning, and rearing of the MCR steelhead under the existing environmental baseline.

#### **1.4.1 Biological Requirements**

The first step in the methods NMFS uses for applying the ESA section 7(a)(2) to listed MCR steelhead is to define the species' biological requirements that are most relevant to each consultation. NMFS also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NMFS starts with the determinations made in its decision to list MCR steelhead for ESA protection and also considers new data available that is relevant to the determination.

The relevant biological requirements are those necessary for MCR steelhead to survive and recover to naturally-reproducing population levels at which protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment. For this consultation, the biological requirements are improved habitat characteristics that function to support successful adult and juvenile migration, spawning and rearing.

MCR steelhead survival in the wild depends on the proper functioning of certain ecosystem processes including habitat formation and maintenance. The restoration of improperly functioning habitat to a more properly functioning condition will likely lead to improved survival and recovery of MCR steelhead. In conducting analyses of habitat altering actions, NMFS defines the biological requirements in terms of a concept called Properly Functioning Condition (PFC) and applies a "habitat" approach to its analysis (NMFS 1999). The current status of MCR steelhead, based on their risk of extinction, has not improved much since the species was listed.

#### **1.4.2 Environmental Baseline**

The environmental baseline is an analysis of the effects of past and on-going human-caused and natural factors leading to the current status of the species or its habitat and ecosystem within the action area. The "action area" is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 CFR 402.02). The

“action area” for this consultation includes the entire Big Wall Creek 5<sup>th</sup> field watershed (Hydrologic Unit Code #1707020224), including the following creeks, their tributaries and associated 6<sup>th</sup> field subwatersheds (SWS): Lower Big Wall Creek and Little Wilson Creek (SWS 23A, 24A), Middle Big Wall Creek (SWS 24B), Upper Big Wall (SWS 24C), Porter Creek (SWS 24D), Upper and Lower Wilson Creek (SWS 24E, 24F), and Indian Creek (SWS 24G). These streams contain spawning, rearing, or migratory habitat for MCR steelhead and are within designated critical habitat.

The Big Wall 5<sup>th</sup> field watershed encompasses 62,272 acres (100 square-miles) from its headwaters to its confluence with the North Fork John Day River at river mile (RM) 22.5. The Forest Service manages 41,800 acres (67%) of the watershed. Approximately half of the non-federal land acreage in the watershed is downstream of the UNF boundary. Most of the remaining non-federal lands are located in the headwaters of Wilson Creek. Major tributaries to Big Wall Creek in the action area include Wilson, Indian and Porter Creeks. The Big Wall Creek watershed comprises 8 percent of the land in the NFJD basin.

The current population status and trends for MCR steelhead are described in Busby et al. (1996) and in NMFS (1997). Busby (1996) citing ODFW data stated that the total MCR steelhead run size for the JDR basin has recently averaged about 5,000 fish. NMFS (1997) citing Chilcote (1997) states that recent MCR steelhead redd counts conducted in established index areas throughout the JDR basin suggest universal declines in redd abundance ranging from -0.9 to -5.6% over the past several years. In general, the current status of MCR steelhead populations is the result of several long-term, human-induced factors (e.g., habitat degradation, water diversions, dams) that serve to exacerbate the adverse effects of natural environmental variability from such factors as drought, floods, and poor ocean conditions. Within the action area, habitat degradation has occurred from past timber harvest, road development, livestock grazing, dam construction, invasion of noxious weeds, and a 100-year flood event. Livestock grazing and timber harvest have decreased stream shading resulting in elevated stream temperatures during summer. Big Wall, Wilson, Porter, and Indian Creeks were listed by the State of Oregon in 1996 under Section 303(d) of the Clean Water Act (CWA) as water quality limited because of high stream temperatures during summer. The BA states that sediment modeling conducted for the action area indicates that recent timber harvesting activities in the action area are still affecting water quality through the addition of sediment to local streams.

Environmental baseline conditions within the action area were evaluated for the subject actions at the project level and watershed scales. The results of this evaluation, based on the “Matrix of Pathways and Indicators” (MPI) described in *Making Endangered Species Act Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996), follow. This method assesses the current condition of instream, riparian, and watershed factors that collectively provide properly functioning aquatic habitat essential for the survival and recovery of the species.

In the Big Wall Creek watershed, Big Wall, Wilson, Indian and Porter Creeks are all listed for temperature, under Section 303(d) of the CWA. Big Wall, Wilson and Porter Creeks were also

303(d) listed in 1996 for sediment problems, and Big Wall and Wilson Creeks were 303(d) listed in 1996 for habitat modification. As a correlate, 7 of the 19 habitat indicators in the MPI when applied to these streams were rated as “functioning at unacceptable risk,” and include: Temperature, sediment, LWD, pool frequency and quality, off-channel habitat, refugia, and road density/location. An additional 7 of 19 indicators were determined to be “functioning at risk” and include physical barriers, substrate embeddedness, large pools, width\depth ratio, streambank condition, drainage network increase and riparian habitat conservation areas. The UNF was unable to make determinations for existing condition of three variables due to lack of adequate information: Floodplain connectivity, change in peak/base flows and disturbance regime. According to the BA, the only habitat indicators rated by the UNF as “properly functioning” were chemical/contaminants and disturbance history. The environmental baseline conditions for each habitat indicator in the MPI are described in the BA and incorporated into this Opinion by reference. These habitat indicators provide the template for assessing the essential elements of MCR critical habitat. This approach assesses the current condition of instream, riparian, and watershed factors that collectively provide properly functioning aquatic habitat essential for the survival and recovery of the species. An assessment of the essential features of MCR steelhead critical habitat is obtained by using the MPI process to evaluate whether aquatic habitat is properly functioning. A summary of conditions in the subwatersheds found in the Big Wall Creek watershed is found in Table 7 below.

## **1.5 Analysis of Effects**

### **1.5.1 Effects of Proposed Actions**

The effects determination in this Opinion was made using a method for evaluating current aquatic conditions, the environmental baseline, and predicting effects of actions on them. This process is described in *Making Endangered Species Act determinations of effect for individual and grouped actions at the watershed scale* (NMFS 1996). The effects of actions are expressed in terms of the expected effect (restore, maintain, or degrade) on aquatic habitat factors in the action area. For the proposed actions, all conditions for Big Wall Creek watershed will be maintained except habitat access, which should be restored. NMFS does expect some negative effects in the short term, particularly from prescribed fire, road management and in-channel fish habitat structure maintenance. Specific effects are discussed below.

Impacts of the proposed projects to stream habitat and fish populations can be separated into direct and indirect effects. Direct effects are those which contribute to the immediate loss or harm to individual fish or embryos (e.g., heavy equipment directly crushing a fish, crushing or destabilizing a redd that results in the actual destruction of embryos, dislodging the embryos from the protective nest and ultimately destroying eggs, or injuring or killing a fish, embryo or alevin through heat stress caused by excessive direct heating of a small fishbearing stream from a high-intensity fire).

**Table 7. Conditions of Subwatersheds in Big Wall Creek Watershed**

Subwatershed	Temperature	Sediment	Road Density	Width/Depth	LWD	Pools	Other
<b>Lower Big Wall</b> SWS 24A	303(D) listed for temp. due to low shading and low flows	Little Wilson Creek has high fine sediment levels but Lower Big Wall sediment levels are low	1.3 mi/mi <sup>2</sup>	26-30:1	15-20 pieces per mile	high	Approx. 65 miles of MCR steelhead spawning habitat in Lower Big Wall Creek. A high proportion of pools were created by instream structures now in need of repair.
<b>Indian Creek</b> SWS 246	303(D) listed for temp. due to low shading and low	moderate in Indian Creek Drainage, low in Big Willow Spring	3.15 mi/mi <sup>2</sup>	relatively good throughout watershed	8-9 pieces per mile	18 per mile	RHCA in this subwatershed heavily impacted by roads
<b>Middle Big Wall</b> SWS 24B	303(D) listed for temp. due to low shading and low	Happy Jack and Willow Spring Creeks have high fine sediments,	3.59 mi/mi <sup>2</sup>	18:1	13 pieces per mile	18 per mile	Many pools created by instream structures now in need of repair
<b>Lower Wilson</b> SWS 24F	303(D) listed for temp. due to low shading and low	low	2.95 mi/mi <sup>2</sup>	18-22:1	greater than 40 pieces per mile	high	Many pools created by instream structures now in need of repair
<b>Upper Wilson</b> SWS 24E	303(D) listed for temp. due to low shading and low	very high; 66-100% fine sediment	n/a	within PacFish RMOs	less than 20 pieces per mile	low	MCR steelhead spawning habitat found only in Wilson Creek
<b>Porter Creek</b> SWS 24D	303(D) listed for temp. due to low shading and low flows	very high; 77% fine sediment	n/a	n/a	low	low	MCR steelhead spawning habitat only in lower 1.5 miles of Porter Creek

Indirect effects are those impacts which occur at a later time, causing loss of specific habitat features (e.g., undercut banks, sedimentation of spawning beds, loss of pools), localized reductions in habitat quality (e.g., sedimentation, loss of riparian vegetation, changes in channel stability and structure), and which ultimately cause loss or reductions of populations of fish, or reductions in habitat quantity and/or quality.

Direct effects on MCR steelhead may occur due to the instream work required to repair the pool forming structures found in Lower Big Wall, Middle Big Wall and Lower Wilson Creeks. During instream work, heavy equipment or associated workers entering the water could injure or kill rearing juvenile MCR steelhead. These activities could also result in harassment of juvenile steelhead as the instream work could interrupt daily activities such as feeding and sheltering. Once these juvenile fish are frightened from cover and swim into open water, they become more susceptible to predation from larger fish and avian predators. It is also likely that the instream work will result in an increase in fine sediment levels leading to increased turbidity of stream water, and decreased feeding efficiency of juvenile MCR steelhead.

In the long term, the habitat structure improvements combined with sediment removal to deepen pools should result in improved rearing habitat for juvenile MCR steelhead. The instream structures will provide overhead cover and pools that are important overwintering areas. The

planting of shrubs and hardwoods in riparian areas will increase bank stability, shade, and contribute to LWD recruitment in the future. In addition, the aspen restoration activities should lead to an improved condition of riparian vegetation communities.

Direct impacts to MCR steelhead spawning adults and redds will be avoided by ensuring instream operations will occur after July 15. The ODFW instream work window for the action area is July 15 -August 31. The period during which spawning MCR steelhead adults may be susceptible to harassment or eggs and pre-emergent fry susceptible to crushing or dislocation is from early April to July 15 in the Big Wall Creek watershed.

Direct effects to rearing juveniles could also occur if large quantities of ash are created by high-intensity fire events followed by post-fire mid-summer or early fall storm events. These events may cause concentrated ash “slurry flows” which could then enter streams during the low-flow period and impact juvenile steelhead, particularly if low-flow conditions limit their mobility. Toxic ash slurry flows resulting from post-fire runoff have been associated with large-scale wildfires resulting in deep (5-10 cm) ash layers upslope as well as within the riparian areas of first-order streams, killing or displacing fish from entire reaches further downstream (Rinne 1996). The risk of mortality or displacement of juvenile salmonids due to post fire runoff slurry flows, is likely to be minimal since it is probable that quantities of ash generated by underburning and jackpot burning will be substantially less than quantities produced as a consequence of high-intensity wildfire. The smaller amount of ash produced, when combined with the probabilities that ground cover in RHCA buffers will be relatively unaffected by prescribed burning, contributes to the likelihood that buffers will continue to function effectively to trap the majority of any mobilized ash before it can enter perennial stream channels and directly impact fish.

The greatest indirect effects from implementation of projects covered in this Opinion are likely to be related to additional inputs of sediment to streams in the action area. The projects most expected to increase management-generated sediment supply to the streams are timber sale operations, prescribed fire, and road management. Sediment modeling (Forest Service Regions 1 and 4 sediment model) presented in the BA indicates that the actions covered in this Opinion, in aggregate could result in watershed-scale increases in sediment yield of 73% above natural levels in the first year. This would almost double the 39% above background occurring at present, which is attributed primarily to the existing road system. These sediment modeling results are based on a worse case scenario, in which the majority of the activities associated with the Rimrock ERP were carried out in the first few years of the project duration. The proposed timing of the activities will help to alleviate the sediment concern by spreading out the activities over a ten year period (refer to Table 6). This will allow fine sediment to route through the system during the high flow periods each year and prevent accumulation of fine sediment in steelhead spawning areas.

Specific protective measures have been incorporated into the design of each project to minimize what may result in sediment inputs to streams. These measures include the use of silt fences and straw bales to limit the downstream movement of sediment generated from instream work and

establishment of RHCA buffers to minimize the amount of sediment reaching streams generated from road maintenance activities and prescribed fire. According to modeling results presented in the BA, the magnitude and duration of sediment produced from temporary road construction and road obliteration activities are similar to effects from road construction whereas sediment generated by timber harvest is expected to be substantially less. The lesser harvest impacts are correlated to the use of low-impact logging systems, such as helicopter logging, in areas where highly erodible soils exist. However, even with the protective measures proposed in the BA, some sediment could enter streams, potentially resulting in additional substrate embeddedness and degradation of MCR steelhead spawning habitat. In addition, studies have shown that sediment inputs resulting in substrate embeddedness of greater than one third can result in a significant decrease in benthic invertebrate abundance and thus a decrease in food available for juvenile salmonids (Waters 1995). The amount of sediment generated from the proposed activities will most likely drop to background levels in a few years.

The risk of adverse indirect effects from prescribed fire derives primarily from an inability to control aerial ignition, the increased risks of unplanned effects associated with fall burning relative to spring burning, the magnitude of acres potentially burned in the fall (25% of total planned acres), the magnitude of bare mineral soil exposed across the burned acres as a consequence of fall burning relative to spring burning (10-20% vs. less than 10%), and from the large total acreage planned for burning which may cumulatively expose large amounts of bare mineral soil available for surface erosion across the watershed within a relatively short amount of time (30,000 acres possibly within 3 years, of which, per prescription, a total of 3000-3600 acres could potentially be burned to bare mineral soil in the first 3 years of the project).

Spring burning effects to RHCAs (and indirectly to fish habitat) are generally expected to be limited since 3-8-inch diameter fuel moistures are generally high (20-25%) in the spring, fuels in riparian areas are moister than fuels in uplands, and backing fires in RHCAs are easy to control, particularly when ignition only occurs outside RHCAs as will be the case for this project. The prescriptions described in the BA indicate that spring burning is expected to expose relatively small amounts of bare mineral soil in uplands (less than 10%) and will minimize consumption of fuels greater than 3-inch diameter, with even lesser effect in RHCAs thereby maintaining the sediment-buffering function of the RHCAs.

The risk of burning out of prescription increases during fall burning due to fuels being much dryer and burning conditions being much harder to control. The magnitude of burning (25%) which could be conducted in the fall when fuels are drier, when air temperatures are elevated and it becomes more difficult to keep prescribed fires within prescription, heightens the risk that this project may burn hotter and perhaps more extensively in RHCAs than anticipated, and may therefore adversely impact RHCAs and associated fish habitat. Ground-based ignition is much easier to control than aerially-based ignition, thus the risks of fires being ignited in RHCAs and/or burning out of prescription are therefore correspondingly higher with aerial ignitions, particularly with the large total acreage proposed in the project and the projected amount of fall burning possible.

### **1.5.2 Cumulative Effects**

"Cumulative effects" are defined in 50 CFR 402.02 as those effects of "future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." The "action area" is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 CFR 402.02). The "action area" for this consultation, therefore, includes the entire Big Wall Creek 5th field watershed (Hydrologic Unit Code #1707020224).

The BA identified ongoing private ranching actions that are reasonably certain to continue to occur in the future that would affect MCR steelhead or their habitat within the action area. The UNF stated they recently developed a partnership proposal for FY2003, to work with the private landowners in the action area to restore 11 miles of MCR steelhead spawning habitat in Wilson Creek.

Significant improvement in MCR steelhead reproductive success outside of federally-administered land is unlikely without changes in grazing, agricultural, and other practices occurring within these non-federal riparian areas in the John Day River basin. NMFS is not aware of any other specific future actions which are reasonably certain to occur on non-federal lands.

### **1.6 Conclusion**

NMFS has determined that, when the effects of the subject actions addressed in this Opinion are added to the environmental baseline and cumulative effects occurring in the action area, they are not likely to jeopardize the continued existence of MCR steelhead. Additionally, NMFS concludes that the subject actions would not cause adverse modification or destruction of designated critical habitat for MCR steelhead. NMFS believes that the proposed action will cause some short-term increases in stream turbidity and sedimentation rates in Big Wall Creek watershed. These conclusions were reached primarily because the actions: 1) Are expected to reduce chronic sediment inputs in the long term; 2) improve fish passage and maintain existing pool habitat for rearing MCR steelhead juveniles; and 3) improve the condition of riparian vegetation, stream shading, and streambank stability, aquatic habitat indicators such as water temperature, sediment, substrate embeddedness, width/depth ratio, and streambank stability in the long term in the Big Wall Creek watershed. The short term impacts due to sedimentation in Big Wall Creek watershed will be offset in the long term by the improvements in the above mentioned habitat parameters.

### **1.7 Conservation Recommendations**

Section 7 (a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of threatened and endangered species. Conservation recommendations are discretionary measures suggested to minimize or avoid adverse effects of a proposed action on listed species, to minimize or avoid

adverse modification of critical habitat, or to develop additional information. NMFS believes that the following conservation recommendations should be implemented:

1. Continue work already started toward the development of restoration partnerships for private land reaches of Wilson Creek containing MCR steelhead habitat.
2. Request permission from private landowners in Wilson Creek subwatersheds to conduct both redd and fish habitat inventories on private land reaches, to obtain data necessary to support development restoration partnership proposals.
3. Review Porter Creek SWS (24D) periodically for condition of instream structures and associated channel morphology and fish habitat. Use the results of those reviews to maintain or improve habitat quality by planning and carrying out maintenance activities appropriate to restoration of properly functioning channel morphology, hydrological processes and riparian function.
4. Consider instituting multi-year bank stabilization and shade improvement planting program in outyears following completion of in-channel structure maintenance, using site-appropriate native riparian species of hardwoods and rhizomatous graminoids.
5. Ensure burning prescriptions associated with each aspen stand will promote mortality of the entire aspen overstory, to ensure successful suckering. Monitor for at least 2 years before deeming burning treatments unsuccessful, using several thousand suckers per hectare as the basis for judging success. Wait at least 2 more years to evaluate suckering response to fencing before proceeding to root stimulation.

## **1.8 Reinitiation of Consultation**

Reinitiation of consultation is required if: 1) The action is modified in a way that causes an effect on the listed species that was not previously considered in the BA and this Opinion; 2) new information or project monitoring reveals effects of the action that may affect the listed species in a way not previously considered; or 3) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR. 402.16). The UNF may also be required to reinitiate consultation if the proposed actions are not consistent with conservation measures developed through the pending consultation on land and resource management plans for Federal land management units in the Middle and Upper Columbia River Basins. To reinitiate consultation, the UNF must contact the Habitat Conservation Division, Oregon Habitat Branch, of NMFS, and refer to OHB2001-0118-FEC.

## 2. INCIDENTAL TAKE STATEMENT

Sections 4(d) and 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. Harass is defined as actions that create the likelihood of injuring listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

### 2.1 Amount or Extent of Take

NMFS anticipates that the proposed action is reasonably certain to result in incidental take of MCR steelhead because of detrimental effects from increased sediment and pollutant levels (non-lethal), reduced benthic invertebrate production (non-lethal), and riparian habitat disturbance (non-lethal). It is also possible that some incidental take may result from the instream work (lethal), although this is expected to be minimal.

Effects of actions such as sedimentation and riparian disturbance are unquantifiable in the short term and are not expected to be measurable as long-term harm to habitat features or as long-term harm to salmonid behavior or population levels. Therefore, even though NMFS expects some low level incidental take to occur due to the proposed actions covered by this Opinion, best scientific and commercial data available are not sufficient to enable NMFS to estimate the specific amount of incidental take to the species itself. Additionally, because the distribution of rearing MCR steelhead located at the construction sites where instream work will occur is dependant on many factors, including stream flow levels and temperature, the amount of take associated with these activities can not be quantified. In instances such as these, NMFS designates the expected level of take as “unquantifiable.” Based on the information in the biological assessment, NMFS anticipates that an unquantifiable amount of incidental take could occur as a result of the habitat altering actions covered by the Opinion. The extent of the take includes the aquatic and associated riparian habitats located in the Big Wall Creek watershed.

## **2.2 Effect of the Take**

In this Opinion, NMFS has determined that the level of anticipated take is not likely to result in jeopardy to MCR steelhead or destroy or adversely modify designated critical habitat for MCR steelhead when the reasonable and prudent measures are implemented.

## **2.3 Reasonable and Prudent Measures**

NMFS believes that the following reasonable and prudent measures are necessary and appropriate to minimize the likelihood of take of MCR steelhead resulting from the actions covered by this Opinion. The UNF shall:

1. Minimize the likelihood of incidental take resulting from vegetation management, road management, in-channel structure, and associated activities by avoiding or minimizing the direct effects of heavy equipment and in-channel disturbance on spawning adult MCR steelhead adults, redds, or rearing juveniles.
2. Minimize the likelihood of incidental take resulting from construction activities in or near watercourses by ensuring that an effective spill prevention, containment, and control plan is developed, implemented, and maintained to avoid or minimize point-source pollution both into and within watercourses over the short term and the long term.
3. Minimize the likelihood of incidental take resulting from vegetation management activities described in this Opinion by avoiding or minimizing effects on MCR steelhead designated critical habitat.
4. Minimize the likelihood of incidental take resulting from road management activities described in this Opinion by avoiding or minimizing effects on MCR steelhead designated critical habitat.
5. Minimize the likelihood of incidental take resulting from prescribed burning described in this Opinion by avoiding or minimizing effects on MCR steelhead designated critical habitat.
6. Minimize the likelihood of incidental take resulting from miscellaneous restoration activities including aspen regeneration described in this Opinion by avoiding or minimizing effects on MCR steelhead designated critical habitat.
7. Complete a comprehensive monitoring and reporting program to ensure:  
1) Full implementation of requirements found in this Opinion, and 2) measures incorporated into project design to minimize or avoid impacts to MCR steelhead and their designated critical habitat are successful.

## 2.4 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the UNF must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. To implement Reasonable and Prudent Measure #1, the UNF shall ensure that:
  - a. Minimum area. Construction impacts will be confined to the minimum area necessary to complete the project.
  - b. In-water work. All work within the active channel that could contribute sediment or toxicants downstream will be completed within the ODFW approved in-water work period (July 15 - August 31). Work will be completed from the bank to minimize disturbance of the stream bottom whenever possible.
  - c. Work period extensions. Extensions of the in-water work period, including those for work outside the wetted perimeter of the stream but below the ordinary high water mark must be approved by biologists from NMFS.
  - d. Isolation of in-water work area. During in-water work, if listed fish may be present, including incubating eggs or juveniles, and the project involves either significant channel disturbance or use of equipment instream, ensure that the work area is well isolated from the active flowing stream within a cofferdam (made out of sandbags, sheet pilings, inflatable bags, etc.), or similar structure, to minimize the potential for sediment entrainment.
    - i. Fish screen. Any water intake structure authorized under this Opinion must have a fish screen installed, operated and maintained according to NMFS' fish screen criteria (NMFS 1996b).
    - ii. Water pumped from the work isolation area will be discharged into an upland area providing over ground flow before returning to the creek. Discharge will occur so that it does not cause erosion. Discharges into potential fish spawning areas or areas with submerged vegetation are prohibited.
  - e. Fish passage. Work will not inhibit passage of any adult or juvenile salmonid species throughout the construction period or after project completion. All culvert and road designs must comply with ODFW guidelines and criteria for stream-road crossings (ODFW 1999) with appropriate grade controls to prevent culvert failure due to changes in stream elevation. Channel modifications which could adversely affect fish passage, including through increasing water velocities, are not authorized by this Opinion.
  - f. Temporary access roads. Temporary access roads are designed as follows:
    - i. The number of stream crossings will be minimized.
    - ii. Existing roadways or travel paths will be used whenever reasonable.
    - iii. Where stream crossings are essential, a survey must determine and map any potential spawning habitat within 1,000 feet upstream and downstream.

- iv. No stream crossings will occur at known or suspected spawning areas or within 300 feet upstream of such areas where impacts to spawning areas may occur.
- v. Where stream crossings are essential, the crossing design will accommodate reasonably foreseeable risks (e.g., flooding and associated bedload and debris) to prevent diversion of streamflow out of the channel and down the road in the event of crossing failure.
- vi. Vehicles and machinery must cross riparian areas and streams at right angles to the main channel wherever reasonable.
- vii. Temporary roads or paths to provide access to the in-channel treatment or stream crossing improvement work sites within 150 feet of streams will avoid, minimize and mitigate soil disturbance and compaction by clearing vegetation to ground level and placing clean gravel over geotextile fabric prior to use. Whenever possible, soil compaction and riparian disturbance will be avoided.
- g. Cessation of work. All project operations, except efforts to minimize storm or high flow erosion, will cease under high flow conditions that may result in inundation of the project area.
- h. Pre-construction activities. Before significant alteration of the action area, the following actions will be accomplished.
  - i. Boundaries of the clearing limits associated with site access and construction are flagged to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.
  - ii. The following erosion control materials will be onsite.
    - (1) A supply of erosion control materials (e.g., silt fence and straw bales) must be on hand to respond to sediment emergencies. Weed free straw or hay bales will be used when available to prevent introduction of weeds.
    - (2) An oil absorbing, floating boom is available on-site during all phases of construction whenever surface water is present.
  - iii. All temporary erosion controls (e.g., straw bales, silt fences) are in place and appropriately installed downslope of project activities within the riparian area prior to and during all project activities. Effective erosion control measures will be in place at all times during the contract, and will remain and be maintained until permanent erosion control measures are effective.
- i. Heavy Equipment. Heavy equipment use will be restricted as follows.
  - i. When heavy equipment is required, the UNF shall require the applicant to use equipment having the least impact.
  - ii. Excavators will have properly guarded belly pan for pioneering type of work in rough terrain.
  - iii. Heavy equipment will be fueled, maintained and stored as follows.

- (1) All equipment that is used for instream work will be cleaned before operations below the bankfull elevation. External oil and grease will be removed, along with dirt and mud. No untreated wash and rinse water will be discharged into streams and rivers without adequate treatment.
  - (2) Vehicle maintenance, refueling, and fuel storage areas will be located outside RHCAs.
  - (3) All vehicles operated within RHCAs of any stream or water body will be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected will be repaired before the vehicle resumes operation.
  - (4) When not in use, vehicles will be stored in the vehicle staging area outside of RHCAs. If relocating heavy equipment to staging areas daily will create additional riparian disturbance, staging in RHCAs can occur with concurrence of the UNF fish biologist.
- j. Site preparation. Site preparation is completed in the following manner, including removal of stream materials, topsoil, surface vegetation and major root systems.
- i. Any instream large wood or riparian vegetation moved or altered during construction will stay on the site or be replaced with a functional equivalent.
  - ii. Tree or riparian shrub removal occurring at in-channel treatment and stream crossing improvement work sites will be mitigated for onsite by a 2:1 replanting ratio.
  - iii. Whenever the project area is to be revegetated or restored, native channel material, topsoil and native vegetation removed for the project should be stockpiled for redistribution on the project area.
  - iv. Vegetation removal will occur by hand where ever practical, leaving rootwads intact and cutting vegetation at ground level to promote resprouting where ever practical.
- k. Earthwork. Earthwork, including drilling, blasting, excavation, dredging, filling and compacting, associated with the in-channel treatment and stream crossing improvement work is completed in the following manner:
- i. Additional boulders, rock, woody materials and other natural construction materials used for the in-channel treatments or stream crossing improvements must be obtained from outside the riparian area.
  - ii. Material removed during excavation will only be placed in an upland location where it cannot enter streams or other water bodies.
  - iii. All exposed or disturbed areas will be stabilized to prevent erosion and replanted with native vegetation.

- (1) Areas of bare soil within 150 feet of waterways, wetlands or other sensitive areas will be stabilized by native seeding,<sup>1</sup> mulching, and placement of erosion control blankets and mats, if applicable, as quickly after exposure as possible..
- (2) All other areas will be stabilized quickly as reasonable, but within 14 days of exposure.
- (3) Seeding outside the growing season will not be considered adequate nor permanent stabilization.
- iv. All erosion control devices will be inspected during construction to ensure that they are working adequately.
  - (1) Erosion control devices will be routinely inspected to ensure proper function.
  - (2) If inspection shows that the erosion controls are ineffective, work crews will be mobilized immediately, to make repairs, install replacements, or install additional controls as necessary.
- v. If soil erosion and sediment resulting from construction activities is not effectively controlled, work will cease until protective measures can be implemented. The engineer will limit the amount of disturbed area to that which can be adequately controlled.
- vi. Sediment will be removed from sediment controls once it has reached 1/3 of the exposed height of the control. Whenever straw bales are used, they will be staked and dug into the ground 5 inches (12 cm). Catch basins will be maintained so that no more than 6 inches (15 cm) of sediment depth accumulates within traps or sumps.
- I. Site restoration. Site restoration and cleanup, including protection of bare earth by seeding, planting, mulching and fertilizing, is done in the following manner.
  - i. All areas damaged by the construction activities will be restored to pre-work conditions including restoration of original streambank lines, and contours.
  - ii. All exposed soil surfaces, including construction access roads and associated staging areas, will be stabilized at finished grade with mulch, native herbaceous seeding, and native woody vegetation before October 1. On cut slopes steeper than 1:2, a tackified seed mulch will be used so that the seed does not wash away before germination and rooting occurs. In steep locations, a hydro-mulch will be applied at 1.5 times the normal rate.
  - iii. Disturbed areas will be planted with native vegetation specific to the project vicinity or the region where the project occurs, and will comprise a diverse assemblage of woody and herbaceous species.
  - iv. Plantings will be arranged randomly within the revegetation area.
  - v. All plantings will be completed before July 1.

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<sup>1</sup> By Executive Order 13112 (February 3, 1999), Federal agencies are not authorized to permit, fund or carry out actions that are likely to cause, or promote, the introduction or spread of invasive species. Therefore, only native vegetation that is indigenous to the project vicinity, or the region of the state where the project is located, shall be used.

- vi. No herbicide application will occur within RHCA's as part of this permitted action. Mechanical removal of undesired vegetation and root nodes is permitted.
  - vii. No surface application of fertilizer will be used within 50 feet of any stream channel as part of this permitted action.
  - viii. Plantings in areas disturbed by construction activities will achieve an 80 percent survival success after three years.
    - (1) If success standard has not been achieved after three years, the UNF will develop an alternative plan, address temporal loss of function and remedy the issue.
    - (2) Plant establishment monitoring will continue and plans will be submitted to NMFS until site restoration success has been achieved.
  - m. UNF personnel. A UNF fish biologist or hydrologist will be on-site for all in-channel treatment and stream crossing improvement work and related monitoring activities to ensure that these terms and conditions are met.
2. To implement reasonable and prudent measure #2, the UNF shall ensure that:
- a. Pollution and erosion control plan. A Pollution and Erosion Control Plan (PECP) will be developed for each authorized project to prevent point-source pollution related to construction operations. The PECP will contain the pertinent elements listed below and meet requirements of all applicable laws and regulations.
    - i. Methods that will be used to prevent erosion and sedimentation associated with access roads, stream crossings, construction sites, borrow pit operations, haul roads, equipment and material storage sites, fueling operations and staging areas.
    - ii. Methods that will be used to confine and remove and dispose of excess concrete, cement and other mortars or bonding agents, including measures for washout facilities.
    - iii. A description of the hazardous products or materials that will be used, including inventory, storage, handling, and monitoring.
    - iv. A spill containment and control plan with notification procedures, specific clean up and disposal instructions for different products, quick response containment and clean up measures that will be available on site, proposed methods for disposal of spilled materials, and employee training for spill containment.
    - v. Measures that will be taken to prevent construction debris from falling into any aquatic habitat. Any material that falls into a stream during construction operations will be removed to an upland site in a manner that has a minimum impact on the streambed and water quality.
3. To implement reasonable and prudent measure #3, the UNF shall ensure that:

- a. Landing areas. Silt fences will be used at helicopter landing sites where erosion of sediment into streams is likely. Sub-soiling and grass seeding of these areas will also occur as needed. Silt fences, straw bales, or existing roadside ditches will be used at landings located in RHCAs to prevent sediment from entering streams. Restoration of landing areas will take place as quickly as possible following site restoration requirements found in term and condition 1(l) of this Opinion.
  - b. Forwarder trails. Only designated or existing forwarder trails will be used for heavy equipment operations. If forwarder trails have to cross PACFISH category IV streams, slash will be used to protect the streambed. If trees in RHCAs need to be cut to allow passage of heavy equipment, they will be left on site. Forwarder trails crossing RHCAs will be reclaimed and revegetated the following fall after trail use. The UNF timber sale administrator will coordinate with a fish biologist during supervision of this activity.
  - c. Hauling of timber. Suspend use of heavy equipment on roads (e.g. timber hauling) when road conditions would generate excessive sediment, such as during intense or prolonged rainfall, or when the road surface begins to deteriorate as evidenced by the increasing presence of surface mud, rutting, ponding, etc.
4. To implement reasonable and prudent measure #4, the UNF shall ensure that:
- a. Road obliteration/ decommissioning. Areas of bare/disturbed soil and obliterated/decommissioned roads will be seeded with a certified weed free grass seed mixture. Disposal of waste material generated from road maintenance activities will not occur on active floodplains. Where sediment risks warrant, use sediment control measures (straw bales or similar materials.)
  - b. Temporary roads. All temporary roads used for the timber sale will be closed and revegetated within 12 months of the time they are no longer needed for the scheduled activity. If necessary, structures will be placed at the beginning of these roads to prevent use by the public. Appropriate sediment control measures will be used in areas where sediment from temporary roads may enter streams until such time as no longer needed.
  - c. Sediment Control Measures. For re-opened, resurfaced, or reconstructed roads, sediment control measures will be used, where necessary, to prevent sidecast material or sediment from entering streams for the duration of their use.
5. To implement reasonable and prudent measure #5, the UNF shall ensure that:
- a. Ignition of prescribed fire. No direct ignition of fire will occur in RHCAs. For aerial ignition, the burn boss will walk RHCAs to become familiar with the boundaries and then brief helicopter pilots and accompany the flights during aerial ignition to prevent ignition in RHCAs. If accidental aerial ignition of an RHCA occurs, the ignition specialist will extinguish fires within the RHCA as

- soon as possible. NMFS will be notified within 24 hours of such accidental ignitions. Aerial ignition will stop within 50 feet of PACFISH buffers.
- b. Escape of prescribed burn. Should a fire escape, NMFS will be notified and emergency consultation initiated. An escaped fire will be promptly addressed under emergency fire guidance.
  - c. Area to be burned. If the percent blackened area or bare mineral soil exceeds 10% exposure in the spring, or 20% exposure in the fall in any burn unit, water turbidity samples will be collected at the downstream most point in that subwatershed and at the forest service boundary of the watershed. This sampling will occur during the first or second post-fire storm event. Report to NMFS and Oregon Department of Environmental Quality immediately if State water quality standards for turbidity are exceeded. A UNF fish biologist or hydrologist will inspect RHCAs to assess the impacts of this burning. Sediment sources to streams will be identified and appropriate sediment control measures will be implemented after the conclusion of prescribed fire activities .
  - d. Water drafting. Water drafting for prescribed fire control or maintenance activities will occur in sources other than PACFISH Category I and II streams whenever possible. If water drafting in these streams is necessary, withdrawals will be limited to no more than 8 hours, no more than three consecutive days, and will not remove more than 1% of stream flow measured at the time of withdrawal. Screens meeting NMFS criteria will be used for all water drafting activities in fish bearing streams.
6. To implement reasonable and prudent measure #6, the UNF shall ensure that:
- a. Aspen restoration. If mechanical root stimulation is required, appropriate sediment control measures will be used to prevent sediment from entering streams.
7. To implement Reasonable and Prudent Measure #7, the UNF shall submit a report by March 1 of the following year to NMFS describing the previous years activities related to this project. In addition, the UNF will provide yearly site visits for NMFS Level One Streamlining Representative for the Forest to assess the completed and ongoing actions associated with the Rimrock ERP. The monitoring report will consist of the following information:
- a. Project identification.
    - i. project name;
    - ii. project location by 5<sup>th</sup> field hydrological unit code (HUC) and latilong;
    - iii. starting and ending dates for work completed; and
    - iv. the UNF contact person.
  - b. Isolation of in-water work area. All projects involving isolation of in-water work areas must include a report of any seine and release activity including:
    - i. The name and address of the supervisory fish biologist;

- ii. methods used to isolate the work area and minimize disturbances to ESA-listed species and their critical habitat;
  - iii. stream conditions before and during project following placement and removal of barriers;
  - iv. who accomplished the work and what policies or practices were followed to implement this activity.
- c. Pollution and erosion control. A summary of all pollution and erosion control inspection reports, including descriptions of any failures experienced with erosion control measures, efforts made to correct them and a description of any accidental spills of hazardous materials.
- d. Site restoration. Summary of the following conditions:.
- i. Log and rock structure repair.
  - ii. Planting composition and density and distribution.
  - iii. A summary of planting and seeding efforts
  - iv. A narrative assessment of the previous years work and its effects on natural stream function.
- e. Sediment monitoring. The UNF shall monitor cobble embeddedness and percent fine sediment by depth in streams within the Big Wall Creek watershed. The UNF shall monitor cobble embeddedness, at a minimum, in one stream in each subwatershed located in the action area. In addition, the UNF shall implement sediment monitoring to assess the percent fine sediment by depth in one stream in each subwatershed located in the action area. The sampling will:
- i. use scientifically-reviewed sampling method
  - ii. have the ability to delineate percent fine sediment smaller than .84mm, between 0.84mm and 4.6mm, and between 4.6 and 6.33mm
  - iii. be conducted before ground disturbing activities take place to establish a baseline condition. These baseline measurements will be present to the Level One Streamlining Team prior to beginning the Rimrock ERP projects.
  - iv. be conducted annually for 10 years.
  - v. the results of the sediment monitoring will be present to the Streamlining Level One Team each year. Further degradation of MCR steelhead habitat parameters resulting from sedimentation caused by actions contained within the Rimrock ERP may result in re-initiation of this consultation.
- f. The annual report will be submitted to:

Branch Chief - Portland  
 National Marine Fisheries Service  
 Attn: OSB2001-0118-IEC  
 525 NE Oregon Street, Suite 500  
 Portland, OR 97232

- g. NOTICE. If a dead, injured, or sick endangered or threatened species specimen is found, initial notification must be made to the National Marine Fishery Service Law Enforcement Office, at Vancouver Field Office, 600 Maritime, Suite 130, Vancouver, Washington 98661; phone: 360/418-4246. Care should be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. Besides the care of sick or injured endangered and threatened species, or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence with the specimen is not unnecessarily disturbed.

### **3. ESSENTIAL FISH HABITAT**

#### **3.1 Background**

The objective of the essential fish habitat (EFH) consultation is to determine whether the proposed action may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

#### **3.2 Magnuson-Stevens Fishery Conservation and Management Act**

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NMFS on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of EFH: Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50CFR600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NMFS on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;
- NMFS shall provide conservation recommendations for any Federal or State Activity that may adversely affect EFH;

- Federal agencies shall within 30 days after receiving conservation recommendations from NMFS provide a detailed response in writing to NMFS regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NMFS, the Federal agency shall explain its reason for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NMFS is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

### **3.3 Identification of EFH**

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: chinook salmon (*Oncorhynchus tshawytscha*); coho salmon (*O. kisutch*); and Puget Sound pink salmon (*O. gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (i.e., natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based on this information.

### **3.4 Proposed Actions**

The proposed action is detailed above in Section 1.2 of the ESA portion of this Opinion. The action area includes the Big Wall Creek watershed. This area has been designated as EFH for various life stages of chinook salmon.

### **3.5 Effects of Proposed Action**

As described in detail in the ESA portion of this consultation, the proposed activities may result in detrimental, short-term, adverse effects to a variety of habitat parameters.

### **3.6 Conclusion**

NMFS believes that the proposed action may adversely affect the EFH for chinook salmon.

### **3.7 EFH Conservation Recommendations**

Pursuant to Section 305(b)(4)(A) of the Magnuson-Stevens Act, NMFS is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. In addition to conservation measures proposed for the project by the UNF, all of the Reasonable and Prudent Measures and the Terms and Conditions contained in Section 2.4 of the ESA portion of this Opinion are applicable to salmon EFH. Therefore, NMFS incorporates each of those measures here as EFH conservation recommendations.

### **3.8 Statutory Response Requirement**

The Magnuson-Stevens Act (section 305(b)) and 50 CFR 600.920(j) requires the UNF to provide a written response to NMFS' EFH conservation recommendations within 30 days of its receipt of this letter. The response must include a description of measures proposed to avoid, mitigate, or offset the adverse impacts of the activity on EFH. If the response is inconsistent with NMFS' conservation recommendations, the reasons for not implementing the UNF shall explain its reasons for not following the recommendations.

### **3.9 Supplemental Consultation**

The UNF must reinitiate EFH consultation with NMFS if either the action is substantially revised or new information becomes available that affects the basis for NMFS' EFH conservation recommendations (50 CFR 600.920).

#### 4. LITERATURE CITED

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this Opinion in addition to the BA and additional information requested by NMFS and provided by the UNF.

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