UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
2003/01307

November 20, 2003

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

Re: Endangered Species Act Formal Section 7 Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Emergency Fire Suppression Activities for the Bull Springs 2 Fire, Umatilla National Forest, Grant County, Oregon

Dear Mr. Blackwood:

Enclosed is a document prepared by NOAA's National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7 of the Endangered Species Act (ESA) which addresses the emergency fire suppression completed during 2003, for the Bull Springs 2 Fire on the Umatilla National Forest, Grant County, Oregon. NOAA Fisheries concludes in this biological opinion (Opinion) that the emergency action does not jeopardize Middle Columbia River (MCR) steelhead (*Oncorhynchus mykiss*).

This document also serves as consultation on essential fish habitat (EFH) pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and its implementing regulations at 50 CFR Part 600. The Middle Fork John Day River and North Fork John Day River subbasins have been designated as EFH for chinook salmon (*O. tshawytscha*).

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: Al Scott, UNF
Tim Unterwegner, ODFW
John Kinney, USFWS

Endangered Species Act - Section 7 Consultation
Biological Opinion

&

Magnuson-Stevens Fishery Conservation and Management Act
Essential Fish Habitat Consultation

Emergency Fire Supression Activities for the Bull Springs 2 Fire,
Umatilla National Forest,
Grant County, Oregon

Agency:	Forest Service
Consultation Conducted By:	National Marine Fisheries Service, Northwest Region
Date Issued:	November 20, 2003
Issued by:	For Michael R Crouse D. Robert Lohn Regional Administrator
Refer to:	**2003/01307**

TABLE OF CONTENTS

1. INTRODUCTION . . . 1
   - 1.1 Consultation History . . . 1
   - 1.2 Emergency Action . . . 2
   - 1.3 Description of the Action Area . . . 3

2. ENDANGERED SPECIES ACT . . . 4
   - 2.1 Biological Opinion . . . 4
     - 2.1.1 Biological Information . . . 4
     - 2.1.2 Evaluating Emergency Action . . . 5
     - 2.1.3 Biological Requirements . . . 5
     - 2.1.4 Environmental Baseline . . . 6
     - 2.1.5 Effects of Emergency Action . . . 7
     - 2.1.6 Cumulative Effects . . . 8
     - 2.1.7 Conclusion . . . 9
     - 2.1.8 Conservation Recommendations . . . 9
     - 2.1.9 Reinitiation of Consultation . . . 10
   - 2.2 Incidental Take Statement . . . 10
     - 2.2.1 Amount or Extent of the Take . . . 11
     - 2.2.2 Effect of Take . . . 11
     - 2.2.3 Recommendations Provided to Minimize Take . . . 11
     - 2.2.4 Success in Implementing Recommendations . . . 11

3. MAGNUSON-STEVENS ACT . . . 12
   - 3.1 Magnuson-Stevens Fishery Conservation and Management Act . . . 12
   - 3.2 Identification of EFH . . . 13
   - 3.3 Emergency Actions . . . 13
   - 3.4 Effects of Emergency Action . . . 13
   - 3.5 Conclusion . . . 13
   - 3.6 EFH Conservation Recommendations . . . 13
   - 3.7 Statutory Response Requirement . . . 13
   - 3.8 Supplemental Consultation . . . 14

4. LITERATURE CITED . . . 15

Appendix A. Recommendations for Wildland Fire Suppression . . . 17

1. INTRODUCTION

1.1 Consultation History

NOAA's National Marine Fisheries Service (NOAA Fisheries) received a request for emergency consultation by phone and email on September 8, 2002. The request was made by Katherine Ramsey, the Umatilla National Forest (UNF) Threatened and Endangered Species Act coordinator, because of possible adverse effects to Middle Columbia River (MCR) steelhead (*Oncorhynchus mykiss)* from the fire suppression activities associated with the Bull Springs 2 wildfire. The fire suppression activities were carried out in the North Fork John Day River (NFJDR) and Middle Fork John Day River (MFJDR) in Grant County, Oregon. This area is also designated as essential fish habitat (EFH) for chinook salmon (*O. tshawytscha*). On September 9, 2003, NOAA Fisheries provided recommendations by email to avoid or minimize take of MCR steelhead that may occur as a result of fire suppression efforts.

The Bull Springs Fire began on September 4, 2003, at approximately 4:00 p.m. The fire was approximately 20 air miles southeast of Ukiah, Oregon, in the Indian Creek watershed. This area of the UNF is administered by the North Fork John Day Ranger District. The fire was spotted by a lookout on September 5, and the initial suppression response include several fire engines, heavy equipment, one helicopter, and one single engine air tanker. By the morning of September 7, the fire had grown to approximately 500 acres and additional suppression personnel and equipment were requested. On the evening of September 7, the fire was estimated to be 1,200 acres. On September 8, it began raining and the fire stopped spreading. On September 20, the fire was declared contained and major suppression efforts ceased.

On September 23, 2003, the UNF Interagency Endangered Species Act (ESA) Streamlining Level One Team (Level One Team) visited the fire area and observed effects of the fire and suppression efforts. It was determined at this time that the suppression activities for the Bull Springs 2 Fire were "likely to adversely affect" MCR steelhead.

NOAA Fisheries received a letter on October 8, 2003, from the UNF requesting formal consultation for the suppression activities associated with the Bull Springs 2 Fire. Emergency consultation is required under the ESA section 7 regulations (50 CFR 402.05) for actions that may affect a listed species and involve a situation where an act of God requires an agency to take action to prevent the imminent loss of human life or property. Accompanying this letter was a biological assessment (BA) describing the fire suppression efforts and their effects to MCR steelhead and their habitat in the NFJDR and MFJDR subbasins. On October 29, 2003, the UNF provided additional information on the fire suppression efforts to NOAA Fisheries.

The objective of the biological opinion contained in this document is to determine whether implementing the fire suppression activities undertaken to contain the Bull Springs 2 Fire was likely to jeopardize the continued existence of MCR steelhead.

The objective of the EFH consultation is to determine whether the emergency 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 emergency action.

1.2 Emergency Action

Suppression efforts for the Bull Springs 2 Fire included the use of fire engines, bulldozers, helicopters, and air tankers. During containment efforts, 2.8 miles of fireline were constructed by bulldozer and 5.2 miles of fireline were constructed by hand. Approximately 0.5 miles of the bulldozer-constructed fireline were created in riparian habitat conservation areas (RHCA)[1] of Indian Creek and the East Fork Meadow Brook Creek stream system. The rest of the constructed fireline was outside of RHCAs.

During the initial attack phase of the fire suppression, some large woody debris was cut out of Indian Creek in an attempt to stop the fire at the creek. The distance affected by this activity was approximately 100 to 200 feet of stream channel.

At the beginning of suppression efforts, NOAA Fisheries' approved fish screens were not available for water drafting that occurred from Indian Creek. Approximately 32,000 gallons of water was pumped over 2.5 days from Indian Creek near the crossing of Forest Road 3990. On September 9, approved screens were made available and used for the remainder of the fire suppression efforts.

Six helicopters and three fixed-wing aircraft were used during the suppression efforts. Approximately 89,000 gallons of fire retardant and 25,000 gallons of water were delivered aerially to the fire. Most of the fire retardant was dropped away from riparian areas, however, there was one incident involving a drop of fire retardant into or near East Fork Meadow Brook Creek. This retardant drop occurred shortly after 6:00 pm on September 7. The retardants being used at the time were Phos-chek HV-R and Fire-Trol LCG, both liquid concentrates. It is not known which type of retardant was actually involved in the subject drop. A fishery biologist and hydrologist from the UNF visited the drop site on September 8. They reported the following in the BA:

> We located a spring which is the head of the live flow at this time. There was approximately 50 ft of channel where animal tracks, a wallow, and some pools had visible retardant. The retardant was red, and had settled to the bottom of the

[1]Riparian Habitat Conservation Area (RHCA) - Portions of watersheds where riparian dependent resources receive primary emphasis, and management activities are subject to specific standards and guidelines. RHCAs include traditional riparian corridors, wetlands, intermittent headwater streams, and other areas where proper ecological functioning is crucial to maintenance of the stream's water, sediment, woody debris and nutrient delivery systems. (U.S.D.A. and U.S.D.I 1995)

water column. It was slightly suspended. The stream was definitely flowing below this area, and approximately 250 ft of stream was slightly discolored (cloudy with a pink tinge). Above the spring, water was not present on the surface.

The general area was wet because of approximately 0.5 inches of rain overnight. Foliage and ground were not obviously covered by retardant. It was probably washed off by the rain. Some moss appeared to retain some retardant. Also, it was discernable on bark-less logs, especially in borer etchings. Attempts were made to remove retardant that was contained in puddles and elk wallows within the riparian area of East Fork Meadow Brook.

Next we went to the crossing of the 3980-180 road and East Fork Meadow Brook Creek, which is approximately 1.5 miles downstream, in T8S, R32E, sec 15, NW/NW on N. section line. There were 3 live rainbow (redband) trout, approximately 4 inches long, in the stream below the road.

East Fork Meadow Brook at the site of the retardant drop and downstream will continue to be monitored until spring flows to document any adverse affects to the redband population in this stream. A fisheries biologist will monitor at locations along the stream for the presence of any dead fish after each significant rainfall event. Unless a significant event such as a significant fish kill occurs a short summary of observation will be prepared and presented to the level 1 team following spring runoff in 2004.

The UNF is planning or has planned restoration efforts to rehabilitate areas damage by the Bull Springs 2 Fire.

1.3 Description of 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 identified emergency action occur within the range of MCR steelhead. The defined action area is the area that is directly and indirectly affected by the emergency action. The direct effects occur at the action site and may extend upstream or downstream based on the potential for impairing fish passage, stream hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect effects may occur throughout the watershed, where actions described in this Opinion lead to additional activities, or affect ecological functions contributing to stream degradation. As such, the action area for the proposed activities includes the immediate portions of the watershed containing the project and those areas upstream and downstream that may reasonably be affected, temporarily or in the long term, by the proposed project. For this project, the action area is the subwatersheds of the NFJDR and MFJDR where fire suppression occurred.

2. ENDANGERED SPECIES ACT

2.1 Biological Opinion

2.1.1 Biological Information

The MCR steelhead evolutionarily significant unit (ESU) was listed as threatened under the ESA by NOAA Fisheries on March 25, 1999 (64 FR 14517). Protective regulations for MCR steelhead were issued under section 4(d) of the ESA on July 10, 2000 (65 FR 42422). Biological information concerning the MCR steelhead is found in Busby *et al.* (1996). The major drainages in the MCR steelhead ESU are the Deschutes, John Day, Klickitat, Umatilla, Walla Walla, and Yakima river systems. NOAA Fisheries (2003) indicates that the five-year average (geometric mean) abundance of natural MCR steelhead was up from the previous year's (2001) basin estimates within the ESU. The Klickitat, Yakima, Touchet, and Umatilla systems are all well below their interim abundance targets. The John Day and Deschutes are at or above their interim targets for abundance, however, there is significant concern regarding the straying of fish into the Deschutes system from other ESUs. The productivity estimate (λ) of the MCR ESU is approximately 0.98, indicating that the productivity of MCR steelhead is slightly below its target of 1.0. The NOAA Fisheries biological review team (BRT) has determined that the MCR ESU is likely to become endangered because of stock abundance and long-term productivity being depressed within the ESU (NOAA 2003).

The John Day River (JDR) is the largest river system in the range of MCR steelhead that is free of dams. There is currently no artificial propagation of steelhead in the system, and steelhead runs are driven almost exclusively by native stocks, making the JDR system unique within the ESU. However, there is some straying of hatchery fish into the JDR system from the Columbia River (Unterwegner and Gray 1997). The Oregon Department of Fish and Wildlife (ODFW) estimates yearly returns of adult steelhead to the JDR basin from 3,900 to 36,400, with estimated escapement averaging 13,988 adults since 1987. NOAA Fisheries (2003) states that while the JDR system has met or exceeded interim abundance targets for the last five years, data shows the long-term trend for abundance is still downward.

The JDR and its tributaries, including the NFJDR and MFJDR subbasin streams, provide spawning, rearing, and migratory habitat for both adult and juvenile life stages of MCR steelhead. Adult MCR steelhead enter the Columbia River beginning in the spring and migrate upriver through the summer, fall, and winter, seeking their tributary of origin. By early the following spring, the adults have reached their natal streams and spawn in gravel redds/nests from March to early June. Deposited eggs usually hatch by the July of the same year. The resulting juveniles will spend from one to four years rearing to smolt size, at which time they will begin their migration to the ocean. Juvenile steelhead were expected to be present in the fire area and areas used for fire suppression staging.

Essential features of the adult spawning, juvenile rearing, and adult and migratory habitat for this species are: Substrate, water quality, water quantity, water temperature, water velocity,

cover/shelter, food (juvenile only), riparian vegetation, space, and safe passage conditions. (Bjornn and Reiser, 1991; NOAA Fisheries, 1996b; Spence *et al.*, 1996). The essential features that the emergency action may have affected are: Substrate, water quality, quantity, water temperature, water velocity, cover/shelter, food, and riparian vegetation.

2.1.2 Evaluating Emergency Action

The standards for determining jeopardy and destruction or adverse modification of critical habitat are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). In conducting analyses of habitat-altering actions under section 7 of the ESA, NOAA Fisheries uses the following steps of the consultation regulations combined with the Habitat Approach (NOAA Fisheries 1999): (1) Consider the status and biological requirements of the species; (2) evaluate the relevance of the environmental baseline in the action area to the species' current status; (3) determine the effects of the proposed or continuing action on the species and whether the action is consistent with the available recovery strategy; (4) consider cumulative effects; and (5) determine whether the emergency action, in light of the above factors, is likely to appreciably reduce the likelihood of species survival in the wild or destroy or adversely modify critical habitats. In completing this step of the analysis, NOAA Fisheries determines whether the action under consultation, together with the cumulative effects when added to the environmental baseline, is likely to jeopardize the ESA-listed species or result in the destruction or adverse modification of critical habitat. If either or both are found, NOAA Fisheries will identify reasonable and prudent alternatives for the action that avoid jeopardy or destruction or adverse modification of critical habitat. For the emergency action, NOAA Fisheries' jeopardy analysis considers direct or indirect mortality of fish attributable to the action.

2.1.3 Biological Requirements

The first step in the methods NOAA Fisheries 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. NOAA Fisheries 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, NOAA Fisheries 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 time 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.

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, NOAA Fisheries defines the biological requirements in terms of a concept called Properly Functioning Condition (PFC) and applies a "habitat" approach to its analysis (NOAA Fisheries 1999). The current status of MCR steelhead, based on their risk of extinction, has not improved since the species was listed

2.1.4 Environmental Baseline

The current range-wide status of the MCR steelhead is found in Busby *et al.* (1995, 1996). 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* (NOAA Fisheries 1996a), 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. For the emergency actions, the MPI evaluation was based on habitat conditions of the NFJDR and MFJDR subbasins. More specific information on environmental baseline is provided for the subwatersheds where major suppression efforts occurred.

In the NFJDR subbasin, five habitat indicators in the MPI were rated as "properly functioning" and include: Chemical contaminants/nutrients, physical barriers, large pools, off-channel habitat, and disturbance history. Eleven were rated as "functioning at risk" and include: Sediment, substrate, large woody debris (LWD), pool frequency and quality, refugia, wetted width/maximum depth ratio, streambank condition, floodplain connectivity, change in peak/base flows, drainage network increase, and riparian habitat conservation areas. Two indicators, temperature and road density/location, were rated as "not properly functioning."

In the MFJDR subbasin, 12 of the 18 habitat indicators in the MPI were rated as "functioning at risk." These are: Sediment, chemical contaminants/nutrients, large woody debris, off-channel habitat, refugia, width/depth ratio, streambank condition, floodplain connectivity, change in peak/base flow, drainage network increase, disturbance history, and RHCA. Six of the 18 were rated as "not properly functioning." These are: Temperature, physical barriers, substrate embeddedness, pool frequency and quality, large pools, and road density and location. None of the habitat indicators were rated as properly functioning

Some habitat indicators that were rated as "properly functioning" for the subbasins as a whole, such as chemical contaminant/nutrients, may be functioning at a lesser condition in localized areas. For instance, in areas of concentrated mining activities, chemical contaminants such as heavy metals may be present. In addition, a chemical spill in the NFJDR in 1990, resulted in fish kills and reduced densities of aquatic invertebrates. In a similar circumstance, recent wildfires have led to localized increase in peak/base flows and degraded riparian areas by burning hardwood shrubs and other hydrophilic vegetation.

Indian Creek
Indian Creek is a class one, third order stream that flows west 11.6 miles then turns south and flows 4 miles to the Middle Fork John Day River. The watershed encompasses approximately 11,650 acres. The floodplain of this creek on the UNF averages less than 100 feet wide with an average gradient of 5%. In the area of the fire, the stream flows through a moderate V-shaped valley with side slopes of 30-60%. The streambed substrate consists primarily of gravel and cobble, with streambanks consisting of sand, gravel, and cobble. Total effective cover was 26-50% consisting mostly of woody debris (43 pieces per mile) and overhanging vegetation. There were 4.8 pools per mile with an average residual pool depth of 2.2 feet. The upper reaches of Indian Creek (through the burned area) were mainly composed of an overstory of Engleman spruce and white fire with a midstory of alder, dogwood, hawthorne, young spruce, and Douglas-fir. Stream shade was generally high (greater than 60%). There are numerous dead standing and downed trees within the burned area that will contribute to the future abundance of woody debris.

East Fork Meadow Brook Creek
East Fork Meadow Brook Creek is a second order stream that flows northwest for approximately 11 miles to Meadow Brook Creek, which flows into the North Fork John Day River. The watershed encompasses approximately 9,560 acres. The floodplain in the upper reaches of this stream average around 80 feet wide with an average gradient of 4.4%. Streambed substrate in the upper reaches consists primarily of gravel with small amount of sand and cobble. The Rosgen stream type throughout the stream was type B (Rosgen 1996). The dominant overstory vegetation in the upper reaches was small white fir, Douglas-fir, spruce, subalpine fir, western larch, and ponderosa pine. Average stream shade for the upper reach was approximately 49%. There is an abundance of large wood in this stream (44.6 pieces per mile).

2.1.5 Effects of Emergency Action

The effects determination for the suppression activities for the Bull Springs 2 Fire 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* (NOAA Fisheries 1996a). The effects of actions are expressed in terms of the expected effect (restore, maintain, or degrade) on aquatic habitat factors in the action area.

Construction of Fireline
The disturbance of riparian vegetation through fireline construction could lead to decreased shade, increased water temperatures, increased sediment and turbidity, increased chemical inputs, and decreased streambank stability until riparian vegetation is re-established. There was also the potential for fuel or other contaminant spills and the decreased water volumes associated with use of heavy equipment in or near the stream. These chemical substances are highly toxic to aquatic life, and can cause death or injury to fish, as well as adverse sublethal effects to salmonids (Arkoosh *et al.* 1991). Construction of fireline occurred in the RHCAs of East Fork Meadow Brook Creek and Indian Creek. The area disturbed by this action is relatively small and

the UNF has carried out some rehabilitation efforts such as construction of water bars and seeding these areas. This, combined with further planned rehabilitation efforts, will prevent further sediment mobilization. No habitat indicators are expected to be affected in the long term.

Removal of Woody Debris

Removal of woody debris in Indian Creek will have some limited negative effect on fish habitat by reducing hiding cover and pool forming structures. The stream reach affected by this activity was small and large wood is abundant in Indian Creek. Also, trees killed by the fire will fall into Indian Creek and its floodplain in the near future, increasing woody debris levels. No long-term negative effects are expected from this activity.

Water Drafting Without Fish Screens

Water drafting without adequate fish screens can impinge or entrain juvenile salmonids. This can result in injury or death to these fish. It is possible that some small number of MCR steelhead were killed during water drafting without screens. However, this mortality is not expected to have measurable population-level effects.

Fire Retardant Spill

Fire retardants such as Phos-chek HV-R and Fire-Trol LCG can be toxic to aquatic life, especially when exposed to sunlight (Little and Calfee 2002.) Observations from fire retardant spills associated with recent wildfire suppression indicate that effects to aquatic life can vary dramatically from complete fish kills to no observable effects, depending on factors such as dilution rates, stream channel morphology, and type of retardant spilled (Norris *et al.* 1991). Although no fish mortality was observed initially in the September 7, 2003, retardant drop into Indian Creek, it is possible that lethal or sublethal effects from the fire retardant washing into the stream during subsequent precipitation events could occur.

2.1.6 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." There are several actions occurring on private land in the NFJDR and MFJDR subbasins that are reasonably certain to continue in the future. These include ranching, timber harvest, and withdrawal of water for irrigation. 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 JDR basin. Improvements to irrigation diversions to improve fish passage is occurring at several locations on private land within the JDR basin. NOAA Fisheries is not aware of any other specific future actions which are reasonably certain to occur on non-federal lands.

2.1.7 Conclusion

NOAA Fisheries 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 did not jeopardize the continued existence of MCR steelhead. NOAA Fisheries believes that the emergency actions caused some short-term increases to instream turbidity, sedimentation rates, and chemical contaminants in the subwatersheds in the action area. It is also possible that some direct mortality and harassment of juvenile MCR steelhead may have resulted from the instream activities, the water drafting without screens, and the fire retardant drop within an RHCA. Because of the conservation measures incorporated into the suppression activities, the amount of take associated with these activities was expected to be minimal. These conclusions were reached primarily because the emergency actions: (1) Occurred over a brief time; (2) are not expected to result in any long-term degradation of riparian areas or fish habitat; (3) were for the most part, consistent with PACFISH (USDA and USDI 1995) standards and guidelines; and (4) the recommendations to avoid or minimize take provided by NOAA Fisheries during the initiation of emergency consultation were followed for approximately 95% of the emergency actions. Thus, the emergency actions completed are not expected to impair currently properly functioning habitats, appreciably reduce the functioning of already impaired habitats, or retard the long-term progress of impaired habitats toward proper functioning condition essential to the long-term survival and recovery at the population or ESU scale.

2.1.8 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 the threatened and endangered species. Conservation recommendations are discretionary measures suggested to minimize or avoid adverse effects of emergency actions on listed species, to minimize or avoid adverse modification of critical habitat, or to develop additional information. NOAA Fisheries believes that the following conservation recommendations regarding emergency fire suppression activities should be implemented:

1. Due to the chaotic nature of suppression activities on large fires and increased demands on Resource Advisors when listed species are present, the UNF should establish a standardized process to specifically document the effects of future fire suppression activities on listed species and their habitats. This will simplify completion of the consultation document and improve the quality of the information available for the ESA emergency consultation process.

2. When using retardant and water drops in areas that “may effect” listed species, and to make drops more accurate, the use of heavy helicopters instead of heavy, fixed-wing air tankers is recommended.

3. The UNF should request ESA section 7 consultation on their Fire Management Plan. The results of this consultation will greatly improve the interagency efforts in future emergency fire consultations.

4. The UNF should replace large wood removed from Indian Creek with logs of a comparable size obtained outside of riparian areas.

For NOAA Fisheries to be kept informed of actions minimizing or avoiding adverse effects, or those that benefit listed salmon and steelhead or their habitats, we request notification of the achievement of any conservation recommendations when the UNF submits its annual report describing achievements of the fish monitoring program during the previous year.

2.1.9 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; (3) a new species is listed or critical habitat is designated that may be affected by the action; or (4) if the amount or extent of take specified in the incidental take statement is exceeded or expected to be exceeded. (50 CFR. 402.16). The UNF may also be required to reinitiate consultation if the emergency 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.

2.2 Incidental Take Statement

The ESA at section 9 [16 USC 1538] prohibits take of endangered species. The prohibition of take is extended to threatened anadromous salmonids by section 4(d) rule [50 CFR 223.203]. Take is defined by the statute as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." [16 USC 1532(19)] Harm is defined by regulation as "an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavior patterns, including, breeding, spawning, rearing, migrating, feeding or sheltering." [50 CFR 222.102] Harass is defined as "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering." [50 CFR 17.3] Incidental take is defined as "takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant." [50 CFR 402.02] The ESA at section 7(o)(2) removes the prohibition from any incidental taking that is in compliance with the terms and conditions specified in a section 7(b)(4) incidental take statement [16 USC 1536].

2.2.1 Amount or Extent of the Take

NOAA Fisheries anticipates that the emergency actions were reasonably certain to result in incidental take of MCR steelhead because of detrimental effects from increased sediment levels (non-lethal), increased chemical contaminant levels (potentially lethal), and limited riparian habitat disturbance (non-lethal). It is also likely that some incidental take may have resulted from the instream work and vehicles or machinery crossing streams (lethal) and water drafting without screens, although this is expected to be minimal.

Effects of actions such as minor sedimentation and minor riparian disturbance are unquantifiable in the short term, and are not expected to be measurable as long-term harm to habitat features or by long-term harm to salmonid behavior or population levels. Therefore, even though NOAA Fisheries expects some low level incidental take to have occurred due to the emergency actions covered by this Opinion, best scientific and commercial data available are not sufficient to enable NOAA Fisheries to estimate the specific amount of incidental take to the species itself. In instances such as these, NOAA Fisheries designates the expected level of take as "unquantifiable." Based on the information in the biological assessment, NOAA Fisheries anticipates that an unquantifiable amount of incidental take occurred as a result of the habitat altering actions covered by the Opinion. The extent of the take includes the aquatic and associated riparian habitats affected by the fire suppression for Bull Springs 2 Fire perimeter.

2.2.2 Effect of Take

In this Opinion, NOAA Fisheries determines that this level of anticipated take did not result in jeopardy to MCR steelhead.

2.2.3 Recommendations Provided to Minimize Take

On September 9, 2003, NOAA Fisheries provided recommendations for wild fire suppression to avoid and minimize potential take of MCR steelhead (Appendix A). The UNF Level One Team agreed that the implementation of these recommendations would be effective in minimizing the adverse effects to listed MCR steelhead and its habitat.

2.2.4 Success in Implementing Recommendations

The Resource Advisors for the fire reported 95% compliance with the NOAA Fisheries' recommendations and when non-compliance was found, immediate corrective action was taken. Therefore, NOAA Fisheries believes that the UNF was successful in avoiding and minimizing the adverse effects to MCR steelhead during the implementation of the fire suppression activities for the Bull Springs 2 Fire.

3. MAGNUSON-STEVENS ACT

3.1 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 NOAA Fisheries 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 NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;

- NOAA Fisheries 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 NOAA Fisheries provide a detailed response in writing to NOAA Fisheries 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 NOAA Fisheries, 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 up-slope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NOAA Fisheries is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

3.2 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: Chinook (*Oncorhynchus tshawytscha*); coho (*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 waterbodies 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 emergency action is based on this information.

3.3 Emergency Actions

The emergency actions are detailed above in section 1.2 of this document. The action area includes the NFJDR and MFJDR subbasins. This area has been designated as EFH for various life stages of chinook salmon.

3.4 Effects of Emergency Action

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

3.5 Conclusion

NOAA Fisheries believes that the emergency action did adversely affect the EFH for chinook salmon.

3.6 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the MSA, NOAA Fisheries 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 conservation recommendations contained in section 2.1.8 of the ESA portion of this Opinion are applicable to salmon EFH. Therefore, NOAA Fisheries incorporates each of those measures here as EFH conservation recommendations.

3.7 Statutory Response Requirement

The MSA (section 305(b)) and 50 CFR 600.920(j) requires the UNF to provide a written response to NOAA Fisheries' 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 NOAA

Fisheries' conservation recommendations, the reasons for not implementing the UNF shall explain its reasons for not following the recommendations.

3.8 Supplemental Consultation

The UNF must reinitiate EFH consultation with NOAA Fisheries if either the action is substantially revised or new information becomes available that affects the basis for NOAA Fisheries' 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 NOAA Fisheries and provided by the UNF.

Arkoosh, M. R., E. Casillas, E. Clemons, B. McCain, and U. Varanasi. 1991. Suppression of immunological memory in juvenile chinook salmon (Oncorhynchus tshawytscha) from an urban estuary. Fish and Shellfish Immunology 1:261-277.

Bjornn, T.C., and D.W. Reiser. 1991. Habitat requirements of salmonids in streams. Pages 83-138, in W.R. Meehan (editor) Influences of forest and rangeland management on salmonid fishes and their habitats. Special Publication 19. American Fisheries Society, Bethesda, Maryland.

Busby, P., S. Grabowski, R. Iwamoto, C. Mahnken, G. Matthews, M. Schiewe, T. Wainwright, R. Waples, J. Williams, C. Wingert, and R. Reisenbichler. 1995. Review of the status of steelhead (*Oncorhynchus mykiss*) from Washington, Idaho, Oregon, and California under the U.S. Endangered Species Act.

Busby, P., T. Wainwright, G.J. Bryant, L.J. Lierheimer, R.S. Waples, and I.V. Lagomarsino. 1996. Status Review of West Coast Steelhead from Washington, Idaho, Oregon, and California.

Chilcote, M. (In review) 2001. Conservation Assessment of Steelhead Populations in Oregon. Oregon Department of Fish and Wildlife Draft Report.

Federal Caucus. 2000. Conservation of Columbia basin fish: final basinwide salmon recovery strategy. (Available @ http://www.salmonrecovery.gov) December.

Little, E.E. and R.D. Calfee. 2002. Environmental implications of fire retardant chemicals. U.S. Geological Survey. June. 9p.

NOAA Fisheries (National Marine Fisheries Service). 1996a. Making Endangered Species Act determinations of effect for individual and grouped actions at the watershed scale. Habitat Conservation Program, Portland, Oregon. September 4, 1996.

NOAA Fisheries (National Marine Fisheries Service). 1996b. Factors for decline: A supplement to the notice of determination for West Coast Steelhead under the Endangered Species Act. NOAA Fisheries, Protected Species Branch, Portland, Oregon, 83p. (Available from NOAA Fisheries Protected Resources Division, 525 NE Oregon Street, Portland, Oregon 97232).

NOAA Fisheries (National Marine Fisheries Service). 1996c. Juvenile Fish Screening Criteria and Addendum: Juvenile Fish Screen Criteria for Pump Intakes. May. (Available @ www.nwr.noaa.gov/1hydrop/hydroweb/ferc.htm.)

NOAA Fisheries (National Marine Fisheries Service). 1999. The Habitat Approach: Implementation of Section 7 of the Endangered Species Act fo Actions Affecting the Habitat of Pacific Anadromous Salmonids. Guidance memorandum from Assistant Regional Administrators for Habitat Conservation and Protected Resources to staff. 3 pages. August. (Available @ www.nwr.noaa.gov , under Habitat Conservation Division, Habitat Guidance Documents).

NOAA Fisheries (in review). 2003. Preliminary conclusions regarding the updated status of listed ESUs of West Coast salmon and steelhead.142 pages. February. NOAA Fisheries, 525 NE Oregon Street, Suite 500,Portland, Oregon 97232-2737. (Available @ www.nwfsc.noaa.gov/)

Norris, L.A., H.W. Lorz, S.V. Gregory. 1991. Forest Chemicals *in* Influence of Forest and Rangeland Management on Salmonid Fishes and their Habitats. American Fisheries Society special publication 19. Bethesda, Maryland.

PFMC (Pacific Fishery Management Council). 1999. Amendment 14 to the Pacific Coast Salmon Plan. Appendix A: Description and Identification of Essential Fish Habitat, Adverse Impacts and Recommended Conservation Measures for Salmon. Portland, Oregon.

Rosgen, D. 1996. Applied River Morphology. Wildland Hydrology. Pagosa Springs, Colorado.

Spence, B. C., G. A. Lomnicky, R. M. Hughes, and R. P. Novitzki. 1996. An ecosystem approach to salmonid conservation. ManTech Environmental Research Services, Inc., Corvallis, Oregon, to National Marine Fisheries Service, Habitat Conservation Division, Portland, Oregon (Project TR-4501-96-6057).

Unterwegner, T.J. and M.E. Gray. 1997. Annual Report, John Day Fish District, Northeast Region, 1997. Unpublished Report. Oregon Department of Fish and Wildlife. John Day, Oregon.

U.S. Department of Agriculture (USDA) and U.S. Department of Interior (USDI). 1995. Environmental Assessment for the Implementation of Interim Strategies for Managing Anadromous Fish-producing Watersheds in Eastern Oregon and Washington, Idaho, and Portions of California (PACFISH). March.

Appendix A. Recommendations for Wildland Fire Suppression Provided to the UNF on September 9, 2003

This section provides recommendations for avoiding and minimizing adverse effects on listed species and their critical habitat during wildland fire suppression action and rehabilitation actions (Actions). NOAA Fisheries understands that the potential risk of wildland fire escapes or damage to life, property, or resources may preclude the implementation of some of the measures. These recommendations shall not obstruct USFS actions where human life is at stake.

- A fishery biologist (preferably one with local knowledge) should serve as a resource advisor (RA) with the Incident Command Team (ICT). Resource advisors shall closely coordinate with the ICT about listed species and their habitat and incorporate recommendations within the Incident Action Plan to minimize adverse effects.

- If a fishery biologist is not available, assure that someone with local knowledge provides the ICT with information about the location of listed species, their critical habitat, and recommendations to minimize adverse effects.

- Provide complete briefing and maps to overhead teams and crews involved in areas where salmonid species are known to exist.

- To the extent practicable, avoid and minimize disturbance of ground cover, vegetation, and the amount of exposed mineral soil caused by suppression activities within riparian areas, including:

    - Fireline construction by dozers;
    - grading activities;
    - road reconstruction;
    - stream crossings;
    - ignition of backfires; and
    - staging areas, helibases, base camps, drop-off points, *etc*.

<u>Fireline</u>

- Consider erosion control structures and seeding all mechanized line.

- Construct erosion control structures as handline is built.

- Avoid using stream bottoms as improved or constructed control points. Consult the RA to minimize impacts.

- Avoid digging tractor line within 300 feet of water and minimize stream crossings.

Water Intake

- To the extent practicable, use designated water sources for dipping and drafting. If not available, minimize using water sources where there is a risk of entraining listed species or reducing instream flows, both on- and off-site.

- To the extent practicable, avoid and minimize dam construction to pond water for drafting in streams where listed species or their critical habitat are known or believed to be present.

- Use NOAA Fisheries-specified intake screens or intake structures.

- Helicopter bucket dipping should be done only after chemical injection systems have been removed or disconnected and thoroughly rinsed.

Camp Location and Staging Areas

- Use only those locations approved by the RA.

- Avoid locating camps near or within riparian and areas.

Transportation and Fuel Use

- To the extent practicable, avoid and minimize road and stream crossing reconstruction. If road reconstruction is unavoidable, do so in a manner to prevent or minimize erosion, sediment delivery to stream channels, and modifying natural drainage patterns. If stream crossing reconstruction is unavoidable, minimize the number of crossings, amount of fill, diversion potential, and maintain the approach perpendicular to the stream.

- Ensure that fuels are stored a minimum of 300 feet from streams, lakes, and riparian areas.

- Utilize fuel containment devices on any fuel within 300 feet of riparian areas. RAs will approve the placement of pumps and fuel cans.

- Avoid using riparian areas as helibases or for refueling operations.

Retardant, foam, and surfactants

- Avoid application near bodies of water and use special care in those areas identified by RAs.

- Do not pump directly from streams if chemical products are to be injected into the system. If chemicals are utilized, pump from fold-a-tanks a minimum of 300 feet from water.

- Avoid back flushing pumps and charged hose into live streams or lakes.

Recommendations for Wildland Fire Rehabilitation Actions

This section provides recommendations for avoiding and minimizing adverse effects on listed species and their habitat from wildland fire rehabilitation activities. There are two types of emergency rehabilitation associated with wildland fires: Fire suppression rehabilitation and burned area emergency rehabilitation (BAER). Fire suppression rehabilitation is any action that minimizes the effects of wildland fire suppression activities. BAER activities are implemented to reduce the effects of the wildland fire prior to the onset of winter precipitation.

- Remove woody debris or slash from stream channels only if it may cause an imminent threat of damage to life or property (*e.g.*, above a culvert inlet that could potentially plug).

- Implement erosion control measures to restore natural drainage patterns and minimize the amount of exposed mineral soil, thereby reducing sediment delivery to stream channels.

- Decommission reconstructed roads and constructed stream crossings where appropriate.

- Decommission dams at drafting sites developed for the Action.

- Include a fisheries biologist on the wildland fire suppression rehabilitation and BAER teams for identifying activities that benefit listed species and their critical habitat.