UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
BIN C15700
Seattle, WA 98115-0070

August 5, 2002

Thomas F. Mueller
U.S. Army Corps of Engineers
Post Office Box 3755
Seattle, Washington 98124-3755

Re: Endangered Species Act Biological Opinion and Magnuson-Stevens Fishery Management and Conservation Act Consultation for Fish First "Charlie Swift" Fish Habitat Restoration Project on Cedar Creek, tributary to the East Fork Lewis River in Clark County, Washington (NOAA Fisheries No. WHB-02-275, Corps No. 2001-4-01036 Fish First)

Dear Mr. Mueller:

Enclosed is the National Marine Fisheries Service's (National Oceanic and Asmospheric Adminstration (NOAA-Fisheries) biological opinion (Opinion) concluding formal Endangered Species Act consultation on issuance of a U.S. Army Corps of Engineers (COE) permit for the Fish First "Charlie Swift" Fish Habitat Restoration Project on Cedar Creek, tributary to the East Fork Lewis River in Clark County, Washington; as described in the June 12, 2002 Update of the Biological Assessment (BA) for this project. This Opinion addresses Lower Columbia River (LCR) steelhead (*Oncorhynchus mykiss*); Lower Columbia River (LCR) chinook salmon (*O. tshawytscha*) and Columbia River (CR) chum salmon (*O. keta*).

NOAA Fisheries has determined that the proposed action is not likely to jeopardize the continued existence of the listed species described above. An Incidental Take Statement provides non-discretionary terms and conditions to minimize the potential for incidental take of listed species.

In addition, this document also serves as consultation on Essential Fish Habitat for and chinook coho salmon *(O. kisutch)* under the Magnuson-Stevens Act and its implementing regulations (50 C.F.R. Part 600). If you have any questions regarding this Opinion, please contact Dan Guy at (360) 534-9342 of my staff in the Washington State Branch Office.

Sincerely,

For Michael R Course

D. Robert Lohn
Regional Administrator

Enclosure

cc: Ron Klump, COE

Endangered Species Act-Section 7 Consultation

Biological Opinion

and

Magnuson-Stevens Fishery Conservation and Management Act

Essential Fish Habitat Consultation

Fish First - "Charlie Swift"
Habitat Restoration Project on Cedar Creek -
Tributary to the North Fork Lewis River
Clark County, Washington
(WHB-02-275)

Agency: United States Department of the Army
Corps of Engineers

Consultation Conducted By: National Marine Fisheries Service
Northwest Region
Washington State Habitat Branch

Approved for Michael R Crouse
D. Robert Lohn
Regional Administrator

Date Issued: August 5, 2002

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1.0 INTRODUCTION

1.1 Background and Consultation History

This document transmits the National Marine Fisheries Service's (National Oceanic and Atmospheric Administration (NOAA Fisheries)) Biological Opinion (Opinion) and consultation related to Essential Fish Habitat (EFH) under the Magnuson-Stevens Fishery Conservation and Management Act (MSA) for the proposal to improve salmonid habitat in Cedar Creek. Cedar Creek is a tributary to the North Fork Lewis River in Clark County, Washington. The US Army Corps of Engineers (COE) is the lead agency, Fish First, a volunteer organization, is the applicant. The species covered by this Opinion are Lower Columbia River (LCR) steelhead trout (*Oncorhynchus mykiss*), LCR chinook salmon (*O. tshawytscha)*, and Columbia River (CR) chum salmon (*O. keta*). The species covered for the EFH consultation are chinook and coho (*O. kisutch*) salmon.

On July 9, 2002 the COE requested formal consultation and EFH consultation. The COE and NOAA Fisheries visited the proposed project site on April 24, 2002, when the project was still in draft and under COE review.

The objective of this Opinion is to determine whether the proposed actions are likely to jeopardize the continued existence of listed species. This Opinion was completed pursuant to the Endangered Species Act (ESA) and its implementing regulations (50 C.F.R. 402) and constitutes formal consultation for the above listed species.

1.2 Description of Proposed Action

The COE proposes to issue a Department of the Army, section 404 Clean Water Act permit to Fish First. Fish First expects to improve aquatic and riparian habitat on 1260 feet of Cedar Creek. Cedar Creek is a tributary to the North Fork Lewis River in Water Resource Inventory Area (WRIA) 27, Clark County, Washington. The proposed project is located in Section 27 Township 5 N Range 3 E. The project is proposed for three stream sections: 407 feet (lower), 464 feet (middle), and 390 feet (upper). The sections are separated by 300 feet to 500 feet. The activities described below will occur at the site. For exact location of each measure see Figures 6, 7, and 8 in the biological assessment (BA).

1.2.1 Placement of Large Woody Debris

Rootwads are proposed to be placed at main stem and side channel locations where cover seems to be missing. Rootwads are proposed to be placed at locations where they can be anchored within the bank without disturbing the root system of adjacent trees.

1.2.2 Placement of Rock Cross-Vanes

A maximum of two rock cross-vanes are proposed for each of the three stream sections. Spawning gravel would be placed upstream of each cross vane. For design description see Project Plans p7, 8B, and 8B-1. The streambed would be excavated to embed footer rocks. Turbidity monitoring is proposed to take place during all in stream excavation work.

1.2.3 Placement of Compression Rock Clusters

A total of five compression rock clusters are proposed to be placed in the three stream sections. Compression rocks would have a minimum size of two feet by two feet by three feet. Footer rocks would be placed below them to ensure that they stay in place.

1.2.4 Excavation of Old Side Channels

Two side channels are proposed to be deepened and widened to improve summer rearing habitat. The lower side channel would be excavated for 205 feet, the upper for 100 feet. All excavated material would be trucked out of the geomorphic flood plain. No temporary stockpiling is proposed.

1.2.5 Riparian Plantings

Native trees, mainly conifers, will be planted at least eight locations in the lower section, five locations in the middle section, and seven locations in the upper section.

1.2.6 Conservation Measures

- Where appropriate, material excavated from the streambed for footer rocks will be incorporated into adjacent project components. If excavated material is not appropriate for inclusion into another adjacent structure, it will be removed and disposed of outside of the geomorphic floodplain.
- Vegetation that has to be removed for the excavation of the side channels will be salvaged and reused to the maximum extent possible.
- Work is proposed to occur between August 1 - August 31.
- The operation of heavy equipment in the stream will be kept to a minimum. The equipment used will be in good repair, with no oil leaks, and steam cleaned prior to commencement of in-stream work. Fueling and other routine and periodic maintenance will be conducted out of the stream at a site specifically designated for such activities. That site will be appropriately protected and operator supplied pollution control materials onsite to ensure oils spills are contained and cannot soak into the ground or make their way to a water source.

1.3 Description of the Action Area

The action area for the proposed project includes approximately 8,000 feet of Cedar Creek, encompassing the three treatment sections plus about 600 feet of Cedar Creek downstream of the lower segment. It encompasses the two side channels and 150 feet of riparian habitat on either side of the 8,000 feet of Cedar Creek and the two side channels. Downstream impacts from sedimentation resulting from in-stream work are expected to be limited to 600 feet downstream from the impact area. Sedimentation will be monitored for future reference.

2.0 ENDANGERED SPECIES ACT

2.1. Biological Opinion

2.1.1 Status of the Species

2.1.1.1 Lower Columbia River Steelhead

LCR steelhead were listed as threatened under the ESA on March 19, 1998 (63 Fed. Reg. 13347). In Washington, the LCR steelhead Evolutionarily Significant Unit (ESU) includes winter and summer steelhead in tributaries to the Columbia River between the Cowlitz River and Wind River, inclusive (Busby et al. 1996).

The LCR steelhead is likely to become endangered in the foreseeable future based on information reported in Myers et al. (1998). Nineteen stocks of steelhead within the LCR ESU were identified as at risk of extinction or of special concern (Nehlsen et al. 1991). Recent and historical information related to abundance of steelhead is summarized in Busby et al. (1996).

There are several factors for decline of LCR steelhead including habitat degradation, overharvest, predation, hydroelectric dams, hatchery introgression, and the eruption of Mount Saint Helens. Urbanization, forestry, water diversions, and mining also greatly reduced habitat complexity or eliminated habitat. There is strong concern about the pervasive influence of hatchery stocks within the ESU. There is no tribal or direct commercial fishery on steelhead although incidental catch of wild steelhead may occur in lower Columbia River fall gill-net fishery (SASSI 1993).

Lewis River steelhead are the focus of this Opinion. The Lewis River System has runs of wild summer and winter steelhead. Wild summer and winter steelhead in the Lewis River watershed are considered by the Washington Department of Fish and Wildlife (WDFW) to be distinct stocks based on the geographical isolation of the spawning population. Construction of Merwin Dam in 1962 blocked passage of approximately 80 percent of the historic spawning and rearing habitat of the North Fork Lewis River. Currently most of the natural steelhead production in the North Fork Lewis occurs in Cedar Creek. These stocks are identified by WDFW as depressed, due to the loss of access to historic spawning and rearing habitat upstream of Mervin Dam and the limited/degraded habitat in Cedar Creek. Adult winter steelhead generally return November through April and spawn March to early June. Adult summer steelhead generally return May

through November and spawn March through May. (SASSI, 1993) Smoltification occurs for most LCR steelhead at age two. (Busby et. al. 1996)

The WDFW, Southwest Region, conducts wild winter steelhead redd surveys on the East Fork Lewis River and Cedar Creek, a tributary to the North Fork Lewis River. They operate an adult trap on Cedar Creek. Snorkel surveys to count adult summer steelhead are conducted on the mainstem East Fork Lewis River. Also, WDFW operates a rotary screw trap on Cedar creek to estimate smolt production. Table 2 summarizes spawning escapement and smolt production estimates for Cedar Creek.

Table 2. Steelhead spawning escapement and smolt production estimates for Cedar Creek.

	Location	**1998**	**1999**	**2000**	**2001**
Wild winter steelhead escapement from redd surveys	Cedar Creek	38	52	NA	NA
Wild winter steelhead index escapement from adult trap	Cedar Creek	11	52	73	41
Smolt production, steelhead, estimates from rotary screw trap (95% C.I.)	Cedar Creek	6,648 (5,976 - 7,320)	2,268 (1,952 - 2,584)	3,000 (2,670 - 3,330)	3,565 (2,754 - 4,385)

2.1.1.2 Lower Columbia River Chinook Salmon

LCR chinook salmon were listed as a threatened species under the ESA on March 24, 1999 (64 Fed. Reg. 14309). In Washington, the LCR chinook ESU includes all naturally spawned chinook populations from the mouth of the Columbia River to the Cascade Crest.

Natural production of LCR chinook has been substantially reduced over the last century and long and short-term trends in abundance of individual populations are negative (Myers et al. 1998). There have been at least six documented extirpations of populations in this ESU, and other extirpations may have been masked by naturally spawning hatchery fish (Myers et al. 1998). Freshwater habitat is in poor condition throughout the ESU (Myers et al. 1998).

Factors for decline of the LCR chinook have been attributed to habitat degradation primarily related to forest practices, urbanization in the Portland and Vancouver areas, hydroelectric dams, and agricultural practices. The LCR chinook also have been negatively influenced by genetic introgression from artificial propagation programs (63 Fed. Reg. 11495; March 9, 1998). Current evidence indicates a pervasive influence of hatchery fish on natural populations throughout this ESU where over 200 million fish from outside the ESU have been released since 1930 (Myers et al. 1998).

Lewis River chinook are the focus of this Opinion. There are two distinct runs: spring chinook and fall chinook. Lewis River spring chinook are a mixed stock. Construction of Merwin Dam blocked passage the majority of the historic spawning and rearing habitat. Currently most of the remaining natural spawning takes place immediately below Merwin Dam and in Cedar Creek. Meyers (1998) reports a long term trend of - 1.9 percent for Lewis River spring chinook. Spawning extends from late August to early October (SASSI, 1993, Meyers, 1998). Smolt out-migration from spawning tributaries occurs March through June. Out-migration occurs as yearlings and sub-yearlings (Meyers, 1998).

Lewis River fall chinook spawn within a four mile stretch downstream of Merwin Dam. Meyers (1998) reports a long term egg-to-fry survival trend of 0.1 percent for fall chinook Spawning occurs between October and January (SASSI). The majority of fall chinook emigrate as subyearlings (Meyers, 1998).

2.1.1.3 Columbia River Chum Salmon

CR chum salmon were listed as threatened under the ESA on March 25, 1999 (64 Fed. Reg. 14507). Historically, chum salmon were abundant in lower portions of the Columbia River and supported annual harvests of hundreds of thousands of fish. Currently, relative abundance of chum salmon is likely less than one percent of historical levels with most spawning occurring in three tributaries to the Columbia River (Hardy Creek, Hamilton Creek, and Grays River) and in the mainstem Columbia River near Bonneville Dam (Ives Island). Spawner surveys of chum salmon in three streams indicated that a few thousand to 10,000 chum salmon spawn each year in the Columbia River Basin (Johnson et al. 1997).

The factors for decline in naturally reproducing chum salmon populations are primarily attributed to habitat degradation, water diversions, harvest, dams, loss of estuarine habitats, and artificial propagation. Presently, there are no recreational or commercial fisheries for chum salmon in the Columbia River although some fish are incidentally taken in the gill-net fisheries for coho and chinook salmon (SASSI 1993).

CR chum enter the Columbia River between October and December. Spawning occurs between November and January. Fry hatch depending on water temperature 1 to 4.5 month afterwards. After hatching fry immediately move downstream into the estuary. (Johnson 1997) Chum have been documented in the Lewis River. Spawning is known to occur in upwelling areas in the lower six miles of the East Fork Lewis River (WDF 1973). Chum are not expected to occur in the action area.

Table 1 contains specific information related to the listing status and life histories for listed salmonids addressed in this Opinion.

Table 1. Status of listed species addressed in this Opinion and citations for biological information.

Fish Species/ ESU	Listing Status	Citations for Biological Information
Lower Columbia River Chinook Salmon	Proposed-3/9/98; 63 Fed. Reg. 11482 Final-3/24/99; 64 Fed. Reg. 14308	Myers et al. 1998
Lower Columbia River Steelhead	Final-3/19/98; 63 Fed. Reg. 13347	Busby et al. 1996; NMFS 1996
Columbia River Chum Salmon	Proposed-3/10/98; 63 Fed. Reg. 11774 Final-3/25/99; 64 Fed. Reg. 14507	Johnson et al. 1997

2.1.2 Evaluating the Proposed Actions

The standards for determining jeopardy are set forth in Section 7(a)(2) of the ESA as defined by 50 C.F.R. Part 402 (the consultation regulations). NOAA Fisheries must determine whether the action is likely to jeopardize the listed species. This analysis involves the initial steps of (1) defining the biological requirements of the listed species, and (2) evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NOAA Fisheries 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, NOAA Fisheries must consider the estimated level of mortality attributed 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 salmon's life stages that occur beyond the action area. If NOAA Fisheries finds that the action is likely to result in jeopardy, NOAA Fisheries must identify reasonable and prudent alternatives for the action.

Furthermore, NOAA Fisheries evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' habitat. NOAA Fisheries determines whether habitat modifications appreciably diminish the value of habitat for both survival and recovery of the listed species. NOAA Fisheries identifies those effects of the action that impair the function of any essential element of habitat. Then NOAA Fisheries considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NOAA Fisheries concludes that the action will adversely modify habitat it must identify any reasonable and prudent measures available. Guidance for making determinations of jeopardy and adverse modification of habitat are contained in *The Habitat Approach, Implementation of Section 7 of the Endangered Species Act for Actions Affecting the Habitat of Pacific Anadromous Salmonids,* August 1999.

For the proposed action, NOAA Fisheries' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. The NOAA Fisheries habitat analysis considers the extent to which the proposed action impairs the function of essential habitat elements for

spawning, rearing, feeding, sheltering, or migration of LCR steelhead, LCR spring chinook salmon, and CR chum salmon, when compared to the existing environmental baseline, and how these effects influence the likelihood of survival and recovery of these ESUs, if at all.

2.1.3 Biological Requirements

The first step in the methods NOAA Fisheries uses for applying the ESA section 7(a)(2) to listed salmon 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 original decision to list the species for protection under the ESA. Additionally, the assessment will consider any new information or data that are relevant to the determination.

The relevant biological requirements are those necessary for the listed species to survive and recover to naturally reproducing population levels at which time protection under the ESA would be unnecessary. Species or ESUs not requiring ESA protection have the following attributes: population sizes large enough to maintain genetic diversity and heterogeneity, the ability to adapt to and survive environmental variation, and are self-sustaining in the natural environment.

For this consultation the relevant biological requirements are functioning riparian conditions, flood plain connectivity, undisturbed passage conditions (migratory access to and from potential spawning and rearing areas), improved sediment conditions (reduced input of fines), sufficient water quality (reduced summer temperatures), and water quantity (increased summer flows). These biological requirements were identified for Cedar Creek in the Washington State Limiting Factors Analysis for Water Resource Inventory Area (WRIA) 27 (Wade, 2000).

2.1.4 Environmental Baseline

The environmental baseline represents the current set of basal conditions to which the effects of the proposed action are then added. Environmental baseline is defined as "the past and present impacts of all Federal, State, and private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or informal section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation process" (50 C.F.R. 402.02). The term "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."

2.1.4.1 Factors Affecting the Species Environment within the Action Area

Salmonid habitat in the Cedar Creek watershed has been adversely affected by the following anthropogenic activities: Extensive logging, the use of splash dams, direct removal of large woody debris (LWD) from the channel, poor agricultural practices including cattle grazing up to and into the stream channel. As a result the abundance and recruitment of LWD is low, the

percentage of coarse gravel is reduced to below 35 percent, the gravel is moderately embedded, and the pool frequency is low. Also, the channel has down-cut and is widened and flattened (increased width to depth ratio). Due to the down-cutting, side channels that used to provide summer rearing habitat are isolated in the summer now (BA, 2002, Russ Lawrence (personal communication), 2001). The riparian corridor is mostly wooded with alder and willow, on average 60 year old conifers, and shrubs. The existing woody vegetation is not likely to contribute much LWD to the stream channel within the next 10 years (Ehinger (personal communication) 2002).

From the information provided above NOAA Fisheries concludes that not all of the biological requirements of the species within the action area are being met under current conditions. Based on the best available information on the environmental baseline, the status of the affected species, and information regarding population status and trends within the action area, the listed species is far from recovery. The base line is degraded do to effects of Merwin Dam and other human activities including agriculture, forestry, and residential and commercial development. Salmonid population trends do not show an increase. Many factors that negatively affect the habitat and salmonids in the action area persist. Even with improved land use practices, recovery of habitat to original conditions may take centuries. Improvement in habitat conditions over those currently available under the environmental baseline is needed to meet the biological requirements for survival and recovery of these species. Further degradation of these conditions would have a significant impact due to the amount of risk they presently face under the environmental baseline. As analyzed below, the intent of the projects under analysis is to address some of the identified limiting factors.

2.1.5 Effects of the Proposed Action

The ESA implementing regulations define "effects of the action" as "the direct and indirect effects of an action on the species or critical habitat together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline." "Indirect effects" are defined as those that are caused by the proposed action at a later time, but still are reasonably certain to occur (50 C.F.R. 402.02). The proposed habitat improvement project is likely to adversely affect LCR chinook and LCR steelhead on a short term basis and have an overall beneficial effect.

2.1.5.1 Direct Effects

Direct effects are the immediate effects of the project on the species or its habitat. Direct effects result from the agency action and include the effects of interrelated actions and interdependent actions. Future Federal actions that are not a direct effect of the action under consideration (and not included in the environmental baseline or treated as indirect effects) are not evaluated. (USFWS & NMFS 1998)

The direct effects of the proposed activities are related to the extent and duration of construction in the water. Any direct, negative effects from the proposed project likely will be short in

duration and occur in a relatively localized area. Direct effects of the proposed action are expected to be minimized by construction timing. The proposed period of in-water construction,, August 1 to August 31, overlaps with the possible occurrence of young-of-the-year and juvenile winter steelhead and young-of-the-year, juvenile, and adult summer steelhead. Juvenile and adult spring chinook also could possibly be present in the action area during in-water work. However, due to the low summer flow, 8 to 12 cubic feet per second (cfs), high stream temperatures, and poor spawning habitat in the action area, adult fish are expected to be rare (BA 2002).

Direct effects of the proposed placement of in-stream structures include harm to juvenile salmonids from sedimentation and mechanical injury associated with the placement of in-stream structures (e.g., rock placement, excavation). Depending on the level and duration of the construction related turbidity, sedimentation can cause different effects in juvenile salmonids. Elevated turbidity levels can lead to behavioral responses including avoidance, gill flaring, and coughing and in extreme instances can be lethal (Spence, et al 1996). During the proposed project, excavation will occur in the flowing stream to place footer rocks for in-stream structures. Water will not be diverted around the work area, because sedimentation is expected to be low due to low flow and substrate conditions. The stream substrate is embedded gravel (BA, 2002). No estimate of expected construction related turbidity level is available. To be able to better estimate turbidity in future projects, turbidity monitoring is part of the proposed action. Turbidity measurements from the proposed project are expected to help decide when the turbidity is expected to be high enough to plan on diverting the steam around the construction area. For the proposed project it seems reasonable to expect harassment or harm of juveniles with an associated sublethal responses due to the flow and sediment condition.

2.1.5.2 Indirect Effects

Indirect effects are caused by or result from the proposed action, are later in time, and are reasonably certain to occur. Indirect effects may occur outside of the area directly affected by the action. Indirect effects may include other Federal actions that have not undergone section 7 consultation but will result from the action under consideration. These actions must be reasonably certain to occur, or they are a logical extension of the proposed action.

Indirect effects of the proposed action may include lateral channel shifts, channel head cutting, and bank erosion as a result of the channel modifications; or readjustment or complete failure of the cross-vanes, rock clusters. Artificial instream structures have a limited life span. Fish First expects their rock structures to last 50 to 100 yrs. The indirect effects of structure readjustment and/or failure are likely to occur much later in time, particularly as the structures reach the end of their design life. The design life could be reduced in time by changes in land use activities upstream of the action area. These likely changes include increased impervious surface and resulting changes in the winter peak flows and summer low flows (see also Section 2.2.6 Cumulative Effects). When the cross-vane structures ultimately fail, eggs and intra-gravel fry of listed salmonids that may have spawned in the gravel immediately upstream of the cross vanes are likely to be displaced as a result of streambed head-cutting and scour. This displacement will

likely result in mortality of eggs and alevins. This could occur as a result of incremental shifting of the cross-vanes or during a catastrophic failure of one or more of the structures. However given the design life of the cross vanes, the loss of production near the end of their design life would be significantly off-set by the potential for increased spawning production of listed fish over the life of the structures.

Aquatic insect production will be temporarily diminished as a result of the direct loss of habitat due to the placement of the instream structures and as a result of increased suspended bedload during structure excavation and placement. These effects would be associated with take of listed species. Aquatic insect production is seldom affected in the long term by minimal habitat displacement and short-term pulses of suspended sediment (Spence. et al, 1996).

The overall effect of the proposed project on the species habitat is expected to be beneficial. The placement of LWD and riparian plantings are expected to have a beneficial effect without any associated adverse effects. Also, the excavation of the old side channels is expected to improve and increase the habitat for listed salmonids without any negative effects. The construction of the instream habitat structures is expected to improve habitat parameters that are currently limiting: pool frequency and spawning gravel (Wade, 2000). The benefits expected from the proposed instream structures outweigh the associated construction related short term and indirect negative effects.

2.1.6 Cumulative Effects

Cumulative effects are defined 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" (50 C.F.R. 402.02). Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

Non-Federal activities of the type identified as factors for decline by NOAA Fisheries occur within the Lewis River basin. With a projected 34 percent increase in human population over the next 20 years in Washington (DNR 2000) these factors are expected to increase, too. Thus, NOAA Fisheries assumes that future private and State actions will continue within the basin, but at increasingly higher levels as population density climbs. An increase in development in the watershed will increase the risk of failure of the in-stream structures and may lead to a shorter life of the structure.

2.1.7 Conclusion

NOAA Fisheries concludes that the proposed action is not likely to jeopardize the continued existence of LCR steelhead, LCR chinook, and CR chum. The determination of no jeopardy was based on the current status of each species, the environmental baseline for the proposed action area, and the effects of the proposed action.

NOAA Fisheries anticipates that there is a likelihood that incidental take will occur during the construction of the in-stream structures and at the time of partial or complete failure of the in-stream structures at or near the end of their design life. During construction the only listed species that may be present in the action area are young-of-the-year and juvenile winter steelhead, young-of-the-year, juvenile, and adult summer steelhead, and juvenile and adult spring chinook. Take associated with construction is limited to those species and life stages. Take associated with the failure of the in-stream structures may also effect other life stages (see below, Incidental Take Statement). All other proposed habitat improvement elements, the placement of LWD, riparian plantings, and excavation of old side channels, are expected to have exclusively beneficial effects on listed salmonids. Overall the proposed project, as it is intended by the project proponent, is expected to benefit listed salmonids. The incidental take is small compared to the expected benefit.

Because of the small scale of the proposed project and the potential beneficial aspects of project elements the proposed action is unlikely to appreciably reduce the likelihood of survival and recovery of LCR steelhead or LCR chinook.

2.1.8 Reinitiation of Consultation

This concludes formal consultation for the Fish First "Charlie Swift" habitat restoration project on Cedar Creek. Construction must cease and consultation must be reinitiated if: the extent of taking specified in the Incidental Take Statement is exceeded, or is expected to be exceeded; new information reveals effects of the action may affect listed species in a way not previously considered; the action is modified in a way that causes an effect on listed species that was not previously considered; or, a new species is listed or critical habitat is designated that may be affected by the action (50 C.F.R. 402.16).

2.2 Incidental Take Statement

Section 9 of the ESA and Federal regulation pursuant to section 4 (d) of the Act prohibit the take of endangered and threatened species without special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct of listed species without a specific permit or exemption (50 C.F.R. 217.12). "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, spawning, rearing, migrating, feeding, and sheltering (50 C.F.R. 222.102). Harass is defined as actions that created 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.

2.2.1 Amount or Extent of Anticipated Take

NOAA Fisheries anticipates that components of the proposed actions are reasonably certain to result in incidental take. Increased levels of suspended sediment are expected to harm the young-of-the-year and juvenile winter steelhead, young-of-the-year, and juvenile summer steelhead, and juvenile spring chinook. The extent of this take is limited to the 600 foot zone immediately downstream from the instream work sites. Artificial habitat structures have a limited life span. The project proponent expects their instream rock structures to last 50 to 100 yrs. Failure is expected to take place during winter or spring high flow events. During this time of the year eggs and fry may be present in the gravel above the cross vanes. When the cross vanes eventually fail eggs and fry of listed salmonids that may have spawned in the gravel above the cross vanes are likely to be displaced and/or suffer significant mortality due to streambed scour from head-cutting. No abundance data are available for the action area to allow NOAA Fisheries to estimate or quantify the precise extent of take. However, if and when take occurs through the mechanisms described above, extent will be limited to the spatial extent of temporarily increased sediment suspension and the number of structures that eventually fail.

2.2.2. Reasonable and Prudent Measures

NOAA Fisheries believes that the following reasonable and prudent measures are necessary and appropriate to minimize incidental take of LCR chinook and LCR steelhead:

1. The COE will minimize take by restricting in-water work to summer low flow when the fewest listed fish are likely to be present.

2. The COE will minimize take by ensuring instream work areas are isolated from juvenile salmonids before instream construction occurs.

3. The COE will minimize take by minimizing operation and impact of heavy equipment in active stream.

4. The COE will minimize take by ensuring the use of best management practices for site erosion and sedimentation control.

2.2.3 Terms and Conditions

RPM No.1 will be implemented by restricting in-water work to between August 1 to August 31.

RPM No.2 will be implemented as follows:

Prior to construction, walk the stream courses in the construction area. If juveniles are observed to be present, isolate the work area with block nets. First set upstream block net. Then make at least three downstream passes through the work area with a separate block net to herd juveniles downstream. Lastly set downstream block net. For work areas that have overhanging banks or other habitat structures that make herding out juveniles unfeasible do not use block nets but rely on natural avoidance behavior of juveniles. At the completion of the project the nets shall be removed.

RPM No.3 will be implemented as follows:

To minimize instream sedimentation, instream excavation shall be limited to the minimum necessary to embed the footer rocks. Equipment shall operate from the bank. Turbidity shall be monitored at all times during equipment excavation in the stream. If at any time fish appear to be in distress or a fish kill is observed, the excavation shall cease and NOAA Fisheries shall be contacted immediately for additional terms and conditions necessary to minimize take.

To minimize the impact of heavy equipment in active streams, the equipment used shall be in good repair, with no oil leaks, and steam cleaned prior to commencement of instream work. Fueling and other routine and periodic maintenance shall be conducted out of the stream at a site specifically designated for such activities. That site shall be appropriately protected and operator supplied pollution control materials onsite to ensure oils spills are contained and cannot soak into the ground or make their way to a water source.

RPM No.4 will be implemented as follows:

Streambank disturbance shall be held to the minimum necessary to access the structure placement sites and the side channel excavation sites. Disturbed areas shall be protected from erosion using common erosion control techniques (e.g. straw bales, mulch, plastic sheeting) as needed. All disturbed streambanks shall be re-contoured and re-vegetated as needed for erosion control.

All instream structures shall be keyed into the bank and the ends suitably protected from erosion and failure of the structures.

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

3.0 MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

3.1 Background

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures designed to identify, conserve, and enhance Essential Fish Habitat (EFH) for those species regulated under a Federal fisheries management plan. Pursuant to the MSA:

- 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 (§305(b)(2));
- NOAA Fisheries must provide conservation recommendations for any Federal or State action that would adversely affect EFH (§305(b)(4)(A));
- Federal agencies must provide a detailed response in writing to NOAA Fisheries within 30 days after receiving EFH conservation recommendations. The response must 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 NOAA Fisheries EFH conservation recommendations, the Federal agency must explain its reasons for not following the recommendations (§305(b)(4)(B)).

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting this 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 (50 C.F.R. 600.10). Adverse effect means any impact which reduces quality and/or quantity of EFH, and may include direct (*e.g.*, contamination or physical disruption), indirect (*e.g.*, loss of prey or reduction in species fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 C.F.R. 600.810).

EFH consultation with NOAA Fisheries is required regarding any Federal agency action that may adversely affect EFH, including actions that occur outside EFH, such as certain upstream and upslope activities.

The objectives of this EFH consultation are to determine whether the proposed action would adversely affect designated EFH and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH.

3.2 Identification of EFH

Pursuant to the MSA the Pacific Fisheries Management Council (PFMC) has designated EFH for three species of federally-managed 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 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 1999), 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, in part, on this information.

3.3 Proposed Actions

The proposed action and action area are detailed above in Section 1.2 and 1.3 of this document. The action area includes habitats that have been designated as EFH for various life-history stages of chinook and coho salmon.

3.4 Effects of Proposed Action

As described in detail in Section 2.1.5 of this document, the proposed action may result in short- and long-term adverse effects to habitat. These adverse effects are:

1. Temporary loss of aquatic insects (a prey base for listed species) due to physical loss of existing habitat at the structure placement sites and sedimentation of downstream instream habitat.

2.Temporary increases in suspended sediment as a result of instream excavation.

3. Temporary risk of contamination of waters through the accidental spill or leakage of petroleum products from heavy equipment.

4. Habitat alteration in the form of streambed "head cutting" and bedload sediment transport when the instream structures fail on or before their design life.

3.5 Conclusion

NOAA Fisheries concludes that the proposed action would adversely affect designated EFH for chinook and coho 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 to Federal agencies regarding actions which may adversely affect EFH. NOAA Fisheries believes that the temporary loss of prey organisms is already minimized, to the maximum extent practicable, by the conservation measures described in the BA and therefore has no additional conservation recommendations. To minimize the remaining adverse

effects to designated EFH for Pacific salmon (suspended sediment, contamination of waters and habitat alteration), NOAA Fisheries recommends that the COE adopt the Terms and Conditions associated with RPM No.3, as described in Section 2.2.3 of this document.

3.7 Statutory Response Requirement

Pursuant to the MSA (§305(b)(4)(B)) and 50 C.F.R. 600.920(j), Federal agencies are required to provide a detailed written response to NOAA Fisheries' EFH conservation recommendations within 30 days of receipt of these recommendations. The response must include a description of measures proposed to avoid, mitigate, or offset the adverse impacts of the activity on EFH. In the case of a response that is inconsistent with the EFH conservation recommendations, the response must explain the reasons for not following the recommendations, including the scientific justification for any disagreements over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects.

3.8. Supplemental Consultation

The COE must reinitiate EFH consultation with NOAA Fisheries if the proposed action is substantially revised in a manner that may adversely affect EFH, or if new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 C.F.R. 600.920(k)).

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