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:
2003/00416

July 25, 2003

Mr. Lawrence C. Evans
Chief, Regulatory Branch
Portland District, Corps of Engineers
1600 Executive Parkway, Suite 210
Eugene, OR 97401-2156

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation on the Effects of the Rogue River Habitat Improvement Project, Jackson County, Oregon

Dear Mr. Evans:

Enclosed is a biological opinion (Opinion) pursuant to section 7 of the Endangered Species Act (ESA) prepared by NOAA's National Marine Fisheries Service (NOAA Fisheries), on the effects of the proposed Rogue River Habitat Improvement Project, Jackson County, Oregon. In this Opinion, NOAA Fisheries concludes that the proposed action is not likely to jeopardize the continued existence of ESA-listed Southern Oregon/Northern California (SONC) coho salmon (*Oncorhynchus kisutch*), or destroy or adversely modify designated critical habitat. As required by section 7 of the ESA, NOAA Fisheries includes reasonable and prudent measures with non-discretionary terms and conditions that NOAA Fisheries believes are necessary to minimize the impact of incidental take associated with this action.

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

If you have any questions regarding this consultation, please contact Ken Phippen of my staff in the Oregon Habitat Branch at 541.957.3385.

Sincerely,

For Michael R Crouse

D. Robert Lohn
Regional Administrator

cc: Frank Schnitzer, DOGAMI
Mark Grenbemer, OWEB
Diana Hwang, USFWS
David Haight, ODFW

Endangered Species Act - Section 7 Consultation
Biological Opinion

&

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

Rogue River Habitat Improvement Project,
Jackson County, Oregon

Agency:	U. S. Army Corps of Engineers
Consultation Conducted By:	NOAA's National Marine Fisheries Service, Northwest Region
Date Issued:	July 25, 2003
Issued by:	for Michael R Course D. Robert Lohn Regional Administrator
Refer to:	**2003/00416**

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1. INTRODUCTION

1.1 Background

On April 4, 2003, NOAA's National Marine Fisheries Service (NOAA Fisheries) received a request from the U.S. Army Corps of Engineers (Corps) for Endangered Species Act (ESA) section 7 formal consultation for the Rogue River Habitat Improvement Project, Jackson County, Oregon. The applicant is Rogue River Stakeholders Group (Stakeholders), which includes representatives of the Oregon Department of Geology and Mineral Industries (DOGAMI) and the Oregon Department of Fish and Wildlife (ODFW).

From 1932 to 1997, the Rogue River flowed generally west to east in a channel along the southern edge of Lower Table Rock mesa in the area between river miles (RM) 126.5 and 129.5. The mesa constrains the northward migration of the river. Beside the river in this reach are a series of abandoned and active gravel pits up to 60 feet deep. A severe flood event in 1997 caused the river channel to migrate southward and flow into an abandoned Oregon Department of Transportation (ODOT) gravel pit beside the river, which had been mined to a depth of approximately 15 feet. Downstream, an abandoned river channel known as Kelly Slough has also been capturing some of the river's post-1997 flow. The gravel pits in the area are in danger of being captured because of the potential failure of the narrow "leave strips" separating the deep gravel pits from the mainstem Rogue River. If this happens, the artificially deep river channel will capture any bedload being conveyed downstream. The river, downstream of the pond, will be starved of bedload. When rivers are carrying less bedload than they are capable of, the typical response is increased erosion of bed and streambank materials. This is most often observed below a dam, but in this situation, the pond is acting as a constraint on bedload movement. Increased erosion may lead to the failure of an irrigation intake structure within one of the pits.

Pit capture and movement of the Rogue River into a new channel will have deleterious and long-term effects on the proper functioning of the river in this and adjacent reaches. The applicant proposes to carry out a suite of actions that are intended to prevent the further capture of these abandoned gravel pits. This will improve the Rogue River's channel functions and help to restore this stretch of river towards a properly functioning condition (PFC). The actions are detailed below.

The Corps has determined that Southern Oregon/Northern California (SONC) coho salmon (*Oncorhynchus kisutch*) may occur within the project area. SONC coho salmon were listed as threatened under the ESA on May 6, 1997 (62 FR 24588), critical habitat was designated on May 5, 1999 (64 FR 24049), and interim protective regulations were issued under section 4(d) of the ESA on July 18, 1997 (62 FR 38479). The Corps, relying on an analysis done by ODFW biologist David Haight, which employed methods described in *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996), determined that the proposed action is likely to adversely affect SONC coho salmon.

This biological opinion (Opinion) is based on the information presented in the biological assessment (BA), numerous site visits, and further developed through correspondence to obtain additional information and clarity. The objective of this Opinion is to determine whether the action to construct barbs, alter an artificial island, and to move large amounts of fill within and beside the mainstem Rogue River is likely to jeopardize the continued existence of the SONC coho salmon. This consultation is undertaken under section 7(a)(2) of the ESA, and its implementing regulations, 50 CFR Part 402.

1.2 Proposed Action

The proposed action involves work on three sites and includes reshaping the banks of the Rogue River beside the eroding pit walls and other nearby areas, constructing four barbs to alter flow in the main channel, excavating part of an artificial island, and creating a channel outfall.

All in-water work activities will occur between June 15 through August 31. The preferred time to complete construction is before August 10, when increased releases from upstream Lost Creek Reservoir begin. The release of additional water from the reservoir triggers upstream migration by fall chinook salmon, and while these fish are not listed under the ESA, the project proponents wish to avoid any harm to this species as well. Any extensions or alterations to the standard in-water work timing will require written concurrence NOAA Fisheries.

1.2.1 Reconstruction of the Pre-1997 Channel

The capture of the ODOT pond has led to the abandonment of approximately 3000 feet of the pre-1997 river channel, dewatering about 1900 feet of channel bed and creating a backwater slough in the remaining areas. Approximately 13000 cubic yards (cy) of material in the captured pit area will be redistributed and graded into other areas. The majority of this material is a gravel plug that was deposited in the mouth of the old river channel during the 1997 storm event. The gravel plug isolated this old channel and once removed, will facilitate the movement of high water flows away from the gravel pits and into the original channel against Table Rock.

1.2.2 Artificial Island

An artificial island was created in the original ODOT pit from sediment fines left during the gravel pit operation. This gravel pit island resulted in a mainstem Rogue River island when the pit was captured in 1997. This island will be partially excavated and the fill moved above the ordinary high water (OHW) elevation at that site. A temporary gravel bridge will be constructed to access the island. This will require the placement of material to span a short section of shallow water between an upstream gravel bar and the island. From the island, approximately 6350 cy will be removed from below the OHW. The material removal from the island will reduce the elevation of a portion of the island to slightly above the low water elevation line. The material will be excavated and trucked to a site that is above the OHW and stabilized with riparian vegetation plantings. Large woody debris will be placed within the recontoured island

to provide roughness, flow deflection, and fish habitat at higher flows. Live cottonwood trees will also be planted.

1.2.3 Channel Outfall Weir, Barbs, and Bank Rehabilitation

This proposed action will include the construction of four instream barbs near the northern edge of White Pond, and the bank reshaping and rehabilitation of approximately 200 feet of riparian areas beside the project area.

Construction of the barbs will be done using metric class 350 riprap, which will be placed, per Corps guidelines, to create barbs at an upstream angle to the bankline. Native streambed materials will be used to cover the rock barbs. The objective of the barb construction is to protect the streambank by moving the thalweg of the Rogue River away from the gravel pits and allow for the deposition and revegetation of a natural bankline along the south side of the river. Approximately 500 cy of streambed materials below the OHW will be excavated during the barb placement. An additional 5250 cy of materials will be placed below the OHW during construction of the stream barbs. In the compacted fills at each barb location, live cottonwood trees will be buried to provide future bank stabilization. The channel length encompassing the barbs is approximately 160 feet long.

Concurrent with the placement of the instream barbs, approximately 200 feet of the riverbank will be reshaped and contoured to reduce erosion by providing an outfall into Kelly Slough. This will enhance long-term bank stability and function by establishing an overflow channel at high flows. A track hoe excavator will be used to prepare the construction site. Material removed during site preparation will be used in place during final construction. Kelly Slough vegetation disturbed during site preparation and construction will be salvaged, root-balled as necessary, and immediately replaced into an adjacent area. Site preparation will accommodate structure dimensions, and all boulder/rock materials utilized in the construction will be keyed into the captured ODOT pond and remaining strip of land between the river and Kelly Slough.

Temporary cofferdams using large boulders, sand, and gravel as a sediment filter will be used. Material hauled in from a nearby gravel operation will be used above the OHW to re-establish the elevation of the leave strip beside the Kelly Slough outfall. This will ensure high-water flood events use the outfall and do not continue to migrate towards the ponds.

If fish are present, the work area will be isolated as necessary so they amay be safely captured and released at a different location.

2. ENDANGERED SPECIES ACT

2.1 Biological Opinion

2.1.1 Biological Information and Critical Habitat

Within the Rogue River watershed, NOAA Fisheries listed the SONC coho salmon as threatened under the ESA on May 6, 1997 (62 FR 24588), critical habitat was designated on May 5,1999 (64 FR 24049), and interim protective regulations were issued under section 4(d) of the ESA on July 18, 1997 (62 FR 38479). Critical habitat includes all streams accessible to listed coho salmon between Cape Blanco, Oregon, and Punta Gorda, California. The designation includes all waterways, substrates, and adjacent riparian zones below longstanding, naturally-impassable barriers. The adjacent riparian zone is defined based on key riparian functions. These functions are shade, sediment, nutrient/chemical regulation, streambank stability, and input of large woody debris/organic matter.

For the purposes of this Opinion, the action area is defined as the channel and adjacent riparian area 500 feet upstream from the project sites on the Rogue River, and downstream one mile below the lowest segment of the project. Other areas of the Rogue River watershed will not be directly affected. Coho salmon are known to spawn and rear in the Rogue River watershed. Adult coho salmon enter Rogue River in early November and spawn through January. Coho salmon are distributed throughout most of the mainstem of the Rogue River, past the city of Ashland and in some larger tributaries. Lost Creek Dam in the Rogue River is impassable and represents the upstream limit of distribution. Monitoring of adult SONC coho salmon at Gold Ray Dam from 1993 through 2000 ranged from 756 to 4566 individuals. These adult fish and their progeny would have migrated through this action area, just upstream of the Gold Ray Dam. Elk Creek, a tributary of the Rogue River upstream of the project site, may support one-third of the entire Rogue Basin SONC coho salmon (NMFS 2001). Juvenile coho salmon may occur in the project area during the early part of the in-water work period, the end of the spring out-migration period. The ODFW has identified this area as migration and rearing habitat, depending on season-of-use. Duration of time spent within the action area is unknown, but if the area provides properly functioning habitat, smolts, juveniles, and adults likely use this reach.

2.1.2 Evaluating Proposed Actions

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NOAA Fisheries must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the definition of the biological requirements and current status of the listed species, and evaluation of 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 attributable to: (1) Collective effects of the proposed or continuing action; (2) the environmental baseline; and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmonid's life stages that occur beyond the action area. If NOAA Fisheries finds that the action is likely to jeopardize the listed species, 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' designated critical habitat. NOAA Fisheries must determine whether habitat modifications appreciably diminish the value of critical 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 critical habitat. NOAA Fisheries then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NOAA Fisheries concludes that the action will destroy or adversely modify critical habitat, it must identify any reasonable and prudent alternatives available.

Direct effects to listed species may occur at the project sites and may extend upstream or downstream based on: (1) The potential for impairing fish passage; (2) changes to stream hydraulics; (3) sediment and pollutant discharge; (4) risk of chemical contamination of the aquatic environment; (5) the extent of riparian habitat modifications; and (6) capture, handling, and relocating SONC coho salmon. Indirect effects to listed species may occur throughout the watershed where the 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 watershed where the proposed action will occur, and those areas upstream and downstream that may reasonably be affected, temporarily or in the long term. For the purposes of this Opinion, the action area is defined as the channel and adjacent riparian area 500 feet upstream from the project sites on the Rogue River, and downstream one mile below the lowest segment of the project. The Rogue River flows to the Pacific Ocean. Other areas of the Rogue River watershed will not be directly affected.

For the proposed action, NOAA Fisheries' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NOAA Fisheries' critical habitat analysis considers the extent to which the proposed action impairs the function of essential biological elements necessary for juvenile and adult migration, and juvenile rearing of SONC coho salmon.

2.1.3 Biological Requirements

The first step in the methods NOAA Fisheries uses for applying the ESA section 7(a)(2) to listed coho 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 decision to list SONC coho salmon for ESA protection and also considers new available data that is relevant to the determination.

The relevant biological requirements are those necessary for SONC coho salmon 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.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful migration and juvenile rearing in the action area. The current status of the SONC coho salmon, based upon their risk of extinction, has not significantly improved since the species was listed. The Rogue River watershed serves as freshwater riverine spawning habitat and year-round juvenile rearing habitat. Lack of complex cover, deep pools, and undercut banks combined with high summer water temperatures may limit successful juvenile salmonid rearing in the action area.

2.1.4 Environmental Baseline

The current range-wide status of the identified ESU may be found in Nickelson *et al.* (1992) and Weitkamp *et al.* (1995), with more recent information for SONC coho in the status review done by California Department of Fish and Game (2002) and the Biological Review Team (BRT 2003). The identified action will occur within the range of SONC coho salmon. The action area is the area that is directly and indirectly affected by the action. The direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, hydraulics, turbidity, sediment transport, 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 previously defined, the action area is the channel and adjacent riparian area 500 feet upstream from the project site and downstream one mile below the project site. Temporary indirect impacts (disruption of primary productivity and food resources) and potential direct affects (sediment, pollutant discharge, hydraulics) to the Rogue River will be caused by the in-water work and general riparian and bank disturbance within the project area.

Some of the most recent data on the status of the SONC coho ESU can be found in a status review done by the California Department of Fish and Game (CFG 2002). According to CFG, the available information on coho salmon status is primarily in the form of presence-by-brood-year analyses, field surveys conducted in 2001, recent abundance trend information for several stream systems along the central and north coasts, and ocean harvest data. Considered separately, none of these lines of investigation provide conclusive evidence that coho salmon have experienced a substantial decline throughout the SONC coho ESU, either because they are limited in scope or are not particularly robust in detecting trends within specific watersheds. However, most of these indicators show declining trends, and in that respect, provide a high likelihood that populations have declined significantly and are continuing to decline. Some of the indicators show an upward trend in 2000 and 2001, but the overall trend is still downward in most cases, and most indicators of abundance show values that are much reduced from historical levels. Brown and Moyle (1991) estimated that there has been a reduction in natural spawner

abundance of 85% to 94% since the 1940s. These analyses and the 2001 presence surveys indicate that some streams in this ESU may have lost one or more brood-year lineages.

While the California study was based on data from northern California watersheds, the overall trends for the ESU may be similar in the Rogue basin. Long-term (22-year) and short-term (10-year) trends in mean spawner abundance for the Rogue River Basin are upward, but these upward trends are likely due to reduced harvest (BRT 2003). Pre-harvest recruit numbers are flat for the basin, indicating improved freshwater habitat and survival is not the likely cause for this upward trend (BRT 2003). In summary, the majority of the BRT votes for the SONC coho salmon ESU identified this ESU as "likely to become endangered."

All of the following information about the environmental condition of the Rogue Basin was adapted from DEQ. The closest DEQ data-gathering station to the project area is on the Rogue River at Dodge Park, at river mile 138. According to DEQ, the Rogue Basin and its five subbasins drain an area of diverse geology and land usage. In the past, water quality problems in the basin were identified. These problems were addressed in a small portion of the basin with the issuance of the Bear Creek Total Maximum Daily Load. However, throughout the remainder of the basin, general water quality conditions have not significantly improved and concerns of point and non-point source pollution remain. Comparing minimum seasonal Oregon Water Quality Index (OWQI) values, water quality in the Rogue basin ranges from good (Rogue River at Dodge Park site) to very poor (Bear Creek at Talent). For most monitoring sites in the Rogue Basin, water quality data were routinely collected by the DEQ Laboratory in water years 1986-1995.

Upper Rogue Subbasin.
The upper Rogue River receives drainage from the Cascades and has excellent general water quality. The upper reaches of Little Butte Creek provide some of the most productive salmonid spawning areas in the Rogue Basin. However, the lower reaches of the creek suffer from non-point source pollution, as indicated at the monitoring site near the mouth of Little Butte Creek.

The Rogue River at Dodge Park is the most upstream monitoring site in the Rogue Basin and is situated upstream of all major point sources. Water quality at this point is the best of the monitored sites in the Rogue Basin. Relatively high concentrations of total phosphates and biochemical oxygen demand occasionally limit water quality at this site. These events occur during precipitation events (organic matter is deposited with runoff) and during periods of low flow (less water available to dilute organic matter). Water quality at the Rogue River at Dodge Park is good in the summer and excellent in the fall, winter, and spring.

However, water quality at Little Butte Creek at Agate Road is consistently poor year-round. High levels of fecal coliform, total phosphates, total solids, and biochemical oxygen demand impact general water quality in Little Butte Creek all year, except during periods of high flow and low or no precipitation. This indicates the introduction of untreated animal or human waste and runoff mainly associated with non-point sources. High stream temperatures in the summer compound water quality problems by increasing chemical and biological activity. It should be

noted that irrigated agriculture and range dominate land uses on Little Butte Creek. Urban runoff from Eagle Point may contribute to non-point source pollution as well.

Middle Rogue Subbasin.
The Middle Rogue Subbasin is the most degraded part of the basin. This is a result of the cumulative effects of point and non-point source pollution in the Bear Creek Valley, which is the most densely populated and intensively cultivated area in the Rogue Basin. The Bear Creek Total Maximum Daily Load (TMDL) coordinates efforts to reduce point and non-point source pollution. During water years 1986-1995, water quality data were routinely collected by the DEQ Laboratory at three monitoring sites on Bear Creek: Mountain Avenue (1986-1993), Valley View Road (1986-1993), and Kirtland Road (1986-1995). It is important to remember that comparison of results between these sites is applicable only to data collected in 1986-1993, and may not necessarily reflect more recent conditions.

The Mountain Avenue monitoring site is above the major point source of pollution on Bear Creek, the Ashland Sewage Treatment Plant (STP). Therefore it is mainly affected by non-point sources. Summer flows are maintained by releases from Emigrant Lake, which is supplemented by Howard Prairie Lake and Hyatt Reservoir. During the fall, flows are negligible while the Emigrant Lake reservoir is filled. This creates conditions in which little water is available to dilute pollutants introduced into the stream. Upper Bear Creek receives demands from irrigated agriculture and rangeland. Oregon Water Quality Index results show that this portion of Bear Creek was significantly impacted by high levels of total phosphates, fecal coliforms, total solids, and biochemical oxygen demand. On the average, OWQI results at the uppermost site on Bear Creek are poor throughout the year. Water quality at the uppermost Bear Creek site is only slightly worse than at the Little Butte Creek site.

The Valley View Road monitoring site is downstream of the confluence of Bear Creek with Ashland Creek. Ashland STP presently discharges to Ashland Creek. OWQI results scored greater than 30 points only three times during the monitoring period and scored very poorly throughout the year (Table 1). The worst water quality conditions tend to occur in the fall, when flows are minimal. Extremely high concentrations of fecal coliforms, total phosphates, total solids, and bio-chemical oxygen demand are accompanied by low dissolved oxygen and extremely high levels of nitrate and ammonia nitrogen. High concentrations of ammonia were found. Ammonia nitrogen consumes oxygen during its conversion to nitrate nitrogen. This process is called nitrification and the demand on available dissolved oxygen is called nitrogenous oxygen demand.

By the time Bear Creek reaches the next monitoring site at Kirtland Road, recreation and mixing of the water has helped to improve water quality, but OWQI scores are still very poor throughout the year. High concentrations of fecal coliform, total phosphates, total solids and biochemical oxygen demand still predominate water quality impacts. Low dissolved oxygen and high nitrate and ammonia nitrogens also impact water quality. High stream temperatures in the summer compound water quality problems by increasing chemical and biological activity. While effects from the Ashland STP may still be noticeable at this distance, it is likely that irrigation returns to

Bear Creek contribute a significant amount of non-point source pollution to the creek. The Bear Creek at Kirtland Road monitoring site has been the only site maintained since establishment of the Bear Creek TMDL. Results of trend analysis indicate that no seasonally significant trend exists over the monitoring period of water years 1986-1995. It is important to note that population in the Bear Creek drainage had increased during that period. The lack of significant decreases in water quality may indicate that local efforts have been moderately successful. It is likely with further effort, significant improvements will be seen.

Results of monitoring the Rogue River at Rocky Point Bridge in Gold Hill indicate that general water quality has deteriorated compared to upstream conditions. Excellent quality is seen year-round at Dodge Park, while conditions at Rocky Point are generally good in the summer and only fair during the fall, winter, and spring. This monitoring site is a mile downstream of the Gold Hill STP. OWQI results are limited by high concentrations of fecal coliforms, biochemical oxygen demand, total phosphates, and total solids. These impacts are seen usually in connection with high flows, when higher loading from STPs, streams, and erosion are more likely to occur.

Based on the best available information regarding the current status of SONC coho salmon range-wide, the population status, trends, genetics, and the poor environmental baseline conditions within the action area, NOAA Fisheries concludes that the biological requirements of SONC coho salmon are not currently being met. Degraded habitat, resulting from agricultural practices, forestry practices, road building, municipal activities, and residential construction, indicate many aquatic habitat indicators are not properly functioning within Rogue River. Actions that do not maintain or restore properly functioning aquatic habitat conditions would be likely to jeopardize the continued existence of SONC coho salmon.

2.1.5 Analysis of Effects

2.1.5.1 Effects of Proposed Actions

Direct effects to listed species may occur at the project sites and may extend upstream or downstream based on: (1) The potential for impairing fish passage; (2) changes to stream hydraulics; (3) sediment and pollutant discharge; (4) risk of chemical contamination of the aquatic environment; (5) the extent of riparian habitat modifications; and (6) capture, handling, and relocating SONC coho salmon. Indirect effects to listed species may occur throughout the watershed where the 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 watershed where the proposed action will occur, and those areas upstream and downstream that may reasonably be affected, temporarily or in the long term.

Impacts to waterways from installation of hardened embankments are: (1) Simplification of stream channels; (2) alteration of hydraulic processes; and (3) prevention of natural channel adjustments (Spence *et al*. 1996). Moreover, embankment hardening may shift the erosion point either upstream or downstream of the project site and contribute to stream velocity acceleration.

As amplified erosive forces attack different locations and landowners respond with more bank hardening, the river eventually attains a continuous fixed alignment lacking habitat complexity (USACE 1977).

Fish habitats are enhanced by the diversity of habitats at the land-water interface and adjacent bank (USACE 1977). Streamside vegetation provides shade that reduces water temperature. Overhanging branches provide cover from predators. Insects and other invertebrates that fall from overhanging branches may be preyed upon by fish, or provide food sources for other prey organisms. Immersed vegetation, logs, and root wads provide points of attachment for aquatic prey organisms, shelter from swift currents during high flow events, retain bed load materials, enhance channel complexity, and reduce flow velocity.

Sedimentation.
Potential impacts to listed salmonids from the proposed action include both direct and indirect effects from sedimentation. Potential direct effects include mortality from exposure to suspended sediments (turbidity) resulting from ground disturbance and general construction activities. Potential indirect effects include behavioral changes resulting from elevated turbidity level (Sigler *et al.* 1984, Berg and Northcote 1985, Whitman *et al.* 1982, Gregory 1988), during riverbank habitat alterations.

Suspended sediment and turbidity influences on fish reported in the literature range from beneficial to detrimental. Elevated total suspended solids (TSS) conditions have been reported to enhance cover conditions, reduce piscivorous fish/bird predation rates, and improve survival. Elevated TSS conditions have also been reported to cause physiological stress, reduce growth, and adversely affect survival. Of key importance in considering the detrimental effects of TSS on fish is the frequency and the duration of the exposure, not just the TSS concentration.

Behavioral avoidance of turbid waters may be one of the most important effects of suspended sediments (DeVore *et al.* 1980, Birtwell *et al.* 1984, Scannell 1988). Salmonids have been observed to move laterally and downstream to avoid turbid plumes (McLeay *et al.* 1984, 1987, Sigler *et al.* 1984, Lloyd 1987, Scannell 1988, Servizi and Martens 1991). Juvenile salmonids tend to avoid streams that are chronically turbid, such as glacial streams or those disturbed by human activities, unless the fish need to traverse these streams along migration routes (Lloyd *et al.* 1987).

In addition, a potentially positive reported effect is providing refuge and cover from predation (Gregory and Levings 1998). In systems with intense predation pressure, this provides a beneficial tradeoff (*e.g.*, enhanced survival) to the cost of potential physical effects (*e.g.*, reduced growth). Turbidity levels of about 23 Nephalometric Turbidity Units (NTU) have been found to minimize bird and fish predation risks (Gregory 1993). Exposure duration is a critical determinant of the occurrence and importance of physical or behavioral effects (Newcombe and MacDonald 1991). Salmonids have evolved in systems that periodically experience short-term pulses (days to weeks) of high suspended sediment loads, often associated with flood events, and are adapted to such high pulse exposures. Adult and larger juvenile salmonids may be little

affected by the high concentrations of suspended sediments that occur during storm and snowmelt runoff episodes (Bjornn and Reiser 1991). However, research shows that chronic exposure can cause physiological stress responses that can increase maintenance energy and reduce feeding and growth (Redding *et al.* 1987, Lloyd 1987, Servizi and Martens 1991).

Turbidity, at moderate levels, has the potential to adversely affect primary and secondary productivity, and at high levels, has the potential to injure and kill adult and juvenile fish, and may also interfere with feeding (Spence *et al.* 1996). Newly emerged salmonid fry may be vulnerable to even moderate amounts of turbidity (Bjornn and Reiser 1991). Other behavioral effects on fish, such as gill flaring and feeding changes, have been observed in response to pulses of suspended sediment (Berg and Northcote 1985). Fine, redeposited sediments also have the potential to adversely affect primary and secondary productivity (Spence *et al.* 1996), and to reduce incubation success (Bell 1991) and cover for juvenile salmonids (Bjornn and Reiser 1991). Because the potential for turbidity should be localized and brief, the probability of direct mortality is negligible.

Chemical Contamination

As with all construction activities, accidental release of fuel, oil, and other contaminants may occur. Operation of back-hoes, excavators, and other equipment requires the use of fuel, lubricants, etc., which, if spilled into the channel of a waterbody or into the adjacent riparian zone, can injure or kill aquatic organisms. Petroleum-based contaminants (such as fuel, oil, and some hydraulic fluids) contain poly-cyclic aromatic hydrocarbons (PAHs), which can be acutely toxic to salmonids at high levels of exposure and can also cause chronic lethal and acute and chronic sublethal effects to aquatic organisms (Neff 1985, Hatch and Burton 1999). Similarly, exposure to herbicides can have lethal and sublethal effects on salmonids, aquatic invertebrates, aquatic vegetation, and target and non-target riparian vegetation (Spence *et al.* 1996). Exposure to water contaminated with runoff contacting green concrete and the associated changes in water chemistry also can have lethal and sublethal effects on salmonids, aquatic invertebrates, aquatic vegetation, and target and non-target riparian vegetation.

Construction-related effects necessary to complete the proposed action will be minimized by completing the in-water work during low flow periods.

Stream Hydraulics

The placement of instream barbs and riprap placement below the OHW of the Rogue River simplifies habitat and increases stream velocities under and along the structure and hard points. However, because the existence of deep gravel ponds near the main channel of the river are potentially serious threats to flow regimes, the costs of diverting flow using stream barbs and other construction within the river are considered preferable to river avulsion. Barbs and scour protection fill will represent no net decrease in the floodway cross section and may increase habitat complexity and bankline function. No long-term adverse affect is likely to occur to stream hydraulics as a result of the proposed action.

Riparian Vegetation

The removal of some, mostly non-native invasive species of riparian vegetation, such as Himalayan blackberries and some native riparian vegetation, will result in the short-term potential for exposed soils and increased sediment transport to Rogue River. However, during construction, extensive erosion control measures and the proposed riparian plantings and wetland mitigation plantings will result in long-term beneficial effects to the Rogue River riparian corridor. Riparian plantings will provide erosion control, bank stabilization, shading, allochthonous inputs, and increase the potential for insect production.

Work Area Isolation and Fish Removal

Instream work may result in the need to isolate an area from the flowing water of the Rogue River and fish rescue and salvage activities. Any listed fish removed from the isolated work area will experience high stress with the possibility of up to a 5% direct or delayed mortality rate depending on rescue method, should adequate water quality persist during construction and listed salmonids be present. Appropriate NOAA Fisheries approved fish handling methods will minimize adverse effects to any fish removed during the project.

2.1.5.2 Effects on Critical Habitat

NOAA Fisheries designates critical habitat based on physical and biological features that are essential to the listed species. Essential features for designated critical habitat include substrate, water quality, water quantity, water temperature, food, riparian vegetation, access, water velocity, space and safe passage. Effects on critical habitat from the proposed action are included in the effects description above in section 2.1.3.1 of this Opinion.

2.1.5.3 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation". The action area has been defined as the streambed and streambank of the Rogue River, extending upstream to the project disturbance limits, and downstream one mile below the project disturbance limits. Many actions occur within the action area of the Rogue River watershed.

Non-federal activities within the action area are expected to increase with a projected 34% increase in human population over the next 25 years in Oregon (Oregon Department of Administrative Services 1999). Thus, NOAA Fisheries assumes that future private and state actions will continue within the action area, but at increasingly higher levels as population density increases. NOAA Fisheries assumes that future Corps habitat improvement projects in the Rogue River watershed will be reviewed through separate section 7 consultation processes and are therefore not considered cumulative effects.

2.1.6 Conclusion

NOAA Fisheries has determined that, when the effects of the Corps's proposed action (Rogue River Habitat Improvement Project) are added to the environmental baseline and cumulative effects occurring in the action area, they are not likely to jeopardize the continued existence of SONC coho salmon, or cause adverse modification or destruction of designated critical habitat. These conclusions were based on the following considerations: (1) All in-water work and other construction activities within the OHW of Rogue River will take place according to ODFW guidelines for timing of in-water work, or during approved exceptions, to protect fish and wildlife resources; (2) all sediment-laden water and water polluted by construction-related contaminants will be contained and treated to the greatest extent possible before contact with the flowing waters of Rogue River; (3) any riparian trees removed as a result of the proposed action will be retained within the riparian area, and where feasible, the rootwads will remain attached and the trees placed partially into the channel of Rogue River; (4) work area isolation will be used where necessary, including use of NOAA Fisheries' guidelines for proper fish handling (NMFS 2000), and other conservation measures will be in place to avoid or minimize adverse affects to water quality; (5) riparian vegetation cleared for access and construction and scour protection measures will be offset by the native riparian plantings; and (6) instream barbs and scour protection measures will not result in long-term adverse effects to Rogue River hydraulics. Therefore, the proposed action is not expected to prevent or delay the achievement of properly functioning habitat conditions in the action area.

2.1.7 Reinitiation of Consultation

As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been retained or is authorized by law and if: (1) The amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this Opinion; or (4) a new species is listed or critical habitat is designated that may be affected by the action. In instances where the amount or extent of authorized incidental take is exceeded, any operations causing such take must cease pending reinitiation of consultation.

2.2 Incidental Take Statement

Section 9 and rules promulgated under section 4(d) of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. "Harass" is defined as actions that create the likelihood of injuring listed species to by annoying it 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 listed 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 to implement the reasonable and prudent measures.

2.2.1 Amount or Extent of the Take

NOAA Fisheries anticipates that the actions covered by this Opinion are reasonably certain to result in incidental take of SONC coho salmon because of potential adverse effects from increased sediment levels, chemical contamination, instream riprap placement, and the potential for direct incidental take during in-water work. Handling of juvenile coho salmon during the work isolation process may result in incidental take of individuals if adequate water quality allows juvenile salmonids to be present during the construction period. NOAA Fisheries anticipates non-lethal incidental take of up to 1,000 individuals, of which, lethal take of 50 juvenile coho salmon could occur as a result of the fish rescue, salvage and relocation activities covered by this Opinion. The potential adverse effects of the other project components on population levels are largely unquantifiable and NOAA Fisheries does not expect them to be measurable in the long term. In instances such as this, NOAA Fisheries designates the expected level of take in terms of the extent of take allowed. The extent of authorized take is limited to SONC coho salmon in the Rogue River and is limited to that caused by the proposed action within the action area, *i.e.*, 500 feet upstream of the project sites on the Rogue River, and downstream one mile below the lowest segment of the project.

2.2.2 Reasonable and Prudent Measures

The measures described below are non-discretionary. They must be implemented so that they become binding conditions in order for the exemption in section 7(a)(2) to apply. The Corps has the continuing duty to regulate the activities covered in this incidental take statement. If the Corps fails to require the contractor to adhere to the terms and conditions of the incidental take statement through enforceable terms added to the document authorizing this action, or fails to retain the oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(a)(2) may lapse.

NOAA Fisheries believes that the following reasonable and prudent measures are necessary and appropriate to minimize take of the above species. The Corps shall:

1. Minimize the likelihood of incidental take from temporary access roads, use of heavy equipment, earthwork, streambank alteration, site restoration, or that may otherwise

involve in-water work or affect fish passage by directing the contractor to avoid or minimize disturbance to riparian and aquatic systems.

2. Minimize the likelihood of incidental take from in-water work activities by ensuring that the in-water work activities are isolated from flowing water as necessary.

3. Complete a comprehensive monitoring and reporting program to ensure implementation of these conservation measures are effective in minimizing the likelihood of take from permitted activities.

2.2.3 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, Corps must comply with the following terms and conditions, which implement the reasonable and prudent measures described above for each category of activity.

1. To implement reasonable and prudent measure #1 (temporary bridge construction, streambank alteration, temporary access roads, use of heavy equipment, earthwork, site restoration, or that may otherwise involve in-water work or affect fish passage), the Corps shall ensure that:

    a. Project design. Alteration or disturbance of the stream banks and existing riparian vegetation will be minimized.
    b. In-water work. All work within the active channel will be completed within the in-water work period of June 15 - August 31 for the site. NOAA Fisheries must concur, in writing, with any in-water work period extensions.
    c. Pollution and erosion control plan. A pollution and erosion control plan (PECP) will be developed for the project to prevent point-source pollution related to construction operations. The PECP will contain the pertinent elements listed below and meet requirements of all applicable laws and regulations.
        i. Measures will be taken to prevent erosion and sedimentation associated with access roads, construction sites, equipment and material storage sites, fueling operations and staging areas.
        ii. A description of the hazardous products or materials that will be used, including inventory, storage, handling, and monitoring.
        iii. A spill containment and control plan with notification procedures, specific clean up and disposal instructions for different products, quick response containment and clean up measures that will be available on site, proposed methods for disposal of spilled materials, and employee training for spill containment.
        iv. Measures will be taken to prevent construction debris from falling into any aquatic habitat. Any material that falls into a stream during construction operations will be removed in a manner that has a minimum impact on the streambed and water quality.

d. Pre-construction activities. Prior to significant alteration of the action area, the following actions will be accomplished:
   i. Boundaries of the clearing limits associated with site access and construction are flagged to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.
   ii. A supply of erosion control materials (*e.g.*, silt fence, straw bales) is on hand to respond to sediment emergencies. Sterile straw or hay bales will be used when available to prevent introduction of weeds.
   iii. All temporary erosion controls (*e.g.*, straw bales, silt fences) are in place and appropriately installed downslope of project activities within the riparian area. Effective erosion control measures will be in place at all times during the contract, and will remain and be maintained until such time that permanent erosion control measures are effective.

e. Earthwork. Earthwork, including drilling, blasting, excavation, dredging, filling and compacting, is completed in the following manner:
   i. Boulders, rock, woody materials and other natural construction materials used for the project must be obtained from outside of the riparian area or as otherwise approved by NOAA Fisheries. For this area, cottonwood trees obtained on-site will be appropriate.
   ii. Material removed during excavation will only be placed in locations where it cannot enter streams or other waterbodies.
   iii. All exposed or disturbed areas will be stabilized to prevent erosion.
      (1) Areas of bare soil within 150 feet of waterways, wetlands or other sensitive areas will be stabilized by native seeding,[1] mulching, and placement of erosion control blankets and mats, if applicable, quickly as reasonable after exposure, but within seven days of exposure.
      (2) All other areas will be stabilized as quickly as reasonable, but within 14 days of exposure.
      (3) Seeding outside of the growing season will not be considered adequate for permanent stabilization.

f. Heavy Equipment. Heavy equipment will be fueled, maintained and stored as follows:
   i. Vehicle staging, maintenance, refueling, and fuel storage areas will be a minimum of 150 feet horizontal distance from any stream.
   ii. All vehicles operated within 150 feet of any stream or waterbody will be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected will be repaired before the vehicle resumes operation.
   iii. When not in use, vehicles will be stored in the vehicle staging area.

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

g. Site restoration. Site restoration and cleanup, including protection of bare earth by seeding, planting, mulching and fertilizing, will be done in the following manner:

i. Disturbed areas will be planted with native vegetation specific to the project vicinity or the region of the state where the project is located, and will comprise a diverse assemblage of woody and herbaceous species.

ii. No herbicide application will occur as part of this permitted action. Mechanical removal of undesired vegetation and root nodes is permitted.

iii. No surface application of fertilizer will be used within 50 feet of any stream channel as part of this permitted action.

iv. Plantings will achieve an 80% survival or 80% cover success after five years.

(1) If success standard has not been achieved after five years, the applicant will submit an alternative plan to NOAA Fisheries. The alternative plan will address temporal loss of function.

(2) Plant establishment monitoring will continue and monitoring reports will be submitted to NOAA Fisheries on an annual basis until site restoration success has been achieved.

2. To implement reasonable and prudent measure #2, the Corps shall ensure that the in-water work activities associated with bridge construction and streambank alteration are isolated from flowing water.

a. Isolation of in-water work area. If adult or juvenile fish are reasonably certan to be present, or if the work area is 300 feet upstream of spawning habitats, completely isolate the work area from the active flowing stream using inflatable bags, sandbags, sheet pilings, or similar materials, unless otherwise approved in writing by NOAA Fisheries.

b. If the fish salvaging aspect of this project requires the use of seine equipment to capture fish, it must be accomplished as follows:

i. Before and intermittently during pumping, attempts will be made to seine and release fish from the work isolation area as is prudent to minimize risk of injury.

ii. Seining will be conducted by, or under the supervision of a fishery biologist experienced in such efforts. Staff working with the seining operation must have the necessary knowledge, skills, and abilities to ensure the safe handling of all ESA-listed fish.

iii. ESA-listed fish must be handled with extreme care and kept in water to the maximum extent possible during seining and transfer procedures. The transfer of ESA-listed fish must be conducted using a sanctuary net that holds water during transfer, whenever appropriate, to prevent the added stress of an out-of-water transfer.

iv. Seined fish must be released as near as possible to capture sites.

v. The Corps shall ensure that the transfer of any ESA-listed fish to third parties other than NOAA Fisheries personnel receives prior approval from NOAA Fisheries.

vi. The Corps shall ensure that any other Federal, state, and local permits and authorizations necessary for the conduct of the seining activities will be obtained before project seining activity.

vii. The Corps must allow NOAA Fisheries or its designated representative to accompany field personnel during the seining activity, and allow such representative to inspect the seining records and facilities.

viii. A description of any seine and release effort will be included in a post-project report, including the name and address of the supervisory fishery biologist, methods used to isolate the work area and minimize disturbances to ESA-listed species, stream conditions before and following placement and removal of barriers, the means of fish removal, the number of fish removed by species, the condition of all fish released, and any incidence of observed injury or mortality.

c. If the fish salvaging aspect of this project requires the use of electrofishing equipment to capture fish, it must be accomplished as described in the NOAA Fisheries electrofishing guidelines[2].

d. The use of rock and riprap is avoided or minimized.

i. Rock will be individually placed in a way that produces an irregularly contoured face to provide velocity disruption.

ii. No end-dumping will be allowed.

e. Any instream large wood or riparian vegetation that is moved or altered during construction will stay on-site or be replaced with a functional equivalent.

f. Where feasible, the bankline will be revegetated using natural vegetation.

3. To implement reasonable and prudent measure #3 (monitoring and reporting), the Corps shall ensure that:

a. Within 120 days of completing the project, the Corps shall ensure submittal of a monitoring report to the Corps and to NOAA Fisheries describing the applicant's success meeting the permit conditions. This report will consist of the following information:

i. Project identification.

(1) Project name,

(2) starting and ending dates of work completed for this project,

(3) the Corps contact person.

[2] NMFS (National Marine Fisheries Service), *Backpack Electrofishing Guidelines* (December 1998) (http://www.nwr.noaa.gov/1salmon/salmesa/pubs/electrog.pdf).

ii. Isolation of in-water work area. All projects involving isolation of in-water work areas must include a report of any seine and release or other fish rescue and salvage activity including:
(1) The name and address of the supervisory fish biologist.
(2) Methods used to isolate the work area and minimize disturbances to fish species.
(3) Stream conditions before and following placement and removal of barriers.
(4) The means of fish removal.
(5) Number of fish removed, by species.
(6) Location and condition of all fish released.
(7) Any incidence of observed injury or mortality.

iii. Pollution and erosion control. A summary of all pollution and erosion control inspection reports, including descriptions of any failures experienced with erosion control measures, efforts made to correct them and a description of any accidental spills of hazardous materials.

iv. Site restoration. Documentation of the following conditions:
(1) Finished grade slopes and elevations.
(2) Log and rock structure elevations, orientation, and anchoring, if any.
(3) Planting composition and density.
(4) A plan to inspect and, if necessary, replace failed plantings and structures for a period of five years, including the compensatory mitigation site.

v. A narrative assessment of the effects of the project and compensatory mitigation on natural stream function.

vi. Photographic documentation of environmental conditions at the project site before, during and after project completion.
(1) Photographs will include general project location views and close-ups showing details of the project area and project, including pre- and post-construction.
(2) Each photograph will be labeled with the date, time, photo point, project name, the name of the photographer, and a comment describing the photograph's subject.
(3) Relevant habitat conditions include characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

b. On an annual basis, for five years after completing the project, the Corps shall ensure submittal of a monitoring report to NOAA Fisheries describing the Corps's success in meeting their fish passage and site restoration goals. This report will consist of the following information:

i. Project identification.
(1) Project name.

(2) Starting and ending dates of work completed for this project.
(3) Corps contact person.

ii. Site restoration. Documentation of the following conditions:
(1) Any changes in log and rock structure elevations, orientation, and anchoring.
(2) Any changes in planting composition and density.
(3) A plan to inspect and, if necessary, replace failed plantings and structures, including the compensatory mitigation site.

iii. A narrative assessment of the effects of the project and compensatory mitigation on natural stream function.

iv. Photographic documentation of environmental conditions at the project site after project completion as they relate to fish passage and site restorations goals as described above.
(1) Photographs will include general project location views and close-ups showing details of the project area and habitat features of the channel relocated reaches.
(2) Each photograph will be labeled with the date, time, photo point, project name, the name of the photographer, and a comment describing the photograph's subject.
(3) Relevant habitat conditions include characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, as they relate fish passage and site restorations goals.

c. Submit monitoring reports to:

NOAA Fisheries
Oregon Habitat Branch, Habitat Conservation Division
Attn: 2003/00416
525 NE Oregon Street, Suite 500
Portland, OR 97232-2778

d. If a dead, injured, or sick endangered or threatened species specimen is found, initial notification must be made to the NOAA Fisheries' Law Enforcement Office, Roseburg Field Office, 2900 Stewart Parkway, Roseburg, OR 97470; phone: 541.957.3388. Care will be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered and threatened species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

3. MAGNUSON-STEVENS ACT

3.1 Background

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

3.2 Magnuson-Stevens Fishery Conservation and Management Act

The 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 essential fish habitat: "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 reasons for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to

encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NOAA Fisheries is required by federal agencies undertaking, permitting or funding activity that may adversely affect EFH, regardless of its location.

3.3 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: Chinook (*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 proposed action is based on this information.

3.4 Proposed Action

The proposed action is detailed above in section 1.2 of this document. For the purposes of this consultation, the action area is defined as the streambed and streambank of the Rogue River, extending upstream to the project disturbance limits, and downstream one mile below the project disturbance limits. This area has been designated as EFH for various life stages of chinook salmon and coho salmon.

3.5 Effects of Proposed Action

As described in detail in section 2.1.5 of this document, the proposed activities may result in short-term adverse effects to water quality (sediment, chemical contamination, temperature). NOAA Fisheries expects short-term adverse effects from increases in turbidity, chemical contamination, and temperature within the action area.

3.6 Conclusion

The proposed action will adversely affect the EFH for chinook salmon and coho salmon.

3.7 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. The conservation measures proposed for the project by the Corps, and all of the reasonable and prudent measures and terms and conditions contained in sections 2.2.2 and 2.2.3,

respectively, are applicable to salmon EFH. Therefore, NOAA Fisheries incorporates each of those measures here as EFH recommendations.

3.8 Statutory Response Requirement

Please note that the MSA (section 305(b)) and 50 CFR 600.920(j) requires the federal agency to provide a written response to NOAA Fisheries after receiving EFH conservation recommendations within 30 days of its receipt of this letter. This response must include a description of measures proposed by the agency to avoid, minimize, mitigate or offset the adverse impacts of the activity on EFH. If the response is inconsistent with a conservation recommendation from NOAA Fisheries, the agency must explain its reasons for not following the recommendation.

3.9 Supplemental Consultation

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

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