



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
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April 23, 2002

Thomas F. Mueller  
Chief, Regulatory Branch  
Department of the Army  
Seattle District, Corps of Engineers  
P.O. Box 3755  
Seattle, Washington 98124-3755

Re: Biological Opinion for the Colockum Creek Bridge Replacement Project  
(NMFS No. WSB-01-413, USACOE reference #2000-00017)

Dear Mr. Mueller:

The attached document transmits the National Marine Fisheries Service's (NMFS) Biological Opinion (BO) on the proposed Colockum Creek Bridge Replacement Project in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 USC 1531). The U.S. Army Corps of Engineers (USACOE) had determined that the proposed action was not likely to adversely affect the Upper Columbia River (UCR) steelhead (*Oncorhynchus mykiss*) Evolutionarily Significant Unit (ESU). However, NMFS did not concur with the initial effect determination and formal consultation was initiated for this project on January 24, 2002.

This BO reflects formal consultation and an analysis of effects covering the UCR steelhead in Colockum Creek near Wenatchee, Washington. The BO is based on information provided in the biological assessment sent to NMFS by the USACOE on October 2, 2001 as well as subsequent information transmitted by telephone conversations and electronic mail. A complete administrative record of this consultation is on file at the Washington Habitat Branch Office.

NMFS concludes that the implementation of the proposed project is not likely to jeopardize the continued existence of UCR steelhead or result in the destruction or adverse modification of their critical habitat. Please note that the incidental take statement, which includes reasonable and prudent measures and terms and conditions, was designed to minimize take. If you have any questions, please contact Dale Bambrick of the Washington State Habitat Branch Office at (509) 992-8911.

Sincerely,

*Michael R. Couse*

D. Robert Lohn  
Regional Administrator



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

WSB-01-413

Colockum Creek Bridge Replacement Project  
Chelan County, Washington

Agency: US Army Corps of Engineers

Consultation Conducted By: National Marine Fisheries Service,  
Northwest Region

Approved: *for* *Michael R. Couse*  
D. Robert Lohn  
Regional Administrator

Date: 04/23/2002

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## 1.0 INTRODUCTION

### 1.1 Background and Consultation History

On October 2, 2001, the National Marine Fisheries Service (NMFS) received a Biological Assessment (BA) and a request for Endangered Species Act (ESA) section 7 consultation from the United States Army Corps of Engineers (USACOE). Formal consultation was initiated on January 22, 2002. The proposed federal action is the issuance of a permit to Chelan County for the Colockum Creek Bridge Replacement Project. The BA and addendum described a proposal by Chelan County to replace the existing bridge with a new, higher capacity bridge that is designed to pass the 100-year flood event. The BA also described the construction of a temporary detour bridge.

The proposed project area occurs within the Upper Columbia River (UCR) steelhead (*Oncorhynchus mykiss*) Evolutionarily Significant Unit (ESU). Colockum Creek drains directly in to the Columbia River approximately 10 miles southeast of the city of Wenatchee. The USACOE had determined that the project “may affect” but is “not likely to adversely affect” UCR steelhead. After reviewing the BA, and acquiring additional information regarding UCR steelhead distribution in the Action Area, NMFS concluded that the project “may affect, and is likely to adversely affect” UCR steelhead.

The objective of this Biological Opinion (BO) is to determine whether the proposed project is likely to jeopardize the continued existence of UCR steelhead, or result in the destruction or adverse modification of their critical habitat. The standards for determining jeopardy are described in section 7(a)(2) of the ESA and further defined in 50 CFR Part 402.14. This BO is based on the information presented in the BA, the addendum to the BA, phone conversations, and electronic mail correspondence. This document also presents NMFS’ consultation covering Essential Fish Habitat (EFH) under the Magnuson-Stevens Fishery Conservation and Management Act (MSA).

### 1.2 Description of the Proposed Action

The USACOE proposes to issue a permit to Chelan County that would allow the county to replace the existing bridge that crosses Colockum Creek at milepost 5.44 of the Colockum road (SE 1/4 Section 23, Township 21 North, Range 21 East). The existing wooden bridge was constructed in 1960. Chelan County placed weight restrictions on the bridge in 1995 for structural integrity reasons.

The new bridge would be 36 feet long, 28.5 feet wide, and would consist of a precast concrete deck set on concrete footings spaced to pass the 100-year flood event in the Colockum drainage. The proposed project is scheduled to begin in summer of 2002. All in-water work will be completed between July 1, 2002 and October 31, 2002.

A temporary detour bridge would be placed immediately upstream of the existing bridge to accommodate traffic during removal of the existing bridge and construction of the new bridge. Neither construction nor removal of the temporary bridge would require in-water work.

No concrete work would take place below the ordinary high water mark (OHWM). Additionally, concrete and concrete by-products would be behind sealed forms or other leak-proof containment systems.

The existing bridge and abutments will be dismantled and the bank slopes laid back to match the upstream and downstream bank. Removal of the existing bridge and the temporary bridge would be accomplished so that neither structure nor any associated material is allowed to enter the stream. All bridge components and materials removed from the project area shall be fully suspended above the stream to avoid damaging the stream course and adjacent shoreline zones.

The riparian vegetation within the footprint of the temporary bridge would be removed. This amounts to about 1600 square feet.

Disturbed areas on the project site would be restored by planting native riparian trees, shrubs, and grass. All disturbed areas would be hydro-seeded with native erosion control grasses. Erosion control blankets will be used on slopes of 2:1 or greater to ensure successful plant establishment. Planting and seeding would occur immediately after construction (i.e., before October 31).

Equipment fueling and maintenance would occur only in designated staging areas at least 50 meters from the stream channel.

### **1.3 Description of the Action Area**

The Action Area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02).

The Action Area includes Colockum Creek and the surrounding riparian vegetation starting at the footprint of the proposed temporary bridge. The precise downstream limit of the Action Area cannot be easily determined because the extent of the effects of the proposed action would vary according to flow stage. The Action Area also includes the adjacent riparian zone within the construction area and all areas affected by the project including the staging area and roadways.

## **2.0 ENDANGERED SPECIES ACT**

### **2.1 Biological Opinion**

#### **2.1.1 Status of the Species and Critical Habitat**

UCR steelhead were listed as an endangered species under the ESA on August 18, 1997 (62 Fed. Reg. 43937). Critical habitat for the UCR steelhead was designated on February 16, 2000 (65 Fed. Reg. 7764).

Range-wide factors for the decline of west coast steelhead stocks are primarily attributed to the destruction and modification of habitat, overutilization for recreational purposes, and natural and human-made factors (Busby et al. 1996). Forestry, agriculture, mining, and urbanization have degraded, simplified, and fragmented habitat. Water diversions for agriculture, flood control, domestic, and hydropower purposes (including the Columbia River Basin) have greatly reduced or eliminated historically accessible habitat. Studies estimate that during the last 200 years, the lower 48 states have lost approximately 53% of all wetlands and the majority of the rest are severely degraded (Gregory & Bisson 1997). Washington and Oregon's wetlands are estimated to have diminished by one-third, while California has experienced a 91% loss of its wetland habitat (NRC 1996).

Loss of habitat complexity has also contributed to range-wide decline of steelhead. In portions of some national forests in Washington, there has been a 58% reduction in large deep pools due to sedimentation and loss of pool-forming structures such as boulders and large wood (McIntosh et al. 1994). Sedimentation from land use activities is recognized as a primary cause of habitat degradation in the range of west coast steelhead (62 Fed. Reg. 43942; August 18, 1997).

UCR steelhead occupy the Columbia River Basin upstream from the confluence with the Yakima River, Washington, to the United States-Canada border. The geographic area occupied by this ESU forms part of the larger Columbia Basin Ecoregion (Omernik 1987). The climate in this area includes extremes in temperatures and precipitation, with most precipitation falling in the mountains as snow. Streamflow in this area is provided by melting snowpack, groundwater, and runoff from alpine glaciers.

The proposed action would occur within designated critical habitat for UCR steelhead. Defining specific river reaches that are critical for steelhead is difficult because of the low abundance of the species and our imperfect understanding of the species' freshwater distribution, both current and historical (65 Fed. Reg. 7764; February 16, 2000). The preferred approach for identifying critical habitat for steelhead is to designate all areas accessible to the species within the range of specified river basins in this ESU (65 Fed. Reg. 7764; February 16, 2000). Essential features of steelhead critical habitat include adequate substrate, water quality, water quantity, water temperature, water velocity, cover/shelter, food, riparian vegetation, space, and safe passage conditions. Good summaries of the environmental parameters and freshwater factors that have contributed to the decline of steelhead can be found in reviews by Pauley et al.

(1986), Busby et al. (1996), and Spence et al. (1996).

Estimates of historical (pre-1960s) steelhead abundance specific to this ESU are available from fish counts at dams. Counts at Rock Island Dam from 1933 to 1959 averaged 2,600 to 3,700, suggesting a pre-fishery run size in excess of 5,000 adults for tributaries above Rock Island Dam (Chapman et al. 1994). Recent average total escapement for this stock was 2,400 (62 Fed. Reg. 43949; August 18, 1997). Steelhead in the Upper Columbia River ESU continue to exhibit low abundances, both in absolute numbers and in relation to numbers of hatchery fish throughout the region. Review of the most recent data indicates that natural steelhead abundance has declined or remained low and relatively constant in the major river basins in this ESU (Wenatchee, Methow, Okanogan) since the early 1990s (Busby et al. 1996). Estimates of natural production of steelhead in the ESU are well below replacement (approximately 0.3:1 adult replacement ratios estimated in the Wenatchee and Entiat rivers) (62 Fed. Reg. 43949; August 18, 1997). These data indicate that natural steelhead populations in the UCR Basin are not self-sustaining at the present time. There is also anecdotal evidence that resident rainbow trout contribute to anadromous run abundance. This phenomenon would reduce estimates of the natural steelhead replacement ratio (62 Fed. Reg. 43949; August 18, 1997). The primary cause for concern for UCR steelhead is the extremely low estimate of adult replacement rate. The dramatic declines in natural run sizes and inability of naturally spawning steelhead adults to replace themselves suggest that if present trends continue, this ESU will not be viable (62 Fed. Reg. 43950; August 18, 1997).

Steelhead may spawn and are known to rear in Colockum Creek (Steele 2002). Steelhead juveniles range in the proposed Action Area. However, neither steelhead spawning or steelhead redds have been documented in the Action Area as high spring flows and turbidity preclude visual observation. Colockum Creek is thought to support both anadromous and resident forms of *O. mykiss*. Resident forms are usually called rainbow or redband trout. NMFS believes that resident fish can help buffer extinction risks to an anadromous population by mitigating compensatory effects in spawning populations, by providing offspring that migrate to the ocean and enter the breeding population of steelhead, and by providing a “reserve” gene pool in freshwater that may persist through times of unfavorable conditions for anadromous fish. A particular concern is isolation of resident populations by human-caused barriers to migration. This interrupts normal population dynamics and population genetic processes and can lead to loss of a genetically based trait (e.g., anadromy).

For the UCR steelhead ESU as a whole, NMFS estimates that the median population growth rate ( $\lambda$ ) over the base period ranges from 0.94 to 0.66, decreasing as the effectiveness of hatchery fish spawning in the wild increases compared to that of fish of wild origin (Tables B-2a and B-2b in McClure et al. 2000b). NMFS has also estimated the risk of absolute extinction for the aggregate UCR steelhead population, using the same range of assumptions about the relative effectiveness of hatchery fish. At the low end, assuming that hatchery fish spawning in the wild have not reproduced (i.e., hatchery effectiveness = 0), the risk of absolute extinction within 100 years is 0.25 (Table B-5 in McClure et al. 2000b). Assuming that the hatchery fish spawning in the wild have been as productive as wild-origin fish (hatchery effectiveness = 100%), the risk of

absolute extinction within 100 years is 1.00 (Table B-6 in McClure et al. 2000b). Because of data limitations, the QAR steelhead assessments in Cooney (2000) were limited to two aggregate spawning groups—the Wenatchee/Entiat composite and the above-Wells populations. Wild production of steelhead above Wells Dam was assumed to be limited to the Methow system. Assuming a relative effectiveness of hatchery spawners of 1.0, the risk of absolute extinction within 100 years for UCR steelhead is 100%. The QAR also assumed hatchery effectiveness values of 0.25 and 0.75. A hatchery effectiveness of 0.25 resulted in projected risks of extinction of 35% for the Wenatchee/Entiat and 28% for the Methow populations. At a hatchery effectiveness of 0.75, risks of 100% were projected for both populations.

### **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 consulting regulations). NMFS must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely

modify critical habitat. This analysis involves the initial steps of (1) defining the biological requirements and current status of the listed species, and (2) evaluating the relevance of the environmental baseline to the species' current status.

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

Furthermore, NMFS evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' designated critical habitat. NMFS must determine whether habitat modifications appreciably diminish the value of critical habitat for both the survival and recovery of the listed species. NMFS identifies those effects of the action that impair the function of any essential element of critical habitat. NMFS then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NMFS concludes that the action will adversely modify critical 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 (NMFS 1999).

For the proposed action, NMFS' jeopardy analysis considers the extent of actual injury or death of fish attributable to habitat modifying actions. NMFS' critical habitat analysis considers the

extent to which the proposed action impairs the function of essential elements necessary for migration and spawning of the listed salmon under the existing environmental baseline.

### **2.1.3 Biological Requirements**

The first step in the methods NMFS 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. NMFS also considers the current status of the listed species; taking into account population size, trends, distribution, and genetic diversity. To assess the current status of the listed species, NMFS starts with the determinations made in its 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. The biological requirements for UCR steelhead include food (energy) source, flow regime, water quality, habitat structure, passage conditions (migratory access to and from potential spawning and rearing areas), and biotic interactions (Spence et al. 1996).

The NMFS has related the biological requirements for listed salmonids to a number of habitat attributes, or pathways, in the Matrix of Pathways and Indicators (MPI). These pathways (Water Quality, Habitat Access, Habitat Elements, Channel Condition and Dynamics, Flow/Hydrology, Watershed Conditions, Disturbance History, and Riparian Reserves) indirectly measure the baseline biological health of listed salmon populations through the health of their habitat. Specifically, each pathway is made up of a series of individual indicators (e.g., indicators for Water Quality include Temperature, Sediment, and Chemical Contamination) that are measured or described directly (see NMFS 1996). Based on measurement or description, each indicator is classified within a category of the properly functioning condition (PFC) framework: (1) properly functioning, (2) at risk, or (3) not properly functioning. Properly functioning condition is defined as "the sustained presence of natural habitat forming processes in a watershed that are necessary for the long-term survival of the species through the full range of environmental variation."

### **2.1.4 Environmental Baseline**

The environmental baseline represents the current basal set of conditions to which the effects of the proposed action would be added. The term "environmental baseline" means "the past and present impacts of all Federal, state, or 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 early section 7 consultation, and the impact of state or private actions which are contemporaneous with the consultation in process" (50 CFR 402.02). The term "Action

Area” means “all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action” (50 CFR 402.14(h)(2)). The Action Area includes Colockum Creek and the surrounding riparian vegetation starting at the footprint of the proposed temporary bridge. The precise downstream limit of the Action Area cannot be easily determined because the extent of the effects of the proposed action would vary according to flow stage.

The headwaters of Colockum Creek lie in the upper reaches of Naneum Ridge. Colockum Creek flows in an easterly direction for approximately 12 miles before entering the Columbia River (RM 450.0) fifteen miles downstream of the Wenatchee River confluence (Andonaegui 2001). Elevation ranges from 5600 feet along Naneum Ridge to 650 feet at the mouth. The first 7.5 miles of stream flows through private land ownership and the remainder of the watershed is mostly public land. Colockum Road parallels the stream channel for the first 6 miles (Andonaegui 2001).

The climate of the Colockum Creek area is predominantly dry and is characterized by wide seasonal variations in temperature, as well as geographical differences in precipitation. Average annual precipitation is relatively low with precipitation rapidly decreasing with declining elevation (Andonaegui 2001). Perennial stream channels are limited in this watershed and intermittent flows are common.

There is no published information available on habitat conditions or land use effects on aquatic habitat in the Colockum Creek watershed (Andonaegui 2001). There were no culvert fish passage barriers identified in the Harza (2000) fish passage barrier inventory, however irrigation diversion structures in the drainage may hinder or block fish passage at some flows (Steele 2002).

The lack of quantitative information on habitat conditions in Colockum Creek makes MPI analysis difficult. However, the available information suggests that most indicators are functioning at risk (though most are classified as properly functioning in the BA). At the water quality pathway, each indicator should be considered to be *functioning at risk* because of past forest practice and over-appropriation of water rights (Andonaegui 2001). At the habitat access pathway, the physical barriers indicator is *functioning at risk* because of the irrigation diversion at river mile 1.0 that blocks fish passage at low flows. Essentially no data that pertains to the other pathways and indicators has been collected in the Colockum Creek drainage (Andonaegui 2001). For the purposes of this consultation, all other indicators are considered to be *functioning at risk*.

Based on the best available information, NMFS concludes that not all of the biological requirements of UCR steelhead are being met under the environmental baseline in this watershed. The status of the species is such that there must be substantial improvements in the environmental conditions to meet the requirements for long term survival and recovery of the species. Further degradation of these conditions could substantially reduce the likelihood of

survival and recovery of the species because of the amount of risk they already face under the current environmental baseline.

### **2.1.5 Effects of the Proposed Action**

The proposed bridge replacement, temporary bridge construction and removal, and all related construction activities are likely to adversely affect UCR steelhead. NMFS' 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" (50 CFR 402.02). "Indirect effects" are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur.

#### **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 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 and NMFS 1998).

##### **2.1.5.1.1 Turbidity**

Removal of the existing bridge footings, installation of new footings, and other activities associated with this project would mobilize sediments and temporarily increase downstream turbidity levels. In the immediate vicinity of the construction activities (several hundred feet), the level of turbidity would likely exceed ambient levels by a substantial margin and potentially affect UCR steelhead.

For salmonids, turbidity has been linked to a number of behavioral and physiological responses (e.g., gill flaring, coughing, avoidance, increase in blood sugar levels) which indicate some level of stress (Bisson and Bilby 1982, Sigler et al. 1984, Berg and Northcote 1985, Servizi and Martens 1987). The magnitude of the stress responses is generally higher when turbidity is increased and particle size is decreased (Bisson and Bilby 1982, Servizi and Martens 1987, Gregory and Northcote 1993). Although turbidity may cause stress, Gregory and Northcote (1993) have shown that moderate levels of turbidity accelerate foraging rates among juvenile chinook salmon, likely because of reduced vulnerability to predators due to camouflaging.

When the particles causing turbidity settle out of the water column, they contribute to sediment on the riverbed (sedimentation). When sedimentation occurs, salmonids may be negatively impacted in the following ways: (1) salmonid eggs may be buried and suffocated; (2) prey habitat may be displaced; and (3) future spawning habitat may be displaced (Spence et al. 1996).

The proposed bridge replacement project would cause elevated turbidity levels during the construction period and for several days afterwards. However, the effects of this turbidity on UCR steelhead would be minimized by working completely in the dry and by the installation of a silt fence before construction begins. It is also expected that UCR steelhead present during the initial phases of construction would temporarily move to refuges where turbidity can be avoided, thus preventing injury or death. Additionally, the project work window will capitalize on a time of year when neither spawning fish nor redds are present.

NMFS expects that the turbidity and sedimentation caused by this action would be short lived, returning to baseline levels soon after construction is over. Furthermore, NMFS expects that long term impacts would not occur. Other than the short term impacts mentioned above, this project would not change or add to existing baseline turbidity or sedimentation levels within Colockum Creek.

#### **2.1.5.1.2 Streambed and Bank Disturbance**

The replacement of the bridge over Colockum Creek would disturb the existing substrate present in the river and require a small amount of bank disturbance. The primary mechanisms of disturbance would be the removal of the existing footings and the placement of several small boulders for additional instream cover. The direct effect to UCR steelhead is expected to be minor. Because of the project work window, UCR steelhead lifestages present in the action area include juvenile and young-of-the-year fish that should be able to evacuate the area when disturbance is initiated.

#### **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.

##### **2.1.5.2.1 Riparian and Fisheries Habitat**

The bridge replacement will result in minor loss of riparian function by the removal of some vegetation. The loss of vegetation may affect riparian habitat functions such as shading and organic matter inputs to the stream. However, the loss of riparian function should be minimal because of the small footprint of the project. Few, if any, large trees will need to be removed. Therefore, large woody debris recruitment is not expected to be reduced by the proposed project. Vegetation loss will be mitigated by seeding with native plant stock, riparian planting, and instream habitat structures that may enhance fish passage and provide additional cover for fish. The effects of these activities on UCR steelhead and aquatic habitat indicators will be limited by implementing construction methods and approaches included in the project design, and by following the terms and conditions in section 2.2.3 of this Opinion.

#### **2.1.5.2.2 Upstream Logging Activities**

The construction of a new bridge with design loads that handle logging trucks will make it possible to remove timber from areas that are currently out of reach due to the lack of adequate transportation facilities. NMFS is aware of only one timber sale that will occur within the Colockum drainage within the next several years. The timber sale will be a partial overstory removal on 241 acres of Washington Department of Natural Resources land (Hadden 2002). This project should have few, if any, impacts to UCR steelhead in Colockum Creek for several reasons. First, the scale of the harvest is relatively small. Further, the harvest will meet all of Washington state forest practices regulations. Finally, the proposed timber sale is several miles away from Colockum Creek.

#### **2.1.5.2.3 Construction Equipment**

As with all construction activities, accidental release of fuel, oil, and other contaminants may occur. These contaminants could injure or kill aquatic organisms if spilled into a water body or the adjacent riparian zone. However, all equipment fueling and maintenance would occur in designated staging areas at least 50 meters from the stream channel.

#### **2.1.5.3 Effects on Critical Habitat**

NMFS designates critical habitat for a listed species based upon physical and biological features that are essential to that species. Essential features of this critical habitat include substrate, water quality/quantity, water temperature, water velocity, cover/shelter, food, riparian vegetation, space, and safe passage conditions. (65 Fed. Reg. 7764). These requirements have been related to pathways and indicators within the MPI.

The direct and indirect effects discussed previously identify that the proposed action would modify critical habitat for UCR steelhead to a minor extent. The avenues in which critical habitat may be affected are disclosed in the MPI analysis; specifically, in the Water Quality, Habitat Elements, and Off-channel Habitat pathways. Within these pathways, the functional quality of most indicators will be maintained. The exceptions are the temporary effects of turbidity, sediment, and streambank condition which will briefly degrade their respective indicators. Relating these indicators back to essential habitat elements, the primary impact of this action will be a temporary decline in water quality and substrate conditions

#### **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 CFR 402.2). 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.

NMFS is not aware of any specific future non-federal activities within the action area that would cause greater effects to listed species than presently occur. NMFS assumes that future private and state actions will continue at similar intensities as in recent years. As the human population in the state continues to grow, demand for actions similar to the proposed project likely will continue to increase as well. Each subsequent action by itself may have only a small incremental effect, but taken together they may have a significant effect that would further degrade the watershed's environmental baseline and undermine the improvements in habitat conditions necessary for listed species to survive and recover.

### **2.1.7 Conclusion**

NMFS has reviewed the direct, indirect, and cumulative effects of the proposed action on UCR steelhead. NMFS also reviewed the effects of the proposed action on designated critical habitat. NMFS applied its evaluation methodology (NMFS 1996) to the proposed action and found that it would cause minor, short-term adverse effects to salmonid habitats due to in-water work and riparian vegetation removal. Direct mortality from this project is possible but will be limited in duration to the in-water work window of 2002. The proposed action is expected to maintain stream habitat conditions within the action area. Consequently, the proposed action covered in this Opinion is not likely to jeopardize the continued existence of UCR steelhead nor would the proposed project result in the destruction or adverse modification of designated critical habitat.

### **2.1.8 Reinitiation of Consultation**

This concludes formal consultation for the Colockum Creek Bridge Replacement Project. Consultation must be reinitiated if: (1) the amount or extent of taking specified in the Incidental Take Statement is exceeded, or is expected to be exceeded; (2) new information reveals effects of the action may affect listed species in a way not previously considered; (3) the action is modified in a way that causes an effect on listed species that was not previously considered; or (4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16). To reinitiate consultation, the USACOE should contact the Habitat Conservation Division (Washington Branch Office) of NMFS.

## **2.2 Incidental Take Statement**

Section 9 of the ESA and Federal regulations pursuant to section 4(d) of the ESA 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 CFR 217.12). "Harm" is further defined by the NMFS Final Rule to include significant habitat modification or degradation that results in death or injury to listed species by "significantly impairing essential behavioral patterns such as breeding, spawning, rearing, migrating, feeding, and sheltering" (50 CFR 222.102). "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 takings 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 the 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 Take Anticipated**

NMFS anticipates that incidental take of UCR steelhead is reasonably to result from the project activities described in the BA. Despite the use of the best scientific and commercial data available, NMFS cannot estimate a specific amount of incidental take of individual fish. However, NMFS believes that there are several mechanisms through which take of UCR steelhead may occur. Direct harm or injury may result from installation and construction activities (e.g., sediment mobilization, boulder placement, loss of riparian habitat). Indirect harm, through long term habitat modification could occur if the impact minimizing criteria (i.e., BMPs) are disregarded.

### **2.2.2 Reasonable and Prudent Measures**

The following reasonable and prudent measures (RPMs) are necessary and appropriate to minimize take of UCR steelhead. These RPMs are partially integrated into the BA and proposed project. NMFS has included them here to provide further detail as to their implementation.

1. To minimize the amount and extent of incidental take from construction activities, measures shall be taken to limit the duration and extent of construction within the OHWM and to time such work that the impacts to UCR steelhead are minimized.
2. To minimize the amount and extent of incidental take from construction activities in or near the creek, effective erosion and pollution control measures shall be developed and implemented throughout the area of disturbance and for the life of the project. The measures shall minimize the movement of soils and sediment both into and within the creek, and stabilize bare soil over both the short term and long term.
3. To minimize the amount and extent of take from loss of instream habitat and to minimize impacts to critical habitat, measures shall be taken to minimize impacts to riparian and instream habitat, or where impacts are unavoidable, to replace or restore lost riparian and instream function.
4. To ensure effectiveness of implementation of the RPMs, all erosion control measures and plantings for site restoration shall be monitored and evaluated both during and following construction, and meet criteria as described below in the terms and conditions.

### 2.2.3 Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, the USACOE must ensure that Chelan County complies with the following terms and conditions, which implement the RPMs described above. Implementation of the terms and conditions within this Opinion will further reduce the risk of impacts to UCR steelhead and their critical habitat. These terms and conditions are non-discretionary.

1. To implement RPM No. 1 (construction within the OHWM) above, the USACOE shall ensure that:
  - 1.1 Passage shall be maintained for both adult and juvenile forms of UCR steelhead throughout the construction period.
  - 1.2 All work within the active channel of Colockum Creek will be completed between July 1st and October 31st. Any additional extensions of the in-water work period will first be approved by, and coordinated with, NMFS and WDFW.
  - 1.3 Alteration or disturbance of stream banks and existing riparian vegetation will be minimized.
  - 1.4 Any water diversions or withdrawals done for the purpose of supplying water for construction or for riparian plantings will comply with all state and federal laws, particularly those that require a temporary water right and fish screening of intakes. The USACOE shall be responsible for informing all contractors of their obligations to comply with existing, applicable statutes.
2. To implement RPM No. 2.2.2.2 (construction activities), the USACOE shall ensure that all erosion and pollution control measures included in the BA are included as special provisions in the contract. NMFS requires the USACOE to pay particular attention to preparation of an erosion control plan (ECP) as follows: An ECP will be prepared by the USACOE, Chelan County, or the Contractor and implemented by the Contractor. The ECP will outline how and to what specifications various erosion control devices will be installed to meet water quality standards, and will provide a specific inspection protocol and time response. Erosion control measures shall be sufficient to ensure compliance with applicable water quality standards and this Opinion. The ECP shall be maintained on site and shall be available for review upon request.
  - 2.1 Effective erosion control measures shall be in-place at all times during the contract. Construction within the project vicinity will not begin until all temporary erosion controls (e.g., sediment barriers and containment curtains) are in place. Erosion control structures will be maintained throughout the life of the contract.

2.2 All exposed areas will be replanted with a native seed mix. Erosion control planting will be completed on all areas of bare soil before October 31.

2.3 All equipment used for in-water work will be cleaned prior to entering the active channel of Colockum Creek. External oil and grease will be removed. Untreated wash and rinse water will not be discharged into streams and rivers without adequate treatment.

2.4 Material removed during excavation shall only be placed in locations upland, at least 50 feet from the active channel.

2.5 Measures will be taken to prevent construction debris from falling into the stream or riparian area. 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.

2.6 Project actions will follow all provisions of the Clean Water Act (40 CFR Subchapter D).

2.7 The Contractor will develop an adequate, site-specific Spill Prevention and Countermeasure or Pollution Control Plan (PCP), and is responsible for containment and removal of any toxicants released. The Contractor will be monitored by the USACOE (through Chelan County) to ensure compliance with this PCP.

2.8 Areas for fuel storage, refueling, and servicing of construction equipment and vehicles will be at least 50 meters from the stream channel and all machinery fueling and maintenance will occur within a contained area. Overnight storage of vehicles and equipment must also occur in designated staging areas.

2.9 No surface application of nitrogen fertilizer will be used within 50 feet of any water of the state of Washington.

3. To implement RPM No. 3 (riparian habitat protection), the USACOE shall ensure that:

3.1 Alteration of native vegetation will be minimized. Where native vegetation will be altered, measures shall be taken to ensure that roots are left intact. This will reduce erosion while still allowing room to work. No protection will be made of invasive exotic species (e.g., Himalayan blackberry), although no chemical treatment of invasive species will be used.

3.2 Except within the footprint of the new bridge, riparian vegetation removed will be replaced with a native seed mix, shrubs, and trees. Replacement will occur within the project vicinity.

4. To implement RPM No. 4 (monitoring), the USACOE shall ensure that:

4.1 Erosion control measures as described above in RPM # 2 shall be monitored.

4.2 All significant riparian plantings will be monitored to ensure that finished grade slopes are at stable angles of repose and plantings are performing correctly with an adequate success rate.

4.3 Failed plantings will be replaced for a period of three years, if replacement would potentially succeed. If failed plantings would not succeed, plantings at other appropriate locations will be done.

4.4 By December 31 of the year following the completion of construction, the USACOE shall submit to NMFS (Washington Branch) a monitoring report with the results of the monitoring required in terms and conditions 4(a) to 4(c) above.

### **3.0 MAGNUSON-STEVENSON 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 NMFS on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH (§305(b)(2));
- NMFS 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 NMFS 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 NMFS 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 CFR 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 CFR 600.810).

EFH consultation with NMFS 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 Sections 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 Actions**

As described in detail in Section 2.1.4 of this document, the proposed action may result in detrimental short- and long-term impacts to a variety of habitat parameters. These adverse effects are:

3.4.1 Short term degradation of water quality in the action area due to an increase in turbidity during in-water construction.

3.4.2 Short term degradation of habitat due to removal of riparian trees and vegetation.

### **3.5 Conclusion**

NMFS believes that the proposed actions may adversely affect EFH for chinook and coho salmon.

### **3.6 EFH Conservation Recommendations**

Pursuant to Section 305(b)(4)(A) of the MSA, NMFS is required to provide EFH conservation recommendations to Federal agencies regarding actions which may adversely affect EFH. While NMFS understands that the conservation measures described in the Biological Assessment will be implemented by the USACOE, it does not believe that these measures are sufficient to address the adverse impacts to EFH described above. However, the Terms and Conditions outlined in Section 2.2.3 of this document are generally applicable to designated EFH for chinook and coho salmon and address these adverse effects. Consequently, NMFS recommends that they be adopted as EFH conservation measures.

### **3.7 Statutory Response Requirement**

Since NMFS is not providing conservation recommendations at this time, no 30-day response from the USACOE is required (MSA §305(b)(4)(B)).

### **3.8 Supplemental Consultation**

The USACOE must reinitiate EFH consultation with NMFS 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 NMFS' EFH conservation recommendations (50 CFR 600.920(k)).

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